State of Facilities in Higher Education

Facilities Insights into the Growing Storm over Higher Education

GORDIAN®

7th Edition

Table of Contents

Foreword

As this document is being published, the full gravity of the COVID-19 pandemic is coming to bear on North America, as it has on most of the world. In few places are the effects more visible than our higher education campuses, which now sit largely devoid of students. While this document cannot provide insight into the the rapidly developing COVID-19 outbreak, the current events unfolding on our campuses only underscore the fundamental importance of issues highlighted here. Foundational structural vulnerabilities in how colleges and universities are built will be made more pronounced by the unprecedented decrease in campus occupancy, changes in teaching methodology and the resulting financial challenges. Indeed, these challenges will accelerate the arrival of the storm alluded to in this report's title.

The recommendations made in the second half of this document, particularly those listed under Strategy 4, now seem more poignant and compelling than ever. With schools now utilizing online learning by necessity for the remainder of the 2020 Spring semester, there are opportunities to explore creative facility utilization strategies in real time. We hope this document will provide direction for those opportunities, as you continue to serve your institutional mission now and into the future.

Introduction

While preparing to develop this 7th Edition of our State of Facilities report, we were confronted with some familiar questions. Will people talk honestly about the challenges that college and university facilities represent for an increasing number of institutional leaders? What ideas are being tested that might help overcome the challenges presented by the raw data? Whose voice might bring new insight into the story that our data is telling?

In our 2018 report, we drew attention to the "shaky foundation" for higher education caused by a growing disconnect between facilities — both existing and in the pipeline — and the resources available to sustain them. Facilities are strategically critical, but the fact remains that new buildings on a college or university campus are often functioning as negative yielding assets. Their lifetime capital costs, expanded programmatic costs, and annual operating costs must be offset by some combination of increased tuition revenue, research grant funding, endowment support or other sources of revenue.

This year, we collaborated with Bryan Harvey, former Associate Chancellor and Chief Planning Officer at the University of Massachusetts Amherst, to further explore the impacts of demographic trends, highlighted most notably by Nathan Grawe in his book, "Demographics and the Demand for Higher Education," published January 1, 2018.

Colleges and universities today face a future inconsistent with continued expansion. The arms race in facilities has gotten too far in front of reasonable expectations for revenues to support it, especially revenues from enrollment. The combination of swollen campus footprints and stressed tuition revenues is endangering many institutions' aspirations of avoiding risk, serving their campus's mission to the fullest and educating students for the foreseeable future. The state of facilities in higher education is now an indicator of the overall health of an institution and its readiness to move into the next decade and beyond. Our hope is that institutional leadership will increasingly embrace the idea that effective stewardship of their existing facilities can also progress their strategic ambitions as they confront the shifting paradigm underway in higher education.

Executive Summary

The stewardship of campus facilities today is the work of all parties with fiduciary responsibilities on campus. The role of facilities in higher education is growing more sophisticated, meaning that more thoughtful and data-driven methods are needed to keep facilities organizations connected and responsive to campus leadership. But the challenges facing campuses also continue to grow more complex. In this year's report, we discuss how existing and emerging threats place facilities strategies at the leading edge of higher education's race to confront perhaps its greatest challenge in generations.

As the landscape shifts beneath higher education, some long familiar and newly emerging trends are converging to present unprecedented facilities challenges to institutions of all types. Our database affirms three current trends that will present significant challenges to higher education institutions:

1. **A Growing Facilities Needs Backlog –** Backlogs are reaching critical levels and continue to draw on institutional resources that should be employed elsewhere for enhancing educational and research success.
2. **Compounding Waves of Lifecycle Needs –** The timing of these waves will bring new and expanding facilities demands from relatively recent construction surges. These will compound with existing challenges in operational demand and facilities needs backlogs
3. **Fewer Students and Less Revenue –** Demographic changes will make it harder to secure resources and address the expanding expenses named above. The risk is high for a downward spiral as diminished physical resources draw needed investment dollars away from program activity, which can reduce student or researcher interest in a given school moving forward.

Building investments have a very long tail. We continue to experience the fallout of decisions made years ago as well as see the implications of those made more recently. As more buildings perform as negative yielding assets, frank and comprehensive planning choices are needed.

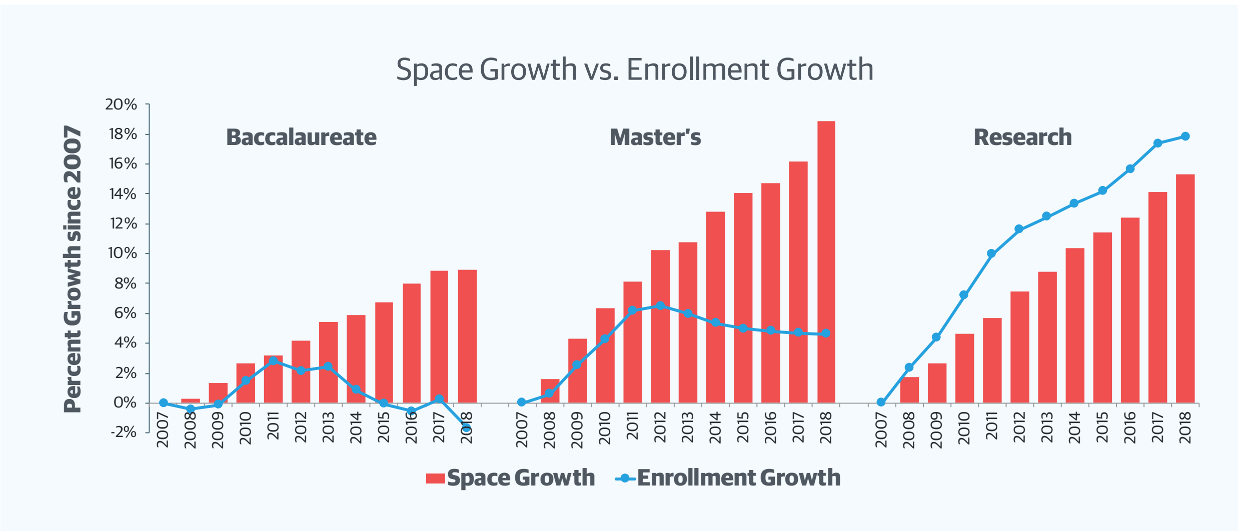
While sobering, these narratives are not likely predictors of higher education's extinction. But they represent potential existential challenges for schools unprepared to confront them. Only the rarest of schools will be able to defer decision making through greater spending of existing wealth. And even the schools with the greatest growth today need only look to those that were comfortable a decade or two ago to know that tides change. Creating a plan now will prevent future distress.

Therefore, it is essential that schools of every stripe create forward-looking strategies in four key areas:

1. **Actionable Institutional Planning –** Make plans and lists that can be acted upon. Otherwise, planning is a loss of time and resources.
2. **Aligning Current and Future Priorities –** Align long term strategy with short term reality by addressing current risks in facilities that are key to achieving future priorities.
3. **Transparent Communication –** Gather and share information with key community stakeholders so they can contribute to planning discussions and be more receptive to the decisions of institutional leaders.
4. **Controlling and Optimizing Facilities Expenditures –** Historical reductions of facilities funding has exacerbated the problem. Fundamental questions about overall investment in facilities must be confronted, including the reduction or removal of physical assets.

Part One – The Clouds Gathering Over Higher Education Facilities

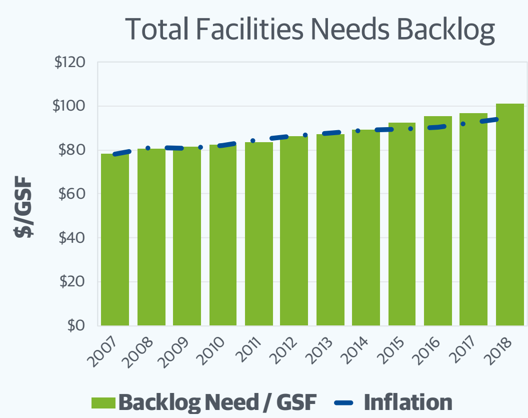
For much of the recent past, expanding enrollments and intense competition for students drove an unprecedented building boom on American campuses. In the decade since the Great Recession expansion has ranged from 8.5% to 19%, depending on institution type. Much of this, of course, was desperately needed to replace or renew aging infrastructure and to keep pace with programmatic changes and rising student expectations. But that surge in facilities expansion has — somewhat inexplicably — continued even as the sands have shifted under higher education at all levels.

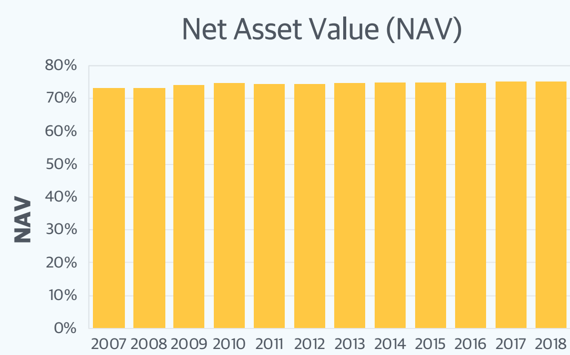


The ground beneath higher education's feet has been shifting for some time, and three particular trends reveal why facilities expansion strategies that may once have made sense should be reevaluated.

Trend 1. A Growing Facilities Needs Backlog

Our tracking and reporting continue to confirm a growing facilities needs backlog, up nearly 30% over the last decade. Having reached a threshold of $100 per square foot across the Gordian database, this backlog presents a real threat to the health of institutions.

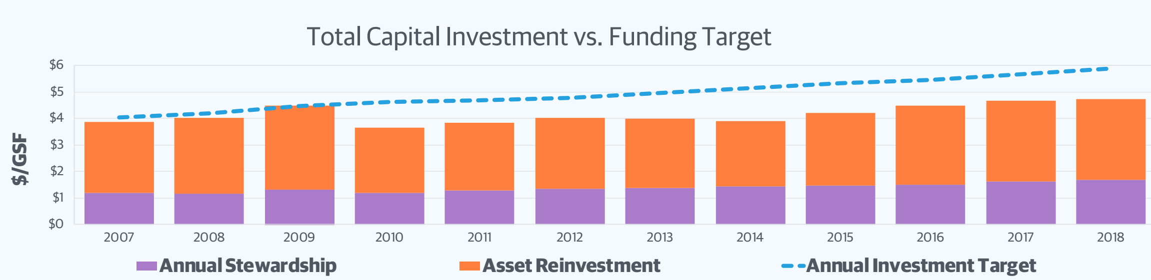




A large backlog on a campus represents that campus's presumption that improving fundamentals (enrollment, state funding, grants or other sources of capital) will become available and allow them to "catch – up". Whether or not additional future funding ever manifests, a large backlog embodies risks to spaces crucial to student or research success. The problem is not just in the future; it is with us today as important assets degrade.

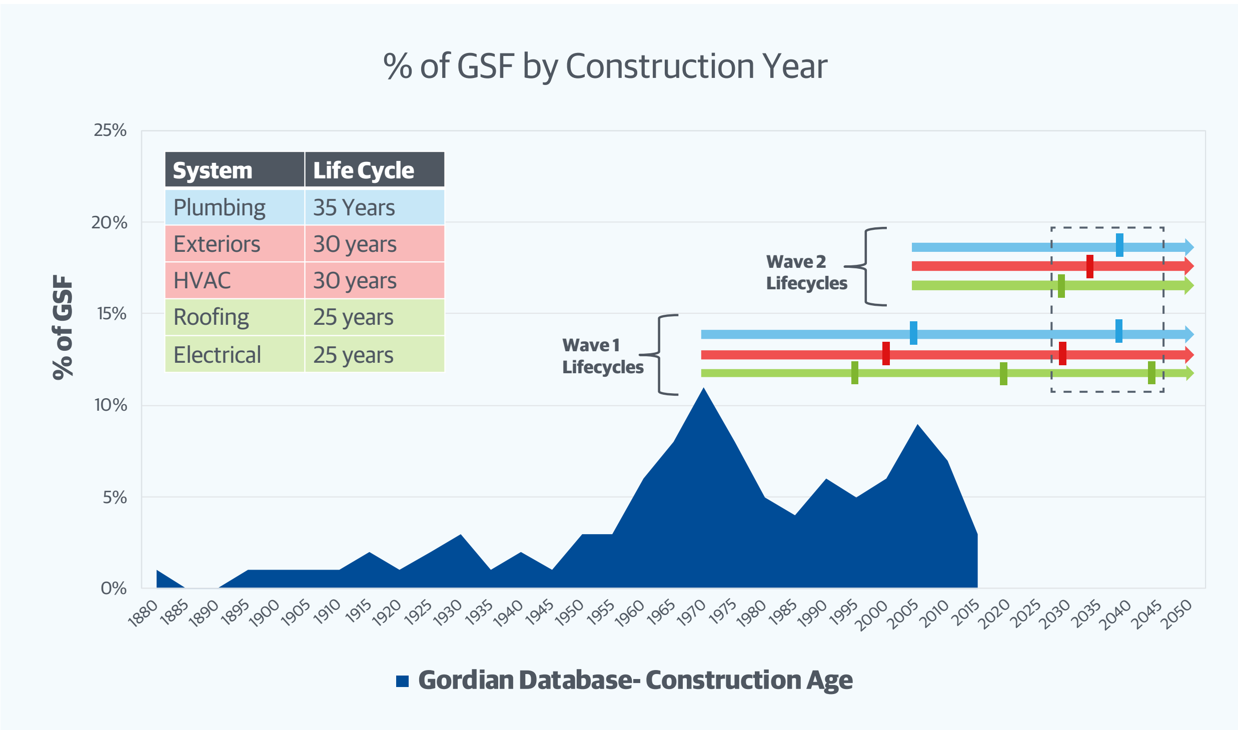
Although there has been much discussion around backlog elimination in higher education, our database indicates that progress on this front has been neither significant nor widespread. Elimination of the backlog no longer appears realistic.

In all but one year over the last eleven, budgeted dollars to steward and reinvest in existing facilities has fallen short of the minimum target investment level, approaching a 20% shortfall in 2018. Funding below the target level guarantees that some demands of the campus are being deferred to a future year. Systems operating under these conditions are surely operating sub-optimally and are more likely to fail. That may mean inefficient mechanical systems, leaky roofs, or drab interiors that present poorly to incoming students or potential hires and place student learning and research efforts at risk.



Trend 2. Compounding Waves of Lifecycle Needs

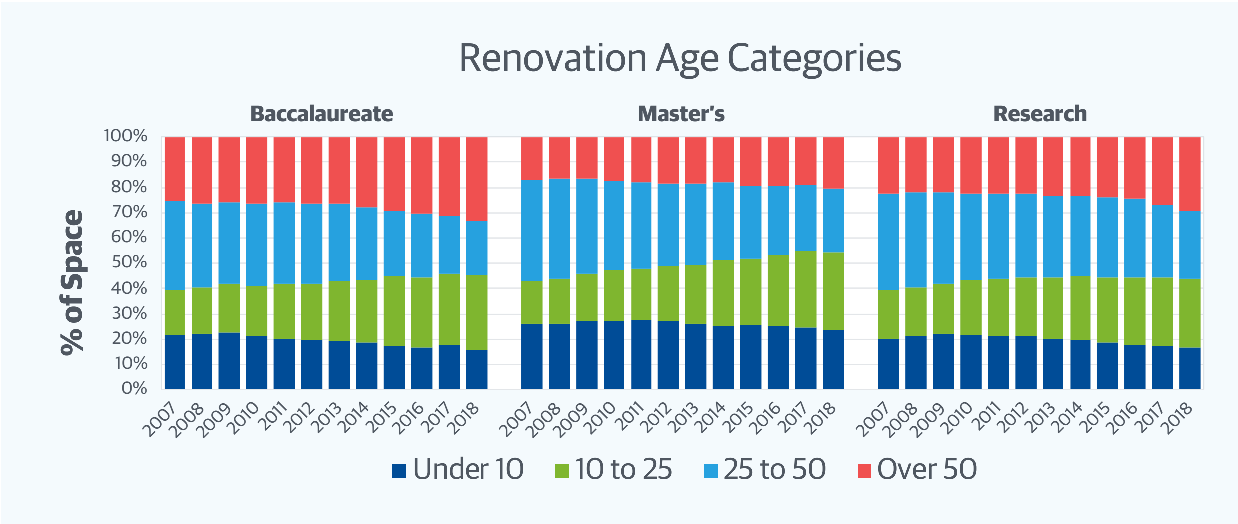
Decisions made decades ago will soon produce a sharp uptick in the need for facilities reinvestment, requiring institutions to run even faster just to stay in place. This issue begins and ends with the properties themselves and their construction history. The construction age of buildings across the database reveals that the two greatest historical surges of construction are producing equipment and system life cycles that will overlap in about ten years.



While some renovation work has been done, too many campus stewards are confronting buildings from the first wave (which peaked in 1970) that have yet to undergo significant renovation and have become a significant liability to both academic programs and maintenance protocols. At the same time, that recent second wave (which peaked in 2005) of buildings is approaching or confronting its first major round of lifecycle investments. The first wave has contributed greatly to the current, mounting maintenance backlog. Layering the second wave on top of it will place huge pressure on institutional resources.

Those two waves of life cycle investment coming due in the next decade are seen in a different way here. The colored bars depict buildings by age as a percentage of the total holdings of space on campuses. The expanding gold and black bars illustrate dual demands spanning all of higher education: protect the value of the relatively recent construction (10-25 years old) and confront the future for the oldest assets (50+ years old).

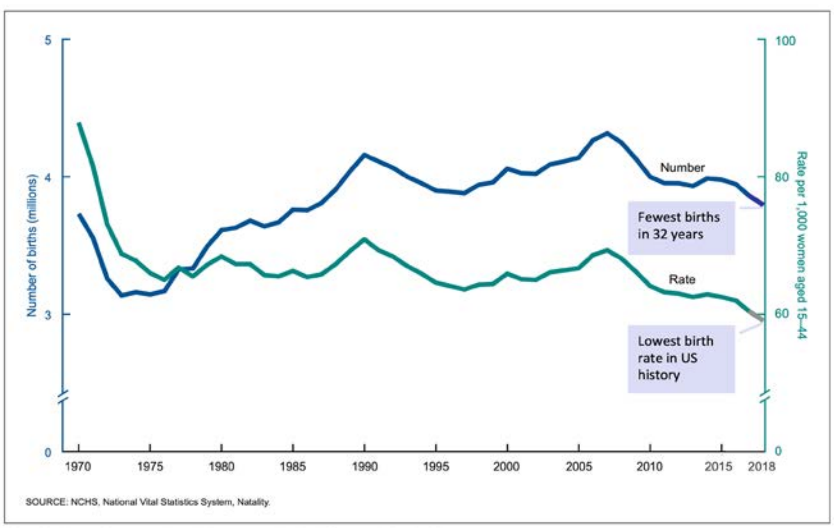
This overall trend shows that buildings already constructed will impose significant burdens going forward. That this new burden comes at a time when stewardship is already falling behind should cause great concern.



Trend 3. Fewer Students and Less Revenue

The first two trends primarily affect the expenditure side of the ledger. All other things being equal, they would argue for ramping up institutional expenditures for maintaining and renewing facilities.

But all things are not equal. For some time it has been known that US birthrates declined in the wake of the Great Recession, raising the prospect of fewer young people moving through the educational system. The latest evidence indicates clearly that the trend is not only continuing but accelerating. A substantial reduction in college-going high school graduates is now only a few years away.



Live births and general fertility rates: United States, 1970–2017

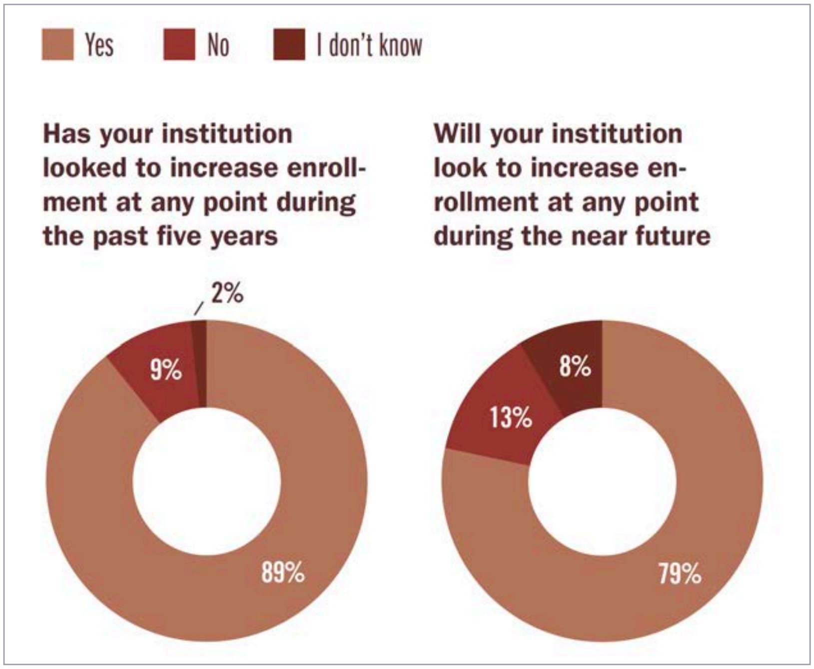
Adapted from Martin JA, Hamilton BE, Osterman MJK, Driscoll AK, Drake P. Births: Final data for 2017. National Vital Statistics Reports; vol 67 no 8. Hyattsville, MD: National Center for Health Statistics. 2018.

The sharp decline in American birthrate at the onset of the great recession in and of itself was not unusual. But the most recent case was unique in modern history. The birthrate fell, then fell again and continued to fall even after the economic recovery settled in.

A decade later, the birthrate was still falling. In fact, according to the CDC, in 2018 the nation experienced a historic low in fertility rate and the lowest number of births in 32 years. The past ten years have seen the longest period of decline in fertility since the end of the Baby Boom.

Something fundamental has changed in American society. As economist Nathan Grawe put it, "the Great Recession did not simply delay births — it eliminated them." Few observers see evidence that this trend will reverse anytime soon.

The implications of a sustained decline in births are enormous for higher education. By 2026, the number of traditional college-aged students will fall sharply and quickly. Even if the birthrate decline reversed next year, the contraction in college-aged students commencing in 2026 would continue for at least the following decade. The already intense competition for students will reach unprecedented levels.



Adapted from The Chronicle of Higher Education. *Looming Enrollment Crisis*. 2019.

One likely result of this trend is a reduction of institutional revenues. Student revenues represent the largest source of general fund dollars, and reliance on student revenue is increasing, especially in the public sector. Any threat to enrollment is therefore a threat to the resources available to keep institutions competitive. Resources devoted to facilities, already under stress, would be particularly vulnerable. School leaders agree. In the fall of 2019, The Chronicle of Higher Education reported in their Fall 2019 publication, "The Looming Enrollment Crisis," that 79% of survey respondents are looking to grow enrollment "in the near future." The data would indicate that simply isn't possible.

In his thoughtful and provocative analysis of this trend, Grawe observes that the challenge is not simply an impending reduction in 18-year-olds. Differential college participation rates — reflected in factors such as race and ethnicity, family income, and parental education — indicate that the number of college-going high school graduates is likely to contract even more than the number of 18-year-olds.

As Grawe states, the demographic changes vary greatly by geography: in most of the eastern two-thirds of the country — including areas with some of the densest concentrations of colleges and universities — the contraction will be most acute, reaching as high as 25% for all but the most selective institutions. And, given the limitations on how far students are willing to travel to attend college, making up for lost local students by recruiting further afield will provide at best only limited relief.

What Does It All Mean?

These three trends — already largely "baked into the cake" — will soon be coming together in ways that will demand extraordinary skill and nimbleness in crafting realistic institutional and facilities strategies. The combined effect of these trends creates a concerning storm:

- Aging facilities will drive up costs.
- Reductions in enrollment and revenue will make it harder to make necessary facilities investments.
- Facilities deficiencies will make it harder to compete.

We must also recognize the long duration of these pressures. Demographic decline will begin in 2026 and extend as far as we can see. We are already falling behind in maintaining and improving facilities, and the headwind will only become stronger through at least 2050 (based on existing lifecycles).

While these changes will affect the entire higher education enterprise, the implications for facilities strategies are especially clear. Facilities practices that were sustainable with demographic tail winds must be reexamined. Adventurous forays into new programs with the hope of recruiting new students will now be riskier still if they require significant capital investment. Financing new construction through debt that counts on stable or increasing participation rates will be even harder to justify than before. Underutilized spaces will prove very difficult to support, both financially and politically. Inefficient maintenance practices will be challenged more aggressively than ever for drawing resources away from the core educational business. Ultimately even the use of high-quality building materials and outstanding design may be questioned.

These are sobering potentials, but higher education is not facing extinction. The outcomes for different institutions will likely vary dramatically. As Grawe emphasizes, institutions of certain kinds and in certain places may experience growth in applicants, even as others confront substantial loss. There will be winners and losers, even in the most stressed parts of the country. Institutions that fail to chart a clear and disciplined course — waiting to react in the moment — will find their options narrow and their better-prepared competitors far ahead. The key is taking action now, before the storm hits full force.

Even in the face of increasing competition and tighter budgets, many institutions continue to look for reasons not to change. Too many insist that these issues won't affect their campuses because their current strategies of adding programs, targeting out-of-state students, or relaxing admissions criteria will buffer them from these demographic headwinds. But such confidence cannot be justified for most institutions. Future facilities strategy development must commence quickly if it is not already underway.

Despite the troubles ahead, we have the gift of forewarning. Those who use this time well will undoubtedly have the best outcomes. But six years is a very brief window, no more than a single student generation, the life of a moderate capital project or the average tenure of a college president today. Our principal focus is therefore on practical steps that institutions can take — starting now — to maximize their chances of success.

Part Two – Taking Action Amid the Storm

As we have studied the data and reflected on our experience working with institutions, we have identified what we believe to be four key strategies for the years ahead. We believe that the institutions with the brightest futures will be those that make strides in these four areas.

Strategy 1. Actionable Institutional Planning

The trends outlined previously will likely persist for decades. Every institution will need to plot a course through the rough waters ahead. What worked in the past will likely fall short for the future. Decisions of all kinds must be driven by clear, consistent and coherent priorities that support competitive success over a 10-20 year timeframe. This is especially critical for facilities decisions, which often involve timeframes — from planning through debt retirement — in the decades. Mistakes made now will echo down through coming decades.

Too often, even when broad planning occurs, facilities decisions are not viewed as "strategic." There are many factors tugging at facilities leaders: demands from campus constituents, donor preferences, resistance to changes in usage, replacement and repair cycles and, of course, unforeseen crises. All these can trump long-term programmatic priorities if there is not recognition that every facilities decision is first and foremost a statement of institutional priorities.

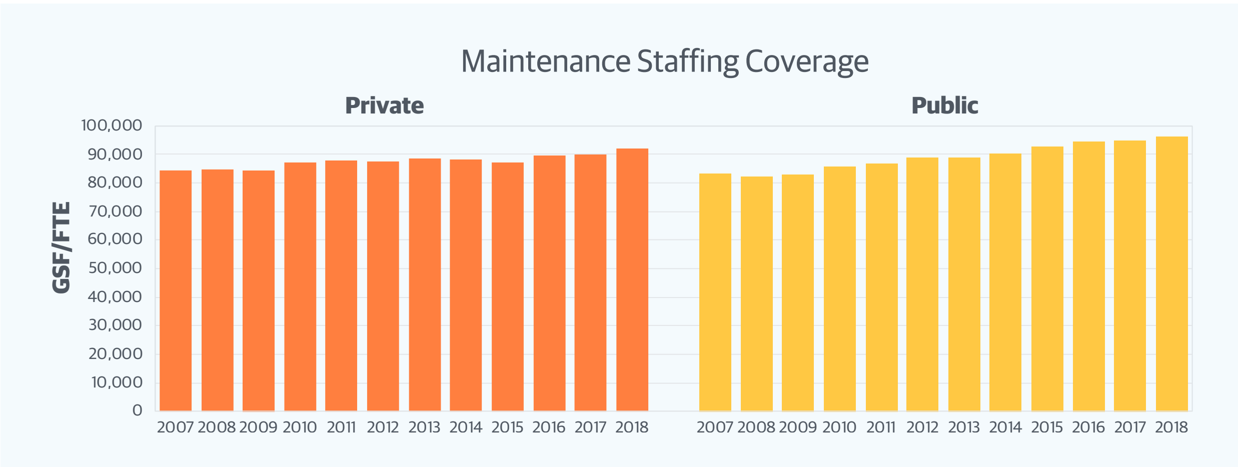
Moreover, those with facilities responsibilities are too rarely embedded in larger planning discussions. This fact cuts both ways. Campus leadership may fail to adequately incorporate facilities perspectives and implications into big picture planning. Conversely, those with the deepest insights into facilities problems and potentialities may fail to see themselves as accountable to larger considerations. Either can undermine effective planning.

Strategy 2. Aligning Current and Future Priorities

Even when an institution desires alignment of tactical activities and strategic priorities, achieving it can be difficult. We have identified approaches that have proven to help institutions assess and prioritize your facilities to achieve alignment.

Assessing Risk for Key Assets

Risk assessment comes down to ensuring that your most critical facilities remain operational. For some time now, campus maintenance resources have been under stress. Our database shows that the amount of area covered by one maintenance person or custodian continues to climb, whether the service is in-house or outsourced. As responsibility expands, the risk of deterioration or failure rises. This not only threatens current operations, but also accelerates backlog growth. Understanding this relationship is key to keeping critical facilities operating at full capacity.



Knowing Where Not to Invest

Clearly distinguishing between truly essential assets and merely useful ones is the basis to making sound capital and maintenance decisions. In the context of decreasing enrollment and increasing budgetary pressures, determining how to best use institutional resources is both critical and daunting. The task may be eased somewhat, however, by thinking about areas in which the case for investment is particularly weak. Clearing the undergrowth, so to speak, may make it easier to see a path through the woods.

While there are many ways to approach this question, our experience has found three recurring themes that often signal that a project is not a prime candidate for investment:

Speculative New Ventures – Innovation and new ideas will clearly be at a premium in the years ahead. If strategic and facilities planning are not well-integrated, however, ideas can jump the track to design and construction without being fully tested against other options and embedded in a rigorous business plan. Using policies and practices that scrutinize a project's validity will help enforce discipline and keep speculative ideas from diverting resources from established commitments.

Facilities Clearly Not Part of the Future Picture – Giving up space can be like giving up a member of the family. But the burden of supporting low-impact space is not sustainable. One approach to determining a facility's future is to focus on "why" rather than "why not." Rather than assuming every facility is equally useful unless proven otherwise, start with the assumption that none of them have demonstrated their value and adopt a rigorous process for testing their impact.

Facilities that Can't be Easily Utilized or Converted – A legacy building may have current value, and even some usefulness in the future, but at too high a price. This often becomes clear when long-delayed structural or code upgrades progressively restrict a building's usefulness. In some cases consideration can be given to repurposing legacy assets, but the question of overall value is paramount: is the ultimate utility worth the investment when compared to competing priorities? If the answer to these questions is no, then the conversation should shift from investing to a maintaining and creating a succession plan.

In each of these cases, a data-driven portfolio approach will match spaces with campus priorities, guide you to answers about where to invest and optimize return for your investments.

Supporting Long-Term Priorities

Alignment with current priorities is important, but you also need to identify where your institution plans to be in the future, develop cost-effective solutions to fill the gaps and ensure that investment patterns deliver facilities to suit. We recommend a three-step process:

1. **Consider What Differentiates You from Competitors –** Most institutions have identified the essential programmatic, research, social and community goals that distinguish them in the marketplace. But rigorously defining the facilities implications of these goals sets the stage for effective decision-making.
2. **Evaluate Which Physical Assets Support Differentiation –** This is the moment to embrace the physical assets that support your future plan and confront those that don't. Those that do should be considered prime areas of focus and investment. Those that don't, no matter how cherished, should be scrutinized for repurposing or divestment opportunities.
3. **Determine Which Investments Strengthen Differentiation –** Use objective criteria to evaluate the success or impact of past investments. This will help you more effectively invest additional resources to the physical assets that support your campus's differentiation from competitors.

With this process, it is possible to direct money and time investments toward the existing assets that support the highest performing future and justify replacing elements of the past that no longer serve that future.

Strategy 3. Transparent Communication

Successfully implementing these approaches relies on effective, engaged planning. Many campuses struggle to bring together experts, stakeholders and decision-makers in a well-understood and widely respected process. Based on our work with institutions, we recommend making the below points priorities for strengthening those parties' involvement in and understanding of facilities planning.

Open Up the Black Box – On many campuses, what, how and why facilities decisions are made is an enduring mystery. Building support for difficult decisions requires extraordinary transparency and communication. Too often strategies are established to push ideas out without assuring the material is received and digested by the intended recipients or that their ideas and feedback are incorporated.

Be Explicit About Data and Criteria – The data findings that feed into planning should be easily available and understandable. This not only builds confidence in the process, but also reduces the risk of analytic errors, unfounded priorities and perception becoming fact. Similarly, the principals of alignment described above should guide planners and be part of the conversation with stakeholders.

Make Durable Plans – Typically, when leadership or circumstances change, so do capital priorities and funding. Plans that are poorly rooted in data, misunderstood or weakly supported are most vulnerable to being ignored during transitions. Plans that make sense to the broad community will take on a life of their own.

Hold Regular Community Discussions – These techniques are often employed in episodic master planning exercises, but less often in the routine life of the institution. Practicing them on a regular basis will make broader, strategic planning activity more thoughtful and more connected to core institutional priorities. It also draws those episodic, large planning exercises more in sync with the grounded reality of the campus conditions and aspirations from the outset. An important underlying purpose of community conversations is to engage those whose needs may not rise to the top of the institution's priority list. People are more likely to accept the integrity of the process and its outcomes when they know their voices are heard and see how decisions are made.

Through these approaches, the context of every tough decision should be clear, and methods for finding information and providing feedback should be accessible to all affected parties. This investment will be returned many times in the form of broad and lasting support for the plans that emerge.

Strategy 4. Controlling and Optimizing Facilities Expenditures

No amount of planning, however wise or effective, can overcome the realities of growing needs and tighter budgets. Successful facilities leadership will therefore require greater success in delivering more for less. This does not just mean assessing staffing or compensation pressures, minimizing materials costs or conventional approaches to increasing efficiency, although these will all remain critical. All options should be on the table. Here are a few additional approaches we recommend.

Reduce Your Physical Footprint – Any appreciable reduction in enrollment (and, correspondingly, in staffing) increases the risk of carrying costly, unneeded facilities. Even with stable enrollment, facilities costs are outpacing revenue. Every effort should therefore be made to reduce the maintained footprint. This includes deaccessioning, densifying or offloading (e.g. telecommuting, housing policies, off-campus partnerships) where possible and developing long-term utilization or succession plans for all buildings.

Maximize Utilization of All Existing and New Spaces – Many institutions have poor understanding of their space utilization. Tools for optimizing space may be weak or inadequate, such as policies to resist facilities "creep" by programs despite reductions in students or staff. "No new net space" is a good starting point for planning. That mentality denotes that newer, more efficient and educationally appropriate spaces should replace an equal or greater amount of existing, less desirable square footage.

Employ Technology to Improve Efficiency – Many campuses are employing technology to improve performance, reliability and customer service, with the added benefit of improving efficiency. But the benefits are only delivered if the technology is properly deployed. Using technology to expand the reach and performance of existing staff is highly valuable, but using it to expand coverage on an already underserved asset is not. Adding new technology that doesn't directly improve efficiencies only adds to the swelling of backlogs.

Summary

The future of higher education will be a time of new and significant challenges. Institutions already trekking the uphill climb of aging facilities and maintenance backlogs will be hit by the headwinds of a reduced student age population and resulting enrollment revenue reductions. The investment and expansion strategies applied to facilities in previous decades won't provide shelter from the storm. In fact, they may worsen its effect on some campuses.

Though the situation is challenging, it can also be the impetus for positive and sustainable changes. Higher ed forms a cornerstone of our society, and it will continue to do so in the future. But the facilities practices of the past will no longer be sustainable. Campuses that adjust now will be best suited to survive and thrive moving forward. Those that skillfully use capital planning to balance facilities resources with realistic future goals, while finding opportunities to optimize facilities expenditures and footprints, will weather the storm best.

About Gordian

Sightlines is now a part of Gordian. Gordian is the leader in facility and construction cost data, software and services for all phases of the building lifecycle. A pioneer of Job Order Contracting, Gordian's solutions also include proprietary RSMeans data construction costs and Sightlines Facility Intelligence Solutions. From planning to design, to procurement, construction and operations, Gordian's solutions help clients maximize efficiency, optimize cost savings and increase building quality.

About Bryan C. Harvey

Bryan C. Harvey has over three decades of experience integrating strategic and facilities planning in higher education, most recently as the Associate Chancellor and Chief Planning Officer at the University of Massachusetts Amherst. Bryan has published and presented extensively on this subject and is currently researching how institutions can prepare for the coming demographic decline. He received his Masters of Public Administration from Harvard's Kennedy School and his Doctorate of Education from UMass Amherst. He can be contacted at harvey@chancellor.umass.edu.

Gordian can help you better plan, build, maintain and manage your institution's facilities and ensure you're maximizing resources every step of the way. The learn how, visit gordian.com/higher-education or contact us at info@gordian.com or 800.874.2291.