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A campus master plan cannot predict the future of your campus, but it can provide a valuable and productive road map for future development. This article suggests that such a road map might best meet your institution's needs and resources when it is linked to the reasons you decided to plan in the first place.

Colleges and universities periodically initiate campus facilities planning or develop master plans to address specific and, more often, multiple issues. These issues are often initially expressed as questions: "How much enrollment growth can our campus accommodate?" "Do we need more classrooms or can we just improve utilization?" "What should we budget for deferred maintenance?" "Where should we put the new academic program?" "How much more parking do we really need and where should we locate it?" "How can we improve our 'curb appeal?'" "Should we purchase the available land across the street?" "How can we improve our town-gown relationship?"

Questions like these are common across all higher education institutions, including research universities, state colleges, liberal arts colleges, and community colleges.

Aligning your campus planning effort to address such questions will vary less based on your institution's profile, campus setting, aspirations, and resources than it will on the reasons why you are planning in the first place. Identifying your reasons for planning requires a clear understanding of the planning purpose and outcome expectations, and doing so enables your institution to focus planning resources and efforts in a productive, timely, and cost-effective manner.

Over the past several years I have facilitated numerous Society for College and University Planning (SCUP) national and regional preconference workshops on how to prepare a concise, responsive, and competitive campus master plan request for proposals (RFP). To determine "best practices" in preparation for these workshops, I reviewed more than 100 actual campus master planning RFPs from institutions across the nation. This review revealed a wide range of RFP formats and contents, along with variations in the explicit or implicit scope of requested campus planning services. Too often, the RFP did not adequately align the institution's stated primary planning purposes with its anticipated planning process, outcome expectations, and available resources. Consequently, campus master planning consultants are often hard-pressed to respond with concise, responsive, and competitive proposals. In an apparent effort to create a comprehensive plan, many RFPs did not clearly describe the institution's relative planning priorities, especially when seeking cost-effective responses.

Common shortcomings were found among the reviewed RFPs. These included over-prescribing the expected planning process instead of the desired planning outcomes, lack of clarity as to the expected level of involvement in campus and community outreach and approval efforts, and an

implied need for sophisticated space and facilities assessment tools that the institution may not be committed to maintaining. Too often, insufficient information was provided to determine if special expertise should be included on the planning team, such as a traffic engineer, real estate advisor, academic planner, facilities assessment specialist, or economic development planner. Incomplete descriptions of existing institutional data, studies, and facilities documentation required assumptions that, if misinterpreted, could be expensive to overcome once planning started. However, the most common shortfall was a requested scope of planning that was not aligned with the institution's likely resources. To address this, institutions participating in our SCUP preconference workshops are advised to carefully align and communicate both their primary purposes for undertaking campus master planning and their time and budget expectations.

My research suggests that colleges and universities typically undertake campus planning in response to one or, more likely, several of the 10 primary institutional situations summarized in figure 1. What follows is an overview of these 10 situations, along with the recommended planning approach for each.

1. Address Result of Recent Strategic Plan

Strategic plans often call for the development of a campus facility master plan. The typical stated objective is to adapt campus facilities to support newly developed institutional goals and initiatives (Lozier 1995). Since most institutions periodically conduct strategic planning, this is a common impetus for campus master planning. Initiating campus planning following a positive strategic planning effort has the added benefit of maintaining the momentum of a productive campuswide engagement.

A campus planning effort following strategic planning is typically comprehensive in scope in response to wide-ranging strategic aspirations. The planning typically includes assessment of existing facilities conditions; analysis of current and future space needs; and development of a land-use and infrastructure development plan, student housing plan, transportation and parking management plan, landscape and pedestrian circulation plan, project budgeting, and multiyear capital improvement plan. The costs of comprehensive planning can vary widely, depending on the breadth and depth of planning involved and the data available. Institutions are advised to articulate their planning needs and priorities along with their planning budgets. Strategic plans that call for specific actions with measurable outcomes provide the best opportunity to align campus master planning with the institution's goals and resources.

Figure 1 **Summary: 10 Reasons for Campus Planning**

Reason for Plan	Principal Advantages of Planning Effort	Main Challenges of Planning Effort	Key Elements for Implementation of Planning Effort
1. Address result of recent strategic plan	<ul style="list-style-type: none"> • Responds to strategic plan initiatives • Maintains momentum of campuswide engagement 	<ul style="list-style-type: none"> • Understanding that the breadth of comprehensive planning may result in less depth • Ensuring the campus planning team has required expertise 	<ul style="list-style-type: none"> • Identify key priorities to better manage costs • Update academic plan for most effective effort • Align plans to specific measurable goals as described in strategic plan
2. Respond to change of leadership	<ul style="list-style-type: none"> • Becomes tool for change 	<ul style="list-style-type: none"> • Early: Involving most or all constituencies in outreach • Mid-term: Defining appropriate depth of assessment • Legacy: Providing guidance versus prescription 	<ul style="list-style-type: none"> • Early: Ensure grassroots outreach effort • Mid-term: Focus more on assessment versus synthesis • Legacy: Provide direction for new leadership team
3. Respond to local jurisdictional regulatory requirement	<ul style="list-style-type: none"> • Ensures campus development aligns with municipal plans 	<ul style="list-style-type: none"> • Maintaining flexibility in face of community need for predictability 	<ul style="list-style-type: none"> • Align with municipal long-range development plan • Understand public review process
4. Meet prerequisite for state/county funding approval	<ul style="list-style-type: none"> • Emphasizes capital improvement • Identifies sources and uses of funds 	<ul style="list-style-type: none"> • Ensuring a flexible plan ready to implement when capital becomes available 	<ul style="list-style-type: none"> • Prepare flexible project implementation plan
5. Improve space allocation, distribution, and utilization	<ul style="list-style-type: none"> • Optimizes existing space resources 	<ul style="list-style-type: none"> • Maintaining up-to-date space inventory in a format that can be benchmarked • Sourcing peer institution data for comparison 	<ul style="list-style-type: none"> • Maintain physical space inventory in easily updatable format
6. Address deferred maintenance and renewal projects	<ul style="list-style-type: none"> • Establishes priorities and costs of facilities renewal and deferred maintenance 	<ul style="list-style-type: none"> • Understanding that the process can be capital-intensive due to extensive field work required 	<ul style="list-style-type: none"> • Develop assessment in a format suitable for updating internally
7. Evaluate potential land acquisition or disposition	<ul style="list-style-type: none"> • Provides land asset management and assessment tool 	<ul style="list-style-type: none"> • Integrating new land into existing campus seamlessly 	<ul style="list-style-type: none"> • Involve real estate consultant • Accept confidentiality requirements
8. Improve town-gown relationship	<ul style="list-style-type: none"> • Develops more effective relationships with town constituencies • Combines town-gown resources to undertake joint initiatives 	<ul style="list-style-type: none"> • Overcoming past issues of mistrust • Establishing long-term commitments 	<ul style="list-style-type: none"> • Make commitment to engaging and supporting the local community
9. Plan reactively to address pressing facilities issues	<ul style="list-style-type: none"> • Guides short-term campus development without mortgaging future options 	<ul style="list-style-type: none"> • Understanding fully the consequences of short-term projects on future campus development 	<ul style="list-style-type: none"> • Initiate condensed planning process to address pressing project needs • Ensure fully informed decisions
10. Identify campus development growth thresholds	<ul style="list-style-type: none"> • Helps clarify question, "How big should we be?" 	<ul style="list-style-type: none"> • Developing key growth parameters 	<ul style="list-style-type: none"> • Undertake campus build-out analysis • Initiate scenario planning to understand impact of future development options

2. Respond to Change of Leadership

Many college and university presidents use campus planning as an effective tool for change. The planning focus can vary depending on whether the president has recently arrived, is at mid-term, or is leaving. After the customary 12 to 18 months spent getting to know the institution, a new president is typically ready to implement specific initiatives to move the campus in his or her desired direction. The resultant plans are often bold visions that challenge the institution's status quo by presenting a compelling alternative, which calls for grassroots planning that engages the entire campus to foster stakeholder involvement and ensure buy-in. A variety of planning outreach strategies and tools can be employed to maximize both campus and local community input into the planning process. Understanding the appropriate breadth and depth of this outreach effort is important when allocating the institution's time and resources.

In contrast, long-term presidents often see their last campus master plan as an opportunity to leave a legacy based on their intimate knowledge of the institution's opportunities and constraints. The purpose of a legacy plan is to round out the yet-to-be completed projects the president feels are necessary to leave the institution a better place than when he or she arrived. The legacy plan may also suggest future development possibilities for consideration by the new leadership team. This approach typically relies on the collective knowledge of the senior administration to set the planning direction and parameters. Once these are set, stakeholder outreach efforts are often viewed as opportunities to improve and refine the planning as it develops.

Occasionally campus planners find themselves between presidents due to a planned or unforeseen leadership transition. In these cases, the interim administration can use the campus planning effort to solicit and package the collective thinking of the campus constituency by setting forth the perceived opportunities of the various stakeholders and the potential alternatives for consideration. This is often a good time to initiate a comprehensive facilities assessment and space inventory documentation. Such an effort documents existing building, site, and utilities layout and conditions; space utilization; and needs based on current programs. This "state of the institution" perspective is useful as a snapshot for the incoming president and has proven especially helpful when pending facilities decisions must be addressed before the customary presidential honeymoon period expires.

3. Respond to Local Jurisdictional Regulatory Requirement

For some mainly private urban-based institutions, periodic filing of their campus master plan with the local municipality is required by the zoning ordinance. State-owned higher education institutions, as public entities, are not typically required by law to follow local zoning ordinances. However, many state institutions attempt to informally reconcile their master plans with local jurisdictional planning goals. In either situation, the planning challenge becomes one of responding to the municipality's political need for assurances and predictability while maintaining the institution's need for flexibility to respond to future opportunities.

Larger municipalities with multiple higher education institutions usually have developed standardized submission and review requirements for all institutional master plans. Those institutions with campuses straddling two municipalities are doubly challenged to abide by different and potentially conflicting requirements. Colleges and universities in smaller college towns, where

they are often the largest employer in town, tend to negotiate their campus development plans with the local community on a project-by-project basis.¹

Fashioning the campus plan in light of the municipal long-range development plan and in conformance with the municipality's submission requirements improves the chances that the campus plan will be approved by the jurisdictional agency. Anticipating the campus planning team's involvement with the public review process will ensure adequate resources are set aside for this effort.

4. Meet Prerequisite for State/County Funding Approval

Several states and, in the case of many community colleges, sponsoring communities periodically require their public higher education institutions to develop campus master plans. The more established state systems have developed a standardized process for a comprehensive assessment of campus facilities needs, capital costs, and priorities. This enables the state to provide funding to individual campuses based on justifiable and transparent standards tied to legislative funding agendas.

Formulas or guidelines for public higher education funding have been in use in the United States since World War II. A majority of states still use a formula or guideline to distribute capital funds to two- and four-year public institutions. These formulas typically focus on measurable indices such as service population, projected enrollment, total gross square feet, percentage of state budget, or an amount derived from previously received monies. Other states employ a nonformulaic approach to allocating funding among their higher education institutions. MGT of America, a national higher education research and consulting firm, notes that a formula approach may not be adequate to meet the needs of unique or specialized programs. There is an emerging trend in state-funded higher education toward developing allocations based on quality and performance standards, which suggests a shift from equity and adequacy to demonstrated outcomes achieved with funding received (MGT of America 2007).

Master plans developed to justify public higher education project priorities and funding typically stress the development of a capital improvement plan (Massachusetts Department of Revenue 1997). The funding agency typically requires the submission of a multiyear (usually five- to seven-year) capital plan that includes total annual project expenditures. Individual campus funding requests are then rolled into an annual systemwide higher education funding request to the legislature. Because the public funding authorization process is subject to delays and modifications, an institution must be flexible. The capital improvement plan for a public institution should be developed in a way that facilitates moving project schedules to match agency annual budget authorizations. This requires a flexible project implementation plan that clearly identifies the links between individual projects and isolates nonpublic project funding sources such as foundations, room rent, student fees, and alumni donations.

5. Improve Space Allocation, Distribution, and Utilization

Allocating space on campus is an ongoing challenge. Institutions continually assign new and existing space in an attempt to meet pressing program needs and priorities. Undertaking a comprehensive space planning effort allows the institution to rightsize both academic and nonacademic space allotments. Reconciling industry benchmarks and institutional standards with the perceived needs of individual program providers results in a justifiable standard for assigning space.

Space-driven planning relies on the accuracy and format of the existing space inventory. A usable space database requires an accurate, up-to-date campuswide physical space inventory in a format compatible with industry standards. Minimally, a physical space inventory should include the space type, room number, size, seating capacity, and assigned user (prorated if necessary) for each nonresidential room on campus.² Further, the data must conform to the HEGIS-based³ industry standard format to allow benchmarking against peer institutions (National Center for Education Statistics 2006). Many institutions are able to periodically establish a fairly accurate space inventory database suitable for benchmarking. Some institutions with recently updated space inventories have provided their data to the Society for College and University Planning to facilitate peer benchmarking.⁴ However, my experience suggests that the majority of institutions lack the resources necessary to maintain their physical space inventory at the minimum 85 percent accuracy needed to consider benchmarking. Consequently, developing a space program typically involves a time-consuming effort by planners to generate, verify, and update the institution's physical space inventory. Since reallocating campus space is a weekly practice, requesting a physical space inventory in a format that the institution can maintain on an ongoing basis is worth considering. Otherwise, within a few years, the space inventory data will be obsolete and therefore no longer useful for planning purposes.

Many space programs include some form of diagrammatic floor plan for each primary nonresidential building on campus. These floor plans visually communicate the physical space inventory data in a graphic format that is more familiar to the campus constituency. The detail and format of available existing building floor plans varies at each campus. Most campuses minimally have single-line fire exit floor plans posted in most buildings. Others have new buildings documented in some version of computer-aided design (CAD) software. Documentation of older campus buildings may have to rely on original blueprints or even field measurements. If the goal is to bring the primary campus building plans into a common CAD format linked to the physical space inventory, adequate time and resources must be allocated to accomplish this task during the planning process.

The cost of generating or updating a campuswide physical space inventory, with corresponding diagrammatic floor plans showing space types and user assignments, can easily consume 20 to 30 percent of the typical comprehensive campus facilities master planning budget. Therefore, careful consideration should be given as to what an institution is specifically asking planners to undertake, and why.

6. Address Deferred Maintenance and Renewal Projects

Most institutions struggle with the ongoing task of allocating sufficient capital improvement funding to keep up with facilities maintenance and renewal. One way to manage this issue is by developing a facilities conditions index (FCI), which is a common comparative indicator of the relative condition of facilities.⁵ According to the Association of Higher Education Facilities Officers (APPA), the facilities condition index has been a feature of capital renewal and deferred maintenance planning for the past decade and is a generally accepted measure. Recently the facilities condition index was included as one of the key metrics within APPA's strategic assessment model (Briselden et al. 2001).

A comprehensive campuswide facilities conditions assessment of deficiencies, priorities, and budgets requires an extensive building-by-building field survey, best undertaken when classes are not in session. A campus representative with keys to all spaces must accompany each assessment team. This labor-intensive effort can consume as much as 30 percent to 40 percent of the comprehensive campus master planning budget. Institutions with the internal capability to regularly update and maintain this information once the planning team has created it will benefit the most from the significant upfront investment.

7. Evaluate Potential Land Acquisition or Disposition

Most private and, increasingly, public institutions are continually considering, or being asked to consider, purchasing the property surrounding their campuses. These purchases are often reactive decisions based on availability rather than on a long-range land asset management strategy. Land is often purchased under the general assumption that someday the institution will find a need for it or to protect it from other development. In the interim, the acquired parcels are subject to the immediate need and further investment required to adapt them for faculty housing, office space, academic "surge space," storage, or parking. In some cases, when institutional use may not be compatible with surrounding land use, the neighborhood stability is adversely affected.

A comprehensive land-use analysis of the areas surrounding the campus, often aided by graphic information system (GIS) technology,⁶ can identify and prioritize potential parcels for acquisition. The criteria for evaluation include proximity to campus, size, cost, availability, zoning conformance, potential for consolidation, compatibility with the campus development master plan, and current and future value. In some cases, the opportunity to acquire significant acreage raises the question of how best to seamlessly weave the new land into the existing campus fabric, something addressed by the campus plan based on short-term needs and longer-term options.

For land-rich institutions, the potential to lease or sell campus land offers an opportunity to generate revenue to support the institutional mission. Consequently, the prospect of acquiring, leasing, or disposing of campus lands often provides the impetus to initiate campus master planning, even if it is limited to a specific area of the campus. The campus planning team might include a qualified and experienced real estate consultant capable of conducting a market analysis of the property under consideration.

8. Improve Town-Gown Relationship

The dynamics of the ongoing relationship between campus and town can either support or hinder an institution's campus planning efforts. When planning occurs in a historically positive relationship, mutual concerns can be readily identified and productively addressed. Signs of positive town-gown dynamics include local economic development partnerships, downtown revitalization, neighborhood stabilization as measured by rising values for single family houses, affordable housing, traffic and street parking management plans, sharing of cultural events and athletic venues, joint neighborhood policing, high participation in student community service, program links with pre-kindergarten to high school programs, and a mutually developed planned institutional district zoning ordinance.⁷ In instances when the town-gown relationship is stressed, or even severed, expectations for community outreach during planning may be limited. Signs of a deteriorating town-gown relationship include lack of resolution around PILOTs,⁸ local resistance to campus expansion, a deteriorating local neighborhood, chronic traffic congestion, and no structured means for productive, ongoing senior-level town-gown dialogue. Too often, seeing no other option, an institution will choose to conduct campus planning with limited, if any, surrounding community involvement.

Alternatively, the campus planning effort can focus on rebuilding the relationship. This is achieved over time through concerted outreach to community groups and leaders to better understand mutual needs and concerns. Undertaking an open and transparent campus planning effort in a public forum is not without costs and risks. However, institutions that have made a concerted effort to leverage their campus planning efforts to repair their town-gown relationship usually find it worth the investment. Many institutions have used U.S. Department of Housing and Urban Development Office of University Partnerships Community Outreach Partnerships Centers (COPC) annual grants to support a wide variety of town-gown partnerships.⁹ One of the grant recipients, Trinity College in Hartford, Connecticut, stands out as an institution that has fostered real change in the neighborhood surrounding its campus. Some other well-known examples of town-gown transformations underway are at Clark University in Worcester, Massachusetts; Ohio State University in Columbus; University of Pennsylvania in Philadelphia; Wayne State University in Detroit; University of Cincinnati in Ohio; Rutgers, State University of New Jersey in Camden; and Stanford University in Palo Alto, California (Sitler et al. 2006).

9. Plan Reactively to Address Pressing Facilities Issues

Institutional change is inevitable, whether planned for or not. Planning provides the means for productive change. Colleges and universities periodically find themselves having to make a facilities decision without the benefit of a current campus master plan to inform the discussion. Where to locate the new science building, find room for an expanding program, or create additional parking lots are common examples of such decisions. The decision may result in a short-term solution with unintended longer-term consequences that limit future development options, as seen on many campuses.

The cumulative pressure of multiple facilities needs may even paralyze the institution's short-term decision process. In this instance, the institution may elect to pause and take a more comprehensive and unified campus planning approach. Backing into a campus planning effort in this way is not ideal, but it does happen. When time and resources are limited, an abbreviated campus development planning effort can be employed. Relying on readily available information and senior administration

input, an experienced campus planning team can facilitate an effective planning retreat to help the institution resolve conflicting short-term priorities without mortgaging its future development options.

10. Identify Campus Development Growth Thresholds

For a variety of reasons, mostly financial, an institution's trustees often wonder how big the institution should be. Conducting a campus build-out analysis during the planning effort can help address this increasingly common question asked at all types and sizes of institutions.

A build-out analysis, often employing GIS technology, is conducted by assigning varying values to key institutional indices to model alternative build-out scenarios based on various enrollment projections. Among the available indices used in scenario planning are net assignable square feet per full-time equivalent (FTE) student, instructional space utilization rate, student to faculty ratio, percentage of residential students living on campus, ratio of parking spaces to students, land-use density as measured by floor area ratio,¹⁰ building height and setback envelopes, percentage of open green space on campus, construction cost per square foot, and energy consumption per gross square foot.

Scenario planning identifies campus facility and infrastructure limitations on incremental enrollment values or other indices. These growth limitations are referred to as thresholds beyond which significant facilities investment is needed to continue growing. Examples of potential thresholds include running out of double occupancy rooms that can be converted to triples, thus requiring a new residence hall; lack of classrooms for new programs, thus requiring a new academic building; outgrowing the ability of the central dining food service to serve any more students, thus requiring a second facility; no available land to increase campus parking, thus requiring a parking garage; and exceeding the capacity of local utilities, thus requiring an investment in the local utility system.

Emerging Themes in Campus Planning

Emerging reasons to undertake campus planning. In addition to these 10 most common reasons, institutions are undertaking campus master planning for a variety of emerging reasons. These include increased campus security concerns, emerging benchmarks of campuswide sustainability,¹¹ access to alternative energy sources, the return of aging baby boomers to campus, and financially-driven initiatives to maximize campus facilities usage beyond the traditional 30-week academic calendar.

Emerging trends in campus planning. Increasingly, institutions are learning the value of integrated planning. Traditionally, higher education institutions have conducted five different institutional planning efforts (strategic, academic, information technology, facilities, and financial) somewhat independently and at varying intervals. While institutions typically update their financial plans annually, they undertake academic planning only every five to seven (or more) years and facilities master planning even less frequently.

This approach was justifiable given the significant time and resources required for each of the individual planning efforts. However, this approach results in campus development decisions inevitably made without the benefit of current knowledge or updated data. For example, campus planning based on a seven-year old academic plan may result in a space allocation that fails to

address the needs of current and emerging academic programs. Another common example is developing a five-year institutional capital improvement plan without knowing the full cost of addressing campuswide priority deferred maintenance items that will ensure asset preservation. The SCUP Planning Institute stresses the need to integrate academics, finances, and facilities planning. I have worked with several large institutions that have learned to actively maintain and manage a campus master plan-developed project implementation plan database as an ongoing tool to manage change as their academic and financial plans evolve over time.

Emerging campus planning tools. By investing in the appropriate software and staffing, today an institution can internally maintain the space inventory and existing conditions documentation typically developed during a comprehensive campus master planning effort. With the use of emerging scenario-planning software, planners have the tool to three-dimensionally model in real time various campus development scenarios based on assigning values to multiple indices.

The obvious advantage to automating scenario planning is the ability to ask multiple “what if” questions and quickly see their resultant impact on campus development. With such an interactive and integrated scenario-planning tool, planners can quickly respond to institutional queries such as “What would our campus and institutional operating budget look like in five years if our undergraduate student enrollment increases 15 percent and we achieve our goal of 75 percent of undergraduates living on campus; lower our faculty to student ratio to 1:12; achieve 75 percent classroom utilization; and raise tuition, room, and board rates by nine percent?”

An interactive and integrated scenario planning tool will also allow institutions to redirect campus development in response to evolving institutional priorities and resources. The focus of campus master planning will rely less on predicting change and more on managing change. However, scenario planning using interactive software is relatively new to the field of campus planning, and much scrutiny of the assumptions and relevancy of the data and formulas behind these emerging proprietary software programs should be expected before these tools are widely accepted. In the interim, institutions are advised to link their campus development planning efforts and planning tools to the primary purposes for which the planning is undertaken.

Conclusion

Since the success of your campus master plan is predicated on understanding the reasons why you are developing one, it follows that your preplanning efforts should involve a comprehensive assessment of your institutional planning goals, priorities, and resources. Aligning the campus master planning effort to address specific questions of why you are planning in the first place will ensure that your planning effort is successful by the terms that you define.

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Notes

1. According to Blake Gumprecht, assistant professor, Department of Geography, University of New Hampshire in Durham, the term “college town” can refer to a large university setting such as that of Pennsylvania State University or a small college town like Keene, New Hampshire. Gumprecht (2003) roughly defines a college town as a place where the number of university and college undergraduates represents a minimum of 25 percent of the total local community population.

2. Although student residences are not typically included in an FTE-driven space program, it is important to include nonresidential spaces embedded in student residence halls in the campuswide physical space inventory. These spaces include classrooms or computer laboratories, multiuse spaces for campuswide events, campus storage, fitness equipment rooms, and housing and public safety offices.

3. The Higher Education General Information Survey (HEGIS), conducted in 1974 by the National Center for Education Statistics, was subsequently incorporated into the Integrated Postsecondary Education Data System (IPEDS). IPEDS is comprised of a series of postsecondary institution surveys administered by the National Center for Education Statistics.

4. In 2003, the Society for College and University Planning published a campus facilities inventory of 100 institutions in response to an unmet need within the higher education community for postsecondary facility data usable for benchmarking. By 2007, the final year the society reports conducted the study, 284 institutions had participated in the voluntary survey.

5. The facilities conditions index is expressed as a ratio of the cost of remedying maintenance deficiencies against the current facility replacement cost, excluding land values. Another common index is the cost per square foot to address deferred maintenance and renewal items.

6. Geographic information system (GIS) technology is increasingly being used by campus planners for existing conditions documentation, resource management, and campus land development planning. Data produced by federal,

state, and local governments; private companies; academia; and nonprofit organizations can be directly entered into a GIS from such sources as the U.S. Census Bureau, U.S. Geological Survey maps, tax maps, zoning districts, land ownership, soil maps, and environmental maps. A critical element of a GIS is its ability to produce graphics that convey the results of resource analyses. Wall maps, Internet-ready maps, interactive maps, and other graphics can be generated that allow the institution to visualize and thereby understand the results of analyses or simulations of potential events.

7. Planned institutional district (or general institutional district) zoning is increasingly used by communities to establish guidelines for campus development in a manner that supports compatibility with local neighborhoods. In exchange, the institution is typically granted an expedited review and approval process for incremental campus development that conforms to the institutional district zoning requirements.

8. A PILOT is a payment in lieu of taxes made by a private not-for-profit institution to compensate a local government for some or all of the tax revenue it loses because of the nature of the ownership or use of a particular piece of real property. In some states where land owned by colleges and universities is not subject to local property taxes, the state government reimburses local governments for part of the tax revenue that the local government would otherwise have collected.

9. In 1994, the U.S. Department of Housing and Urban Development established the Office of University Partnerships to encourage and expand the growing number of partnerships formed between colleges and universities and their communities.

A HUD Community Outreach Partnerships Centers grant is typically \$400,000 over three years and is nonrenewable. The widely promoted grant was awarded annually and applicants were judged on the level of partnership and program innovation. However, the Community Outreach Partnerships Centers program will not be funded during the fiscal year 2008 grant cycle.

10. Floor area ratio is the ratio of the total floor area of buildings on a certain location to the size of the land at that location or the limit imposed on such a ratio. Thus, a floor area ratio of 2.0 indicates that the total floor area of a building is two times the gross area of the plot on which it is constructed, as would be the case in a multistory building.

11. Various groups are currently competing to establish a widely accepted campuswide sustainability rating system similar to the well-established U.S. Green Building Council (USGBC) LEED building rating system. The Association for the Advancement of Sustainability in Higher Education (AASHE) has initiated a collaborative process to develop a campus sustainability rating system, called the Sustainability Tracking, Assessment, and Rating System (STARS). STARS was officially launched April 8, 2008. More than 90 colleges and universities are testing STARS during the pilot period and will provide feedback over the course of 2008 to AASHE to help inform future versions. Another group, the Sustainable Endowments Institute, a Cambridge, Massachusetts nonprofit organization, recently released its second annual College Sustainability Report Card, which grades the 200 colleges and universities with the largest endowments in the United States and Canada.