



Capital Budgeting Practices in Public Higher Education

by Derrick A. Manns and Stephen G. Katsinas

This study finds that most states do not have a coordinated master plan for facilities to prioritize their needs given the limited resources that exist to address the economic and educational goals for public higher education. This is needed to address the potential numbers of new students, lifelong learning opportunities, and workforce development issues. Statewide priorities are needed to address the deferred maintenance challenge, especially in light of growing needs for upgraded laboratories, research equipment, and appropriate academic space.

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If America is to provide sufficient access to higher education programs, a good infrastructure is essential, as the late Ernest L. Boyer of the Carnegie Foundation for the Advancement of Teaching recognized (Boyer 1981). Sadly, the sound practices that facilities experts have long suggested—comprehensive, periodic facilities audits, the creation of baseline data for institution and state master plans for facilities—is not occurring, despite the obvious need for such data to improve planning processes for chief executive officers, trustees, coordinating boards, legislators, and governors (Manns, 2001). Experts have also suggested that between 1.5% and 3% of the institution's operating budget should be devoted to facilities repair and renewal (Bareither, 1977; Kaiser, 1996). The conceptual approach of periodic, comprehensive audits starting at the institutional level and working up to the statewide master plan, may be termed the “rational” approach to facilities assessment, renewal, and funding. The budgetary and political processes that fund capital needs in public higher education are not always rational, however.

In 1989, APPA released a national assessment of the facilities challenge facing American colleges and universities. *The Decaying American Campus: A Ticking Time Bomb* (Rush and Johnson 1989) painted a daunting picture: The total replacement value of all U.S. higher education facilities was estimated at \$300 billion, and 20 percent of these facilities required replacement costing \$60 billion. One third of these replacement needs were classified as urgent (p. viii). A 1995 follow-up study estimated those urgent needs to have grown to \$26 billion (Kaiser, 1996). Given the severity of the current recession's impact on public higher education resources, a conservative estimate is that deferred maintenance might rise by more than 25 percent (Williams June, 2003).

In 1998-99, one of this paper's coauthors, Derrick A. Manns, initiated a state level study to assess the facilities challenge. Manns (2001) study titled “A Fifty State Assessment of Capital Needs for Public Higher Education,” was designed to complement the annual Grapevine survey of public higher education operating budgets initiated in 1958 by Illinois State University. The sources of Grapevine's data are the chief fiscal officers of state higher education agencies (SHEFOs). Founded by the late M.M. Chambers, and continued by Edward Hines and currently James C. Palmer. Grapevine is oldest independently collected, continuous longitudinal data set on public higher education in the United States (Palmer and Hines 2000). Its continuing popularity has much to do with its operational methodology that has as its base comparing state need to the relative ability and capacity of that state to invest in higher education. No effort has been made to gather information on private investments, grants, gifts, or bequests made to public colleges and universities. Although some capital funding may come from tuition and other sources, this study did not gather that information.

Methodology of the Present Study

The purpose of this study was to assess state budgeting practices for public higher education capital needs for the years 2000-2004. In Manns' 1998-99 study, A Fifty State Assessment of Capital Needs for Public Higher Education, SHEFOs were asked to report using the last available complete year, 1996-97. Since no major national study of its type had been attempted for several years, the 1998-99 study attempted to ascertain state policies, practices, and problems related to capital funding for public higher education. That study had an excellent response rate of 82%, or 41 states. In the fall of 2003, that study was updated, with some changes in the questions. Again an excellent response was obtained from 40 states (See Appendix A). The updated study also gathered data from the intervening years of 2000 to 2004, so as to provide a more complete picture of changes over time. As with the 1998-99 administration, the data collected on state tax appropriations for capital budgets were collected in a manner designed to complement the existing Grapevine database (Palmer and Hines 2000).

This study was limited to public higher education in the 50 states. Data were requested for all fiscal years from 2000 to 2004, to provide a more complete picture of changes over time, but many could not or did not provide 2004 data. The state higher education finance officers (SHEFOs) were designated as the officials most likely to respond to this study, as each state must have a designated person or staff responsible for collecting higher education information according to the Higher Education Facilities Act of 1963, as amended. When no SHEFO could be identified, the survey was sent to the chief executive officer.

A methodological approach modeled after the Grapevine studies was chosen for the following reasons: first, to allow for nationwide comparisons of the operating and capital budgets; second, to lay the foundation for a longitudinal database of state appropriations for capital needs that builds on the strengths of the Grapevine methodology, most notably the ability to compare funding effort and overall state capacity. The authors were also interested in the investments in capital needs of "fast growth" states—with double digit increases in high school graduates—since serving Tidal Wave II students is a major challenge faced in many states. It is important to note that this study collects only capital needs data provided by state or public funds. The two research questions addressed in this study are: 1) what decision-making, funding, and allocation processes are used to meet capital needs for public higher education across the U.S., and 2) to what degree are sound practices as described

by experts in the field facilities management actually occurring in the states?

Results

Questions to obtain basic information about the decision-making processes for meeting capital needs for public higher education at the state level were initially asked. The majority of respondents indicated that:

- Their states do not mandate that their public institutions of higher education set aside general operating funds from the annual operating budget appropriations for renewal and replacement (90%);
- A majority of the states do not have a statewide facilities master plan (65%);
- Overwhelmingly, funding formulas are not used in the request phase by state higher education agencies to request funds for public higher education capital needs. Funding formulas are more likely to be used in the budget request phase for *operating* needs than for *capital* needs in a large majority of states (75%); and
- States lack comparative data.

The majority of states use some common mechanisms for deciding, funding, and allocating for capital needs in public higher education. No two states are alike, however, and legislatures generally allocate capital funds directly to higher education institutions without the use of formulas to allocate

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these funds. When respondents were asked about the process used to allocate capital appropriations at the state level, the majority indicated that all or most of capital funds were given directly to the campuses from the state legislatures.

While legislatures in most states are willing to statutorily assign responsibility for preparing a unified operating budget request to state higher education agencies, they appear unwilling to relinquish a proprietary role over the budgetary request and allocation of public higher education capital funding. It may also reflect a desire on the part of state legislators to not delegate to the state higher education agency (and governors) political credit associated with investments in capital budgets.

Decision-Making Process. Of the 40 responding states to the question “Does your state mandate that its public institutions of higher education set aside general operating funds from the annual appropriation for renewal and replacement?”, four states or 10% indicated that they did, but 36 states or 90%, did not.

Operating Funds Set Aside for Public Higher Education Capital Needs. The literature on facilities has long suggested that setting aside a dedicated percentage of operating funds for capital needs to be good management practice. In Kaiser (1982) suggested that institutions should set aside between 1.5% and 3% of their operating budgets for facilities renewal and replacement. When asked the question “What percent of operating funds are set aside for renewal and replacement in your state?” 25 of the 40 states (63%) responded. Of these 24, 20 states or 80%, set aside between 0 and 1.5% of their operating budgets at the state level for facilities, and 17 of these 20 set aside less than 1.0%, below what the literature suggests. Five states (21%) [MN, IL, MO, ND, VA] set aside 2.0% or more of their operating budgets for renewal and replacement of facilities. One state (VA) indicated that setting aside more than 5.1% of their operating budgets for facilities renewal and replacement.

Process Used for Capital Funding Allocations. There are many differences across the states with regards to appropriating funds for higher education facilities. Some legislatures appropriate all funds directly to the higher education agency (HEA), while others do so to individual campuses. If funds are given to the HEA, then to what extent are the funds allocated to the campuses? States were asked to respond to the question, “What best describes the allocation process in your state?” Thirteen states (33%) indicated that all or most of the funds allocated for capital needs at the publicly controlled institutions in their states were given to them by the designated state agency. Twenty-seven (68%) indicated that *all* or *most* funds for capital needs at the campus level were given to the institutions by the legislature.

Long-Range Facilities Planning and Facilities Audits. Facilities experts also advocate the need for long-range facilities master planning (Kaiser 1996). Instinctively, it seems logical that statewide facilities master plans would be good

TABLE 1

CAPITAL APPROPRIATIONS 2000-03

State	2000 Capital Appropriations	2001 Capital Appropriations	2002 Capital Appropriations	2003 Capital Appropriations
AL		26,284,404		
AK	3,450,000	69,424,100	2,965,500	29,665,500
AZ		0		0
AR	28,607,500	28,607,500	10,589,906	10,589,906
CA				
CO	123,908,000	61,000,000	6,722,806	519,779
CT	290,810,473	270,708,960	257,787,827	190,358,100
DE	30,500,000	29,000,000	20,000,000	13,000,000
FL				
GA	149,309,208	204,260,000	139,290,000	92,025,000
HI		219,515,000	84,044,000	22,804,000
ID				
IL	302,288,400	205,159,700	369,372,900	282,397,600
IN	169,609,029	175,329,908	153,266,181	178,266,181
IA	19,500,000	25,115,000	28,243,000	54,197,300
KS				0
KY				
LA				
ME				
MD	152,569,000	290,314,000	217,485,000	294,969,000
MA				
MI	175,100,000	235,400,000	138,900,000	41,600,000
MN	131,100,000		158,800,000	
MS				63,760,000
MO	92,843,020	140,042,937	0	0
MT				
NE	27,347,870	18,010,547	16,338,222	12,638,681
NV	62,307,996	62,307,996	64,137,442	64,137,442
NH				
NJ	0	0	0	0
NM				
NY				
NC	0	2,500,000,000	0	0
ND	8,155,000	8,155,000	7,660,000	7,660,000
OH	252,755,028	248,110,441	248,110,441	249,485,234
OK				
OR				
PA	40,000,000	65,000,000		65,000,000
RI	5,456,000	6,500,000	5,646,922	7,486,654
SC	89,000,000	0	0	0
SD		11,034,832		16,648,664
TN	83,000,000	15,400,000	49,500,000	18,000,000
TX				
UT	60,413,700	10,880,800	90,050,400	113,721,500
VT	3,000,000	1,000,000	3,000,000	1,000,000
VA	133,002,000	26,811,000	26,811,000	429,000,000
WA				
WV	33,570,000	35,337,000	37,197,000	39,155,000
WI				
WY	0	0	125,000	12,740,000

policy at the state level as well. When asked, “Does your state have a long-range facilities master plan for public higher education?,” 14 states (35%) indicated a facilities master plan existed, while 26 (65%) did not. When asked “How often does your state conduct facilities audits?,” 4 states indicated conducting facilities audits yearly, 5 states indicated conducting facilities audits every 2-3 years, and the vast majority, 30 states or 77%, indicated that they did not conduct facilities audits on a regular basis.

The study revealed that roughly two-thirds of all states possessed no long-range master plan for facilities, and just 9 states conducted regular periodic facilities audits. *The vast majority do not conduct facilities audits on a regular basis or at all.* These findings—that master planning and facilities audits were not widely conducted, is probably not surprising given the limited role most designated state agencies have related to appropriating funds for facilities. Still, this finding is troubling, because the size of the problem as documented in the APPA, NACUBO, and other studies indicate that a comprehensive statewide approach will be needed to address the facilities challenge.

State Appropriations for Operating and Capital Budgets.

Table 1 presents the responses from states regarding appropriations for capital budgets for fiscal years 2000-2003. Data for capital budgets were obtained directly from the survey respondents using the question, “What was your state’s funding amount for capital appropriations for public higher education? If funding in your state is provided biennially, take the biennial amount for the period and divide by two.” Table 1 clearly shows a wide disparity exists among and between the states, in terms of capital appropriations for public higher education.

Not surprisingly, the amount of state appropriations for capital needs is far less than for operating needs. This is not to suggest that these numbers should be the same, or even close to the same, since there are inherent differences in the uses of operating and capital funds. Still, funds must be available for capital needs if instruction, advising, research and other common functions in higher education are to take place.

Deferred Maintenance of Facilities. States were asked to respond to the question, “Does your state higher education governing or coordinating board have an estimate of the amount of deferred maintenance currently existing for public institutions?” Of the 39 responding states to this question, 30 (77%) indicated they possessed an estimate of the amount of deferred maintenance, while 9 (23%) did not. Table 2 shows the most recent data available listing the amount of deferred maintenance and the replacement values for states that reported this data.

Facilities Condition Index. Harvey H. Kaiser in his 1996 APPA study discussed the “Facilities Condition Index” (FCI), which compares the estimated replacement value of facilities to the estimated deferred maintenance. Table 3 represents the Facilities Condition Index for this current study. Kaiser sug-

2
TABLE

Estimated amount of Deferred Maintenance And the Current Replacement Value (FY 2003)

State	2003 Replacement Value	2003 Deferred Maintenance
Alabama		1,090,717,378
Alaska	*	150,000,000
Arizona	4,500,000,000	216,000,000
Arkansas	3,000,000,000	1,300,000,000
California		
Colorado	7,200,000,000	388,757,000
Connecticut	2,700,000,000	
Delaware		
Florida		
Georgia	5,900,000,000	
Hawaii	1,600,000,000	180,000,000
Idaho		
Illinois	15,000,000,000	1,600,000,000
Indiana	9,600,000,000	
Iowa	5,900,000,000	145,700,000
Kansas	4,049,134,000	682,700,000
Kentucky		294,381,000
Louisiana		
Maine	5,968,587,157	
Maryland		73,000,000
Massachusetts		
Michigan	3,100,000,000	
Minnesota		625,000,000
Mississippi	4,793,535,685	
Missouri		
Montana	3,011,500,000	
Nebraska	2,080,000,000	
Nevada		59,000,000
New Hampshire	3,600,000,000	
New Jersey		200,000,000
New Mexico		
New York		
North Carolina	1,089,400,000	605,000,000
North Dakota	15,300,000,000	72,000,000
Ohio		2,300,000,000
Oklahoma		1,783,658,443
Oregon	4,000,000,000	
Pennsylvania		700,000,000
Rhode Island	2,500,000,000	48,500,000
South Carolina	800,829,483	603,000,000
South Dakota	3,705,420,500	26,588,374
Tennessee	14,385,866,350	1,000,000,000
Texas	3,300,000,000	523,308,780
Utah		300,000,000
Vermont	4,722,869,000	
Virginia		602,000,000
Washington	1,125,000,000	
West Virginia	6,000,000,000	95,000,000
Wisconsin		645,000,000
Wyoming		53,000,000

**Dollar value was reported but is inconsistent with previously reported data.*

**2003-04 Facilities Condition Index:
Estimated Deferred Maintenance
Divided by Estimated Replacement Value
(in thousands) expressed in (%)**

State	2003 Replacement Value	2003 Deferred Maintenance	FCI
Alabama		1,090,717,378	
Alaska	*	150,000,000	
Arizona	4,500,000,000	216,000,000	4.8
Arkansas	3,000,000,000	1,300,000,000	43.3
California			
Colorado	7,200,000,000	388,757,000	5.39
Connecticut	2,700,000,000		
Delaware			
Florida			
Georgia	5,900,000,000		
Hawaii	1,600,000,000	180,000,000	11.25
Idaho			
Illinois	15,000,000,000	1,600,000,000	10.66
Indiana	9,600,000,000		
Iowa	5,900,000,000	145,700,000	2.46
Kansas	4,049,134,000	682,700,000	16.86
Kentucky		294,381,000	
Louisiana			
Maine			
Maryland	5,968,587,157	73,000,000	1.22
Massachusetts			
Michigan			
Minnesota	3,100,000,000	625,000,000	20.16
Mississippi			
Missouri	4,793,535,685		
Montana			
Nebraska	3,011,500,000		
Nevada	2,080,000,000	59,000,000	2.83
New Hampshire			
New Jersey	3,600,000,000	200,000,000	5.55
New Mexico			
New York			
North Carolina		605,000,000	
North Dakota	1,089,400,000	72,000,000	6.6
Ohio	15,300,000,000	2,300,000,000	15.03
Oklahoma		1,783,658,443	
Oregon			
Pennsylvania	4,000,000,000	700,000,000	17.5
Rhode Island		48,500,000	
South Carolina	2,500,000,000	603,000,000	24.12
South Dakota	800,829,483	26,588,374	3.32
Tennessee	3,705,420,500	1,000,000,000	26.98
Texas	14,385,866,350	523,308,780	3.63
Utah	3,300,000,000	300,000,000	9.09
Vermont			
Virginia	4,722,869,000	602,000,000	12.74
Washington			
West Virginia	1,125,000,000	95,000,000	8.44
Wisconsin	6,000,000,000	645,000,000	
Wyoming		53,000,000	

*Dollar value was reported but is inconsistent with previously reported data.
Note: Only 22 states provided enough data to calculate the FCI.

gested that “the FCI should be held below 5.0% and, under certain conditions, closer to 2.0%” (Kaiser, 1996, p. 43).

In other words, the FCI represents the depleted value of a given states’ physical plant. Once established as a reliable number, it can be used regularly for planning and budgeting purposes as a tool to address and improve unsatisfactory conditions. Kaiser, and other facilities studies found in the literature, suggests detailed facilities audits as the best method by which to determine that desired target, and to evaluate opportunities to accomplish remedial work in a cost-effective manner. It is very important, Kaiser argues, for facilities audits to be completed and updated regularly so that reliable results can be obtained from year-to-year (Kaiser, 1996). This data can only be used if the data collected are accurate and consistent.

Discussion

It is clear that an overwhelming majority of states do not set aside operating funds for renewal and replacement of public higher education facilities, as suggested by facilities experts. It is undeniable that the current economic situation in the states, and the limited recovery to date, will only add additional billions to the growing backlog in public higher education infrastructure investment, to say nothing of the additional investment needed to meet the facilities needs of “Tidal Wave II.”

The vast majority of states do not deploy practices recommended by facilities management experts, including the allocation of a small percentage of operating funds for deferred maintenance. Similarly, a majority of states do not set aside the minimum of 3 percent of their operating budgets for renewal and replacement of facilities in public higher education. States could make use of successful models in other states and at other public institutions. It should be noted that some states have been quite creative in addressing these needs through dedicated funds, special line items, or other programs.

Recommendations

To address some of these concerns and issues, this study offers the following recommendations.

Comprehensive master plans for facilities. The first and most logical step is to collect useful, consistent data for master planning at both the institution and statewide levels. Statewide facilities master plans for public higher education built from the “bottom up” are needed. This requires consistently collected data across all institutions and sectors of public higher education. While some states require their local community college boards to fund facilities renewal, replacement, and new construction, community colleges should not be excluded from any statewide facilities master planning process.

STATES RESPONDING TO THE SURVEY, 1998-1999 AND 2003-2004 ADMINISTRATIONS

1998-1999 SURVEY				2003-2004 SURVEY				States that Responded in 1999 & 2004
Region	Responding States	Non-Responding States	Total	Region	Responding States	Non-Responding States	Total	
Northeast	CT, IL, IN, ME, MA, NH, NJ, OH, PA, RI, VT, WI	MI, NY,	12 of 14 86%	Northeast	CT, IL, IN, MI, NJ, OH, PA, RI, VT, WI	NY, ME, MA, NH	10 of 14 71%	CT, IL, IN, NJ OH, PA, RI, VT WI (9 of 14, 64%)
Southeast	AL, DE, GA, KY, MD, NC, SC, TN, WV	FL, MS, VA	9 of 12 75%	Southeast	AL, DE, GA, KY, MD MS, NC, SC, TN, VA, WV	FL	11 of 12 92%	AL, DE, GA, KY, MD, NC, SC, TN, WV (9 of 12, 75%)
Northwest	AK, IA, ID, MN, NE, ND, SD, WY	MT, OR, WA	8 of 11 73%	Northwest	AK, IA, ID, MN, NE, ND, SD, WY	MT, OR, WA	8 of 11 73%	AK, IA, ID, MN NE, ND, SD, WY (8 of 11, 73%)
Southwest	AR, AZ, CA, CO, HI, KS, LA, NM, NV, OK, TX, UT	MO	12 of 13 92%	Southwest	AR, AZ, CA, CO, HI KS, MO, NV, OK, TX, UT	LA, NM, OK	11 of 13 85%	AR, AZ, CA, CO HI, KS, NV, OK TX, UT (10 of 13, 69%)
Total:			41 of 50 82%	Total:			40 of 50 80%	

Notes: 1. Regions were determined using GRAPEVINE methodology, some percentages were rounded.
2. Some states have more than one state agency responsible for some level of higher education, so it is possible to have multiple state responses. For example Wyoming submitted a state response for both 4-year and 2-year schools.
3. 1998 –1999 survey was doctoral dissertation by Derrick Manns. 2003-2004 survey was an update.

Increased cooperation. State legislatures should use their latent convening power and near unlimited investigatory power to study and bring attention to this issue. Professional organizations within higher education, and civic organizations external to the academy, should be encouraged to participate. It is clear that legislative leadership is essential. Sadly, the 2004 meeting of the National Conference of State Legislatures did not include a single session devoted to the issue of funding public higher education facilities.

Develop a longitudinal database. No longitudinal database on facilities funding for public higher education currently exists. This study attempted to provide a multi-year snapshot of state tax appropriations for public higher education facilities. A longer term view is clearly warranted. The U.S. Department of Education, the Education Commission of the States, and the State Higher Education Executive Officers (SHEEO) all have a vested interest to ensure that a longitudinal data set is developed.

Strengthen role of higher education agencies. The role of state higher education agencies in collecting good facilities information should be strengthened. State HEAs should routinely collect facilities data that is directly tied to their long-term state policy enrollment and success objectives for public higher education.

Conclusion

New public higher education facilities that are constructed or upgraded today will likely be around in 2040, decades after any bond issue is retired. Policy-makers should consider creating dedicated, permanent revenue streams to fund the construction, renovation, and rehabilitation of the physical

infrastructure of public higher education. Currently, it appears that only an extremely limited amount of funding can be allocated on an annual basis, which tends to emphasize the improvement of existing space (patching), and deployment of limited resources now available to match available federal and private funds (attracting). Sadly, the long “to-do” list of things to be repaired seems only to get longer (Williams, June 2003). As Gratto et.al. note, colleges and universities must “maintain environments, places, and spaces that demonstrate concern for safety, comfort, and enjoyment of people” (2002, p. 24).

As institutions grow to meet a dramatic increase in the size of the college-eligible student pool during the first decade of the 21st century, so too will the demand for physical facilities. Over the next several decades, the higher education enterprise will continue to require the construction, renewal, and replacement of its facilities. Without adequate facilities, the academic enterprise will have difficulty meeting its fundamental societal purposes to develop talent and promote the cause of equity (Astin 1985). Furthermore, developments in science and technology will require new investments in the research facilities on many college campuses.

Facilities will continue to be the backbone of American higher education and without adequate buildings; research, teaching, and service could be impaired. The capital needs of public higher education must be formally and consistently addressed if the states are to effectively utilize all their human resources to meet the educational and social needs of the 21st century (Amaratunga and Baldry 2000).

Facilities will continue to be the backbone of American higher education, and without adequate buildings, research, teaching, and service could be impaired.

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