Campus Space Crunch

FUNDING, PLANNING AND FORESIGHT IN HIGHER EDUCATION

Hillier ARCHITECTURE
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Introduction

There are many agonizing questions facing Americans today. Is our nation safer since September 11th? Will Social Security survive? Will Medicare and Medicaid continue to provide adequate healthcare coverage? All are important issues, but in our national newspapers and in Washington, there is silence on an equally pressing concern for young Americans: Will our system of higher education as we know it survive?

Two major problems face colleges and universities across the country. First is the enormous growth in enrollment due to the coming of age of the "echo boomers," the children of the baby boomer generation. Born between 1982 and 1996, the echo boomers are now entering adulthood and applying to college. Their numbers reach an astounding 80 million in total. Consequently, they're creating a campus space crunch. "Keeping up with enrollment growth is our number one challenge," reports an official at a state university in the southwest. Even schools that have had a long-standing policy of keeping enrollment flat are feeling the pressure to grow.

Changing demographics are also contributing to the increase in the student population. Almost 17 million Americans are enrolled in universities or colleges—up more than 2 million from just a decade ago. This is largely attributed to the fact that college is more affordable for a greater number of people than ever before. A greater number of older Americans are enrolling as well. Fifty years ago, before the G.I. Bill, college was the domain of the young and elite. Today, most students are middle class and more than a third of college students are 25 years or older. Many are over the age of 35.

At the same time enrollment is increasing, funding for higher education is plummeting. Some 80% of college students attend public institutions, largely financed by individual states. But as states from California to Massachusetts seek to close budget gaps, higher education expenditures are cut. Even with schools slashing budgets and passing costs off to students in the form of tuition increases, it's still not enough. If things don't change, we may see the day when promising students—our kids—simply can't afford to go to college.
"For an institution like Princeton, one of its defining features is its physicality, its campus. Developing that in an appropriate way, in an aesthetically pleasing way, in a sustainable way, has become much more difficult and complex an activity. A planning exercise really helps find a way to succeed within that complexity."

- Executive Vice President
Princeton University
(Princeton, New Jersey)

These issues inspired Hillier Architecture to conduct a study examining the nexus between future capital projects and rising costs. Our purpose is to understand how universities are planning to accommodate larger student populations in light of a dearth in funding. The study, which conducted research on 200 colleges and universities nationwide and interviewed officials at 103 of them, found that schools are asking tough questions: Who are we? Who do we want to be in the future? How will our communities help (or hurt) our efforts to get there? And how will we pay for all of this?

To answer these questions, many university and college officials are turning to their campus master plans. Our study revealed that one out of every two schools is updating its campus master plan to cope with issues like increasing enrollment and aging facilities. The study also indicated that campus master plans are playing a vital role as schools seek to meet sustainable design mandates, maintain positive community relations and tap new funding sources in an increasingly competitive environment. "[Our master plan] turned out to be one of the best tools the development office has had in years," according to Johns Hopkins University’s Executive Director of Facilities.

The study offered surprising insights into how schools plan for the future, and countered commonly accepted notions about the campus master planning process. The following "Myths and Realities of Campus Planning" are the complete findings of the study.

Hillier Architecture, among the nation's top 10 architecture firms, has spent almost four decades designing master plans for universities. Its higher education portfolio includes 60 large-scale master plans as well as extensive architectural work. Clients include Cornell University, Duke University and Princeton University. Our architects pride themselves on having experience in every type of building on campus. More information on Hillier Architecture is available at www.Hillier.com, which includes links to our campus portfolio and our published articles on issues impacting colleges and universities.
"Now the lion’s share of our projects is financed by private donors. I think the days of the state completely funding any building are gone."

- Director of Campus Planning, Purdue University (West Lafayette, Indiana)
Myth: All schools use a campus master plan to guide growth.

Reality: The use of campus master plans varies from school to school.

Colleges and universities are in the midst of an unprecedented building boom. New campus facilities are going up everywhere and even more growth is anticipated in the near future. Some schools are required by the city, state or their board of trustees to update their master plan regularly; other schools take the initiative on their own. Still others don’t use a master plan at all. Three of the 103 officials interviewed said that a campus master plan for their schools did not exist, for a variety of reasons. So we asked officials to tell us what motivated their schools to develop a master plan (see opposite page).

Master plans vary widely in scope and in their application. Some master plans focus on the near term, while others look much further down the road. North Carolina State University, for example, has a plan for a “Centennial Campus,” a series of research parks expected to be built on 1,000 acres of farmland by the year 2100. The majority of schools we interviewed looked 5 to 10 years down the road (see opposite page).

**Impetus for Developing a Campus Master Plan**

- 33% of respondents said growth
- 21% said they were required by their city, state, board of regents or board of trustees
- 14% said the existing plan had become outdated
- 8% said the campus master plan was motivated by a new strategic vision or capital campaign
- 4% said building upgrades made it essential
- 3 out of 103 respondents said they have no campus master plan at all

**Time Frame for Campus Master Plan**

- 29% of schools have 5 to 10 year plans
- 24% look 11 to 20 years into the future
- 12% look 21 to 30 years in advance
- 5% look 30 years and beyond

"Planning has to go on all the time. You can’t just have a document and let it lay on the shelf."

- Associate Vice President for Facilities
  State University of New York at Oneonta
Myth: The campus master plan is a tool used primarily by campus decision-makers and planning officials.

Fact: The campus master plan is becoming an increasingly valuable tool for marketing and fundraising.

It’s a planning tool, a communications tool, and ever more frequently, a fundraising tool as well – the campus master plan serves more than one master. With competition heating up for private funding, smart schools are using their campus master plans to help prospective donors see the big picture: the long-term goals of the institution and how donors’ money will be best spent.

Some institutions are even turning their campus master plans into flashy, eye-catching presentations, with 3-D models and computer-generated graphics, for even greater impact. “We had a virtual helicopter fly through the campus of the future,” says the Vice President for Facilities at a public university in the southwest. “You could imagine yourself zipping down these streets and seeing these buildings. People were very impressed. Donors are much more willing to invest in something that’s tangible... an animated graphic showing the campus of the future is a powerful tool to get people interested.”

**Campus Master Plans and Fundraising**

- Over 65% of respondents said their schools use the campus master plan as a fundraising tool during a capital campaign, strategic plan, or to get other forms of funding.

"Definitely fundraising is going to be one of the most important components to come out of the master planning process."

- Associate Vice President of Facilities Development
  San Jose State University (California)
Myth: Aging, obsolete buildings are among the biggest problems on campuses today.

Reality: Parking and pedestrian-vehicle circulation conflicts are equally problematic.

Residence halls, classroom facilities and science facilities represent priority projects now and in the future for a majority of respondents, but an overwhelming number said that pedestrian-vehicle circulation is an area desperately in need of improvement (see opposite page). While older campuses are generally more pedestrian-friendly, parking and vehicular access is limited. Newer campuses tend to have an excess of surface parking, but the campus is broken up, poorly linked and unwelcoming to pedestrians. All schools, whether urban or suburban, are struggling to accommodate growth and new facilities while still preserving green space and maintaining a “community” feel.

Interestingly, some respondents complained that certain facilities ended up being built not because of a real need, but because they had a particularly strong support coalition. In other words, the squeaky wheel gets the grease. Respondents also said that less glamorous projects, such as parking or deferred maintenance, were often without a champion. Without a strong voice, they said, these under-represented areas would continue to pose real problems on campuses.

Campus Areas In Need of Improvement
- 35% of respondents cited pedestrian-vehicle circulation, traffic or parking
- 33% of respondents said dormitories
- 21% said science/research facilities
- 21% said deferred maintenance or infrastructure upgrades
- 20% pointed to classrooms
- 15% said lack of space was a major issue
- 6% said energy efficiency was an area to be improved

"Because we’re an urban campus, green space is at a real premium...we have to have a real trade off with parking. I think green space is really important for the beautiful campus environment we want to create."

- Planning Official
  Missouri State University
  (Springfield, Missouri)

"The residence halls [were] designed in the early 20th century and also in the 50’s, 60’s and 70’s. Students just aren’t interested in living in them, so we have been building new apartments with single rooms, kitchens, dining halls and increasing the inventory of rooms."

- Associate Vice President of Facilities Services and Campus Planning
  Lehigh University (Bethlehem, Pennsylvania)
Myth: Historic buildings are a school's greatest asset.
Reality: New buildings are just as important as older buildings.

Alumni love them, facilities staff often can’t stand them — distinguished old buildings are a double-edged sword. Although they can make the character of an institution (and given their appeal are almost always home to development offices), they often require a lot of attention and maintenance. Historic buildings may also compete for resources with other projects that are essential for the integrity of academic programs.

"The majority of our buildings are historic," says the Assistant Vice President of Facilities and Planning at the State University of New York at Geneseo. "We planned to renovate three [of them] in the next two years."

On the flip side, however, historic buildings can be a terrific financial and environmental investment. Because many historic buildings were built to stand the test of time, a little renovation goes a long way. Also, buildings that qualify for placement on the national or local historic register may qualify for tax credits. Although nonprofit institutions like public universities can not use the tax credits themselves, they can temporarily transfer ownership of the building in question — and with it, the tax credits — to the for-profit organization undertaking renovations. This helps offset the cost of renovations and is a win-win for all.

In addition, re-use of existing buildings goes a long way toward achieving sustainable building guidelines, and as we will discuss later, sustainability is becoming a top priority on campuses everywhere.

**Historic Buildings on Campuses**
- 80% of respondents have historic buildings on their campuses with at least some in need of renovation
- 8% have buildings on the local or national register for historic buildings

Myth: Every school is unique and can’t be compared to another.
Reality: "Benchmarking" is used by some of the most successful schools.

Across Corporate America, benchmarking — where one company compares aspects of its business to another in order to identify best practices and learn new ideas — is a widely used tool. Benchmarking gives leadership fresh approaches to problems and access to valuable data. Many schools are catching on.

Of the schools that benchmark, more than 50% said they benchmarked against schools considered their peers. Ten percent looked to schools they wished to emulate.

The Ivy League schools were mentioned most frequently as ones to study. Massachusetts Institute of Technology, Stanford University, the University of California Los Angeles, Michigan State University and Minnesota State University were also mentioned. Among liberal arts colleges, Smith College and Middlebury were mentioned.

**Benchmarking**
- 54% of respondents said their school benchmarks against other schools
- 37% of respondents said their school does not benchmark
- 9% were unsure
"If you had read an article 10 years ago you would have thought [distance learning] would have taken over, but it hasn't."

- University Architect
San Diego State University (California)

Myth: Distance learning will diminish the number of people on campus, and therefore, the need for space.

Reality: To date, distance learning has had little to no impact on the demand for space on campus.

As we mentioned earlier, enrollment at schools is up significantly, and many of those new students will be studying, sleeping, eating and socializing on campuses with other students—not via the Internet or through teleconferencing.

Nearly all of the officials in our study agreed that distance learning has not diminished the demand for the on-campus experience and is not expected to in the near future.

The overwhelming response appears to give credence to sociologist Thorstein Veblen’s famed observation a century ago that a university’s main attraction is the prestige gained by being in the physical company of others selectively admitted. “Distance learning will allow more faculty to affect more students . . . [but] I think there is much to be gained from personal contact with the students,” says the Director of Facilities Services at University of Texas at Arlington. “From a sociological standpoint, if you generate a bunch of individuals who have been glued to a computer monitor, you’re not making a well-rounded individual.”

Impact of Distance Learning on Campus Master Plans

- 85% of respondents said distance learning has had no impact on the campus master plan.
- 95% of respondents saw little or no demographic change in their student body as a result of distance learning.
Myth: Colleges and universities are indiscriminate or inefficient users of energy and other resources.

Reality: Environmental sustainability is becoming a priority on campuses.

Colleges and universities, by virtue of their size and number of users, are large consumers of energy and other natural resources. The inherent inefficiencies of many older campus buildings—and the 24-hour lifestyle of today's students—can lead to even greater energy consumption and waste. Students often keep their lights and computers on around the clock, and in northern states, it's not uncommon to see dorm windows open on even the coldest of days.

The good news is that sustainability is fast becoming a driving force on many campuses. While there is some debate over which environmental building standards to follow—the U.S. Green Building Council's Leadership in Energy and Environmental Design (LEED) program is the most widely used—there is consensus among university officials about the negative impact of construction on the environment and the need for more energy-efficient buildings.

As we pointed out earlier, nearly 6% of respondents cited energy inefficient buildings as an area in need of improvement. Preserving green space and natural habitats is also a top priority at most schools.

Given the rising costs of building materials, some schools may find that sustainable building practices can deliver a faster return on investment than more traditional construction practices.

Sustainable Design on Campuses

- 85% of schools say that sustainable design issues are going to play a large role in future building and planning
- 85% of schools have recently completed a LEED-certified building, are constructing a building to be LEED-rated, or have made LEED rating a requirement for all new buildings on campus

"Areas that we are focusing on [include] making the campus more pedestrian friendly, improving the parking situation, making our buildings 'green' buildings, setting aside nature reserves and celebrating the fact that we are in a natural environment."

- Director of Facilities Planning
  University of North Florida (Jacksonville, Florida)
Myth: "Celebrity" (signature) architecture gets a school noticed.

Reality: Good overall design is more valuable.

Somo colleges and universities have gained prestige and exposure by hiring a so-called "celebrity architect"—a high-profile architect usually associated with a unique design style—to create signature buildings on campus. However, an overwhelming majority of schools said that they do not consider celebrity architects for master planning or buildings on campuses.

Almost all schools believe design standards are essential. In addition to ensuring the campus has a more cohesive look, design standards can also serve as a shield against low-cost, uneven work during tough economic times. "The sort of gothic campus [Yale became] in the 1930s... has given the identity to the institution, so that has had a real impact on how that character can be extended to other parts of campus," says the Associate Director of University Planning at Yale University (New Haven, Connecticut).

Role of Celebrity Architects

- 85% of respondents do not consider celebrity architects for campus projects
- 15% have used celebrity architects in the past, or would consider using them in the future for specific projects

Design Standards on Campuses

- 78% of schools have design standards
- 22% specifically said they do not

"I don't want signature buildings—I want a signature campus. And what I mean by that is, when people walk on this campus, I want them to look around and say, 'Wow, look at this place," not 'Wow, look at this building.'"

- Associate Vice President for Facilities Services
  University of Puget Sound (Tacoma, Washington)

"That's one of the important things to Williams... that we provide significant architectural structures for our new buildings. All three of the projects that we've recently completed... have used signature architects."

- Associate Vice President for Facilities
  Williams College (Williamstown, Massachusetts)
Myth: Town-gown relations are often strained.

Reality: Many schools are now working more closely with communities.

Like manufacturers of old, universities are finding that if they want to build, they have to be good neighbors and help create jobs, services and friends among people who have no relationship to the university other than living near to it. And then there are the daily challenges: student rabble-rousing and parking in residential neighborhoods. "Good, bad and ugly, all of the above depending on what day it is," said a facilities official at a prestigious southern university about his institution's town-gown relationship. "We have a difficult time with the city because they feel as though we're encroaching on them."

We asked officials to characterize their school’s relationship with the adjacent community as "good/excellent," "improving" or "strained." Some respondents gave more than one answer (see opposite page).

A number of officials reported that including town representatives in the planning process or holding open meetings for the community can be a helpful way to talk through issues and allow everyone to feel as if they have a voice in planning. When university officials work closely with local politicians and community leaders toward shared goals, the results can be impressive: shabby college towns turned into models of economic development. "During the master planning process we had very little opposition because all the meetings were open to the public. People came and participated and we really worked through all the issues with the neighbors," says the Director of Campus Master Planning from Seattle Pacific University (Seattle, Washington).

Town-Gown Relations

- 85% of respondents said the town-gown relationship is "good/excellent."
- 27% characterized town-gown relations as "strained."
- 16% said it was "improving."

Planning Participants

- 56% of respondents said their schools involved the community in planning discussions.
- 20% said administration alone dealt with issues pertaining to planning.
- 29% of institutions have a specific committee to deal with planning issues.
- 73% of institutions include students in the planning process.

"I think, like most major institutions, there was probably some arrogance about how [we] did things, without regard for the community. We've worked a lot harder at developing better town-gown relations [by] seeking their opinions and concerns. Our relationships for the most part are 180 degrees different today than they were before."

- Executive Director of Facilities at a leading research university in Baltimore
Conclusion

Government funding for capital projects at colleges and universities across the nation is drying up. At the same time, there is a tremendous need for new facilities and infrastructure enhancements on almost all campuses. To reconcile the gap between capital construction funding and costs, many schools are revamping their campus master plans.

Top concerns for institutions of higher education, now and in the future, include: a lack of physical space; accommodating more students and new buildings, while preserving green space; solving parking and pedestrian-vehicular circulation issues; balancing the need for new buildings with the need to renovate or restore old or historic buildings; building a "sustainable" campus with a low impact on the environment; maintaining an aesthetically pleasing campus with cohesive design; and establishing positive relationships with surrounding neighborhoods.

The planning process is a critical step toward achieving these goals. Not surprisingly, approaches to campus master planning vary from one school to the next. Some schools see the campus master plan as a "philosophical guide" rather than a planning edict. Others view it as a way to coalesce the university community around shared goals. Still others regard it as a fundraising tool, update it regularly and give elegant copies to the development office. "We were starting a capital campaign, and the master plan became its cornerstone," explained the director of facilities and support services at Greenville College (Illinois).

While beyond the scope of this study, there are many additional reasons for the increase in higher education costs that warrant further exploration, including:

- Greater competition among schools
- Increasing academic specialization
- Higher research and development costs
- Construction cost escalation
- Rising energy costs
- Higher IT costs, without comparable gains in productivity (as seen in the private sector)
- Fewer foreign students as a result of immigration restrictions and post 9/11
- 24/7 lifestyle of students

Colleges and universities are turning to the campus master plans for cost-effective solutions to these problems as well, and in doing so, are helping ensure a quality, affordable education for future generations of Americans.

Methodology

Hillier Architecture designed a study targeting colleges and universities listed by the Carnegie Foundation, an independent policy and research center in Stanford, California. Undergraduate universities are divided into four categories — Doctoral, Masters, Baccalaureate and Associates colleges — based on the number of degrees conferred in each of these categories. Hillier focused on the first three categories, which in total contain slightly more than 1,400 schools. We gathered data on 200 universities, and interviewed facilities directors, university architects, vice presidents, chancellors, directors of campus planning and design, directors of capital planning, and coordinators of master planning from 103 different schools. Roughly one third of interviews were conducted with officials at Doctoral institutions, one third at Master's institutions and one third at Baccalaureate colleges.

Each participant was asked approximately 30 questions on topics such as:

- who participates in the master plan
- recent and future university capital projects
- areas of campus most in need of improvement

In addition, participants were asked about issues thought to take on increasing importance in coming years:

- renovation of historical buildings
- distance learning
- fundraising
- benchmarking
- sustainable design

Calculations were based on the responses of 103 schools. The first step involved tallying the number of schools that responded with a similar answer for a question. Then that number was divided by 103 and multiplied by 100 to get a percentage. (In some cases the subtotals of percentages do not add up to 100 since schools gave more than one response to the question.) The only exception is the percentages done for the historically significant buildings. The totals for buildings in need of renovation were only calculated for those schools which had historical buildings—80%—so after the numbers were tallied, it was divided by 80 instead of 103.