

The University of North Carolina



Repair and Renovation Funding *Program Review: 1993 to 2003*

August 2004

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The University of North Carolina Repair and Renovation Funding Program Review: 1993 to 2003 August 2004

1—ABOUT THIS STUDY

In 1993, pursuant to recommendations of the *Government Performance Audit Committee (GPAC)*, the North Carolina General Assembly instituted an *R&R Reserve Fund Account (R&R Reserve)*, to fund repairs, renewal, and renovations to state-owned facilities. With this program, North Carolina asserted responsibility for preservation and maintenance of taxpayer-supported capital assets.

Since 1993, The University of North Carolina (UNC) and other state agencies have received significant funding under this program. The UNC Board of Governors (BOG) has been applying an internal allocation formula, developed in 1994, to distribute UNC's share of *R&R Reserve* funds to constituent institutions. With a decade of program experience, the Office of the President (OP) considered that it now would be appropriate to review both process and progress. Eva Klein & Associates, Ltd. (EKA) was asked to conduct this review, because of the firm's prior work relating to capital development policy and planning for UNC, including creation of the 1994 UNC *R&R Reserve* allocation formula.

Objectives

The initial objective was to review UNC's uses of its *R&R Reserve* funding, including:

- Effectiveness and appropriateness of past use of the funding and of the new six-year R&R funding plan
- The internal UNC R&R allocation formula itself.

After initial work began, the consultants determined that it also would be useful to examine the basis for how R&R funding is allocated to UNC, vs. other state agencies. Thus, with OP's agreement, we determined to organize this review of the *R&R Reserve* funding program into three perspectives:

- State level practices
- UNC (system) level practices
- UNC institution level practices.

Methods

The consultants reviewed the history of allocations and actual approved/funded projects from 1993 through the current projects proposed to be funded for 2003. The team also reviewed the 1994 UNC allocation formula and internal decision processes, at the campus level, for determining what projects to fund. Projects funded were reviewed in context of the legislative intent, including the 12 categories of projects intended to be funded, and in the context of condition data from the *Facilities Condition Assessment Program (FCAP)*. Also considered indirectly were overall capital development programs and the effects of the current UNC Bond Program.

Much of this review was based on a sample of six UNC institutions. For these six institutions, the consultants requested from the Office of State Construction (State Construction), and were provided, summary reports of their *FCAP* histories, organized into the 12 legislative categories of R&R needs. The six institutions then provided an analysis of their R&R expenditures, organized into the same 12 categories. This permitted a scan of changes in these categories of needs.

The methodology also included consultations with UNC chief financial officers, OP financial staff, and extensive consultations with key staff in State Construction.

For the review of R&R funding for UNC and for other state agencies, the State Department of Insurance (State Insurance) provided data on *Current Replacement Value (CRV)* of facilities and *Gross Square Feet (GSF)* of facilities. State Construction provided *FCAP* data similarly organized.

Report Outline

Chapter 2 provides an analysis of R&R at the state level, beginning with legislative history and a summary of R&R funding from 1983 through 2003. Chapter 3 provides the analysis of R&R practices and funding levels at the UNC (system) level, including analysis of the allocation formula. Chapter 4 provides the analysis of R&R expenditure patterns at the UNC campus level. Chapter 5 provides a summary of recommendations that arise from this review.



2—ANALYSIS AT THE STATE LEVEL

North Carolina's R&R Reserve Fund

LEGISLATIVE HISTORY

1983 to 1992

In the late 1970s and early 1980s, the General Assembly's leadership became painfully aware of the condition of the State's facilities, particularly mental health facilities. These latter were built in two waves, the first in the late 1940s and the next in the mid-1960s. The General Assembly found that state facilities were in severe need of fixing, with all the usual problems—roofs, boilers, plumbing, heating and general renovations—all of which were the result of normal aging, with no systematic renewal funding in place.

In brief, political interests were great enough to start the General Assembly into appropriating some money annually for R&R. Records indicate such R&R funding was appropriated from 1983 through 1992; however, until 1993, there was no set method for the amount of R&R funding, and R&R needs competed directly with new construction dollars.

The 1993 Legislative Provision

It was not until 1993 that the law came about to designate an amount specifically for R&R.

In 1990 and 1991, the General Assembly conducted a study of state government under the auspices of the legislatively-appointed *Government Performance Audit Committee (GPAC)*. Of many GPAC recommendations made and adopted, one pertained to the creation of a *Reserve Fund for Repairs and Renovations*, by which the General Assembly would provide, annually, funds for current and deferred maintenance of state-appropriated facilities. This GPAC recommendation led to creation of the *Repair and Renovation Reserve Fund (R&R Reserve)* and to implementation of the *Facility Condition Assessment Program (FCAP)*.

Since 1993 Legislative Provision

In 1993, when the initial legislation established the *R&R Reserve Account*, the initial annual funding level was based on the lesser of one-fourth of the General Fund unreserved credit balance or 1.5% of CRV of the State's physical plant. The *R&R Reserve* funds could be allocated only for repairs and renovations of state buildings and related infrastructure supported from the General Fund. The Director of the Budget was to consider data from the *FCAP* in the Office of State Construction when establishing priorities for the proposed expenditure of these funds.

In 1995, 12 categories of R&R projects were established, to include:

- (1) Roof repairs and replacements
- (2) Structural repairs
- (3) Repairs and renovations to meet federal and State standards
- (4) Repairs to electrical, plumbing, and heating, ventilating, and air-conditioning systems
- (5) Improvements to meet the requirements of the Americans with Disabilities Act, 42 U.S.C. §12101 et seq., as amended
- (6) Improvements to meet fire safety needs
- (7) Improvements to existing facilities for energy efficiency
- (8) Improvements to remove asbestos, lead paint, and other contaminants, including the removal and replacement of underground storage tanks
- (9) Improvements and renovations to improve use of existing space
- (10) Historical restoration
- (11) Improvements to roads, walks, drives, utilities infrastructure
- (12) Drainage and landscape improvements.

It was specified that *R&R Reserve* funds could not be used for new construction or expansion of footprint, unless such expansion was required to comply with appropriate codes or standards.

Also in 1995, the *R&R Reserve Fund Account* was modified to provide funding based on the greater of one-fourth of the unreserved General Fund credit balance or 3% of CRV for all General Fund facilities.



In 1998, the UNC Board of Governors was allowed to allocate up to \$10 million for improvements to technology infrastructure.

In 1999, an additional \$20 million appropriation was made for additional capital improvements at certain institutions under the "Focused Growth" program.

In 2001 and 2002, no *R&R Reserve funding* was appropriated.

In 2003, a special \$300 million debt program was approved, for R&R funding. It provides capital financing for R&R in addition to direct appropriation and issuance of general obligation bonds. This *Certificates of Participation (COPs)* program covers costs of constructing, reconstructing, repair, enlarging, acquiring, or improving capital facilities.

R&R RESERVE PROGRAM ADMINISTRATION

Until 1989, the Office of State Budget and Management (OSBM) essentially allocated all R&R funds. In 1989, for the first time, money was designated for UNC by a special provision and that practice has continued to the present, except for the 2003 *COPs*.

In general, today, agencies involved in management of the program are:

- ❑ OSBM, which allocates and administers *R&R Reserve* funding to state agencies other than UNC
- ❑ The UNC BOG/OP, which allocates funding to UNC constituent institutions, specially-designated funds, and funding for affiliates:
 - *NC School of Science and Mathematics*
 - *Center for Public Television (CPTV)*
 - *NC Arboretum*
 - *NC Center for the Advancement of Teaching*
 - *UNC General Administration*
- ❑ State Construction, which provides the *FCAP* data and other support activities.

Following is a summary of program administration elements:

- ❑ All R&R projects require legislative approval.
- ❑ In addition, UNC and agencies must submit a six-year R&R plan for the biennial budget.
- ❑ No minimum or maximum dollar amounts are placed on the eligible projects: Projects of any size that fall within the 12 legislatively-established categories may be funded.
- ❑ In 1993 and 1994, available *R&R Reserve* funds were allocated between UNC and the other state agencies on the basis of 55% to UNC and 45% to all other state agencies. This original allocation was based on relative *GSF* of UNC (55%) and all other state agency space (45%).
- ❑ In 1995, the State's formula for distribution of the R&R funds between UNC and other agencies was modified to provide an allocation of 46% to UNC. According to State Construction, this change was based on the relative *FCAP* deficiencies between UNC and other state agencies at that time.

R&R FUNDING SUMMARY: 1983 TO 1993

The increase in R&R funds appropriated from 1994 to 1995 reflects the legislative change in how the *R&R Reserve Fund* was to be calculated, from 1.5% of *CRV* to 3% of *CRV*. Within the overall excellent features of this funding program, two concerns might be noted:

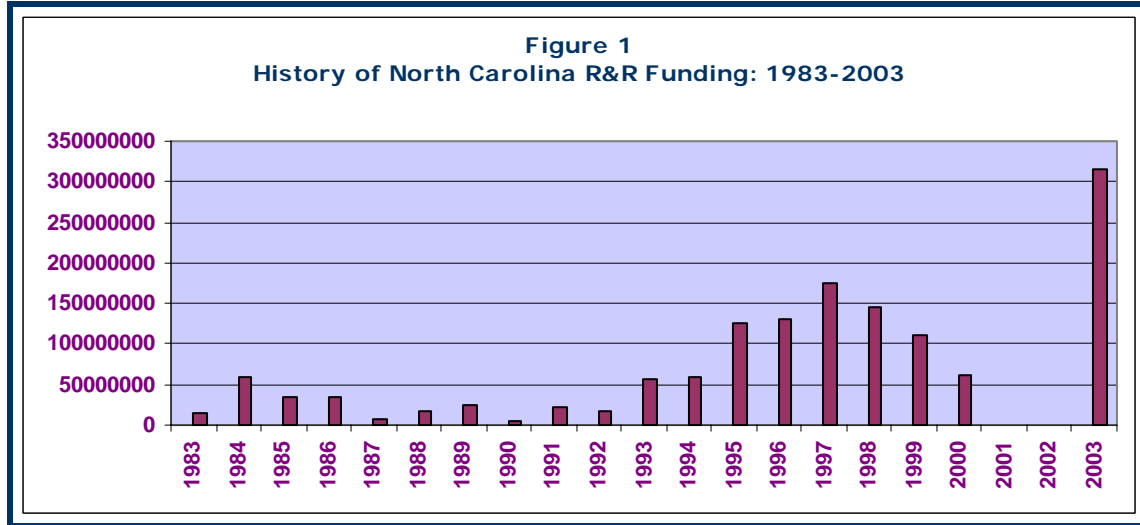
- ❑ Given state budget pressures, no funding was provided in 2001 and 2002. Fluctuations and lack of appropriations in some recent years make it more difficult to conduct the most effective continuing R&R program, based on an orderly multi-year plan.
- ❑ The *CRVs* used as the basis for determining annual *R&R Reserve* funding include buildings only. Significant infrastructure investments, including roads, walks, underground utilities, landscape elements, signage, and similar other physical environment features, are not included. For university campuses, and some other state agencies, this may amount to a considerable additional amount of state investment that must be maintained and renewed periodically. UNC campuses may have a disproportionate share of the State's total infrastructure.

For 2003, a \$300 million *COPs* program augmented an initial funding amount of \$15 million from the General Fund. This is providing a very significant catch-up for the two years in which there was no funding, and may also represent a good concept for future *R&R Reserve* funding that the State could consider.



Altogether, the General Assembly has appropriated a total of \$1.4 billion for R&R purposes in the 21 years from 1983 through 2003, a 21-year average of \$67.3 million.

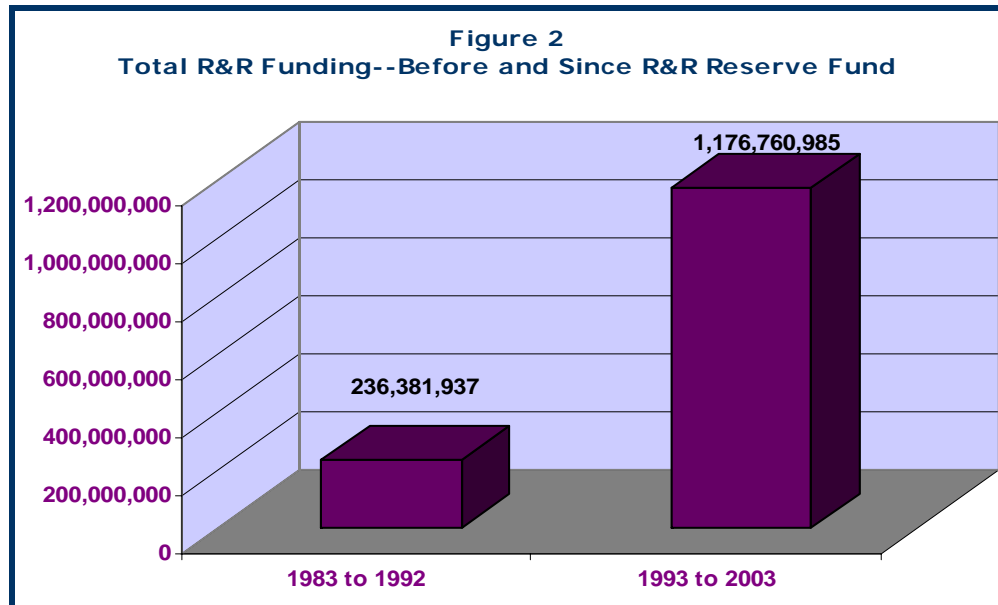
Figure 1 provides the annual R&R funding amounts, and illustrates the fluctuations in funding levels, including pre-1993 fluctuations; the absence of any funding in 2001 and 2002; and the especially large *COPs* program funding for 2003. Figure 1 also demonstrates the overall beneficial effects of the 1993 legislation, showing that substantial overall growth in funding occurred once the *R&R Reserve Fund* was created.



Source: NC Office of State Management and Budget, via Mr. Rob Nelson, UNC OP

Figure 2 also illustrates the substantial difference in average annual funding, before and since the *R&R Reserve Fund* was created.

- ❑ **1983 to 1992.** Prior to creation of the *R&R Reserve Fund*, a total of \$236.4 million was appropriated, averaging \$23.6 million per year (for 10 years).
- ❑ **1993 to 2003.** Since creation of the *R&R Reserve Fund*, a total of \$1.18 billion was appropriated, averaging \$107 million (for 11 years), a nearly five-fold increase in the average annual appropriation.



Source: NC OSBM, via Mr. Rob Nelson, UNC-OP



The history of the R&R allocations, before and since the 1993 legislation, points out what happens to the care of publicly-owned facilities when there is no systematic commitment, and especially in the absence of a particular “outcry” about needs, or when an outcry dies down.

The General Assembly took an important, constructive step in establishment of the *R&R Reserve* funding, to make ongoing funding of R&R a permanent expenditure. Also, to make up for two years of zero funding in 2001 and 2002, the General Assembly has initiated the 2003 *COPs* program, in the amount of \$300 million.

While all of this has been extremely positive, prior to the last two decades, there was essentially no funding for major maintenance and renewal of facilities, once they were built. Thus, during many, many decades, there was an accumulating *deferred maintenance backlog*, to which the R&R money now is being applied. Money also is being applied to *current maintenance*, as buildings age and deteriorate continuously. Also, funds are used for functional renovations and reconfigurations of space, or for modernizations to correct obsolescence, not just to maintain condition.

Finally, the level of investment in repairs and preservation of these facilities fluctuated considerably. In particular, the funding levels before 1993 were not only very low, in relation to decades of accumulated need, but also fluctuated in a wide range.

North Carolina’s Facility Condition Assessment Program (FCAP)

PROGRAM OVERVIEW

To our knowledge, North Carolina is unusual among the states in that it conducts a systematic statewide program for periodic assessment of the condition needs of state-supported capital assets.

This extremely valuable program is based on a consistent methodology, consistently applied. It is conducted by trained staff in the Office of State Construction, with participation of agency facilities personnel in each review.

In the early years, start-up activities were required, including initial creation of records for each building and development of the methodology. As time passed, the program matured and, in our view, now represents a national standard or “best practice” that other states might do well to emulate.

UNC campuses and other agencies are reviewed in three-year cycles. Thus, in allocating funding for repairs and renovation, North Carolina has the benefit of a relatively complete, current, and consistent database of building condition deficiencies.

Although *R&R Reserve* funds may be applied only to General Fund-supported facilities, it is a great benefit that the *FCAP* studies also include condition review of receipts-supported or “special fund” facilities. In the case of UNC institutions, receipts-supported facilities represent a significant additional inventory of state-owned property that must be maintained and renewed. Their inclusion in the *FCAP* reviews is a huge benefit to the institutions.

Also, State Construction reports that, several years ago, staff began to estimate repair/renovation needs by taking into account “whole building renovations” in cases where so many individual deficiencies exist that it makes sense to schedule the building for a comprehensive renovation. (Note: This same concept of “whole building modernizations” was applied in the *Capital Equity and Adequacy Study* that led to inclusion of a number of whole building modernizations in the Bond Program).

LIMITATIONS OF FCAP DATA

As noted above, the earliest of these *FCAP* condition audit studies are not considered entirely reliable, as the methodology was being developed and initial building data were being entered. State Construction reports that these audit studies have become more accurate as time has passed, based on the improved experience of both State Construction staff and the agency staff who participate.

The consultants note the concern expressed by State Construction that some agencies, including some (but not all) UNC institutions, have greater internal capabilities to track building deficiencies than others do. Where there are such campus/agency staff who monitor buildings closely and maintain internal data, State Construction feels they are in a better position to identify problems to State Construction staff, when State Construction staff conduct their on-site *FCAP* audit studies.

To follow up on this point, the consultants have ascertained that there are, in fact, five of 16 UNC campuses that have separate, internal procedures for tracking building deficiencies.¹ On balance, however, the consultants conclude that the application of a uniform methodology by State Construction staff means that some baseline degree of consistency is achieved.

¹ The five campuses that maintain internal facility audit programs are UNC-Asheville, UNC-Charlotte, UNC-Chapel Hill, NC State University, and East Carolina University.



Figure 3 provides the most current 2004 *FCAP* summary for UNC and other state agencies. In 2004, total deficiencies identified for all state-owned facilities is about \$1.2 billion. Of that total, \$971 million is attributable to General Fund-supported facilities. This latter figure is an approximation because only the UNC *FCAP* data are divided into General Fund Only vs. All Facilities. A similar distribution for other state agencies was not available from State Construction, as it is apparently difficult to make these distinctions for non-UNC facilities.

Figure 3
Most Recent (Year 2004) *FCAP* Deficiencies: UNC Total and Other State Agencies
By General Fund-Only and All Facilities

	General Fund Only	All Facilities	General Fund as % of All Facilities
UNC Total	603,619,392	860,436,072	70.2%
Other State Agencies	367,956,292	367,956,292	100%
Total	971,575,684	1,228,392,364	79.1%

Note: State Construction provided a distribution of *FCAP* data for General Fund vs. Receipt-Supported Facilities for UNC but not for other state agencies. Therefore, in this Report, the same number is reported for "General Fund" and for "All Facilities" for all state agencies.

Figure 4 provides the historical summary of *FCAP* data for UNC and for all other state agencies, by year, from 1993.

- Due to database query features, reports were not generated for 1999 and 2002; therefore, the figures for these two years were interpolated.
- In other years, these figures represent the total *FCAP* deficiencies as of that date, although studies were done in different years for different agencies and campuses.

State Construction modified the UNC totals for certain recent years, to deduct *FCAP* deficiencies associated with buildings that were subject to major renovations in the UNC Bond Program. However, these deductions were not made in the figures for Year 2004.

As Figure 4 shows, the *FCAP* numbers rose substantially in early years, as more agencies and campuses were reviewed and added to the database, and as more experience was gained with conducting the condition audits. For other state agencies, deficiencies rose through 1998, for the reason noted above, and then have fluctuated within a narrow range, with a decline of about \$16 million from 2003 to 2004.



Figure 4
 \$ FCAP Deficiency Summary : UNC and Other State Agencies: 1993-2004¹

	1993 ²	1994	1995	1996	1997	1998	1999 ³	2000	2001	2002 ³	2003	2004 ⁴
All Facilities												
UNIVERSITY TOTALS⁴	36,227,300	241,849,200	372,760,400	377,914,442	540,388,872	887,951,462	917,513,542	947,075,622	899,551,182	864,414,527	829,277,872	860,436,072
STATE AGENCY TOTALS⁶	81,257,900	179,786,690	229,316,060	300,039,060	381,076,472	384,688,472	379,690,992	374,693,512	374,693,512	379,188,752	383,683,992	367,956,292
GRAND TOTALS	117,485,200	421,635,890	602,076,460	677,953,502	921,465,344	1,272,639,934	1,297,204,534	1,321,769,134	1,274,244,694	1,243,603,279	1,212,961,864	1,228,392,364

General Fund-Supported Facilities Only

UNIVERSITY TOTALS⁵	N/A	63,075,445	155,776,295	198,362,995	326,276,295	658,785,245	634,472,140	610,159,035	680,878,122	621,135,857	561,393,592	603,619,392
STATE AGENCY TOTALS⁶	81,257,900	179,786,690	229,316,060	300,039,060	381,076,472	384,688,472	379,690,992	374,693,512	374,693,512	379,188,752	383,683,992	367,956,292
GRAND TOTALS	N/A	242,862,135	385,092,355	498,402,055	707,352,767	1,043,473,717	1,014,163,132	984,852,547	1,055,571,634	1,000,324,609	945,077,584	971,575,684

Notes:

¹All costs shown exclude design fees, contingency, or escalation necessary for project totals.

²Costs shown for 1993 are incomplete, since all complexes had not been surveyed and reported in that year.

³Costs shown for 1999 and 2002 are averaged between adjacent years, since actual amounts were not available for those years.

⁴University total shown for 2004 includes \$148,909,120 of FCAP costs that, as the Office of State Construction estimates, are related to buildings which are the subject of UNC Bond Program projects. Some FCAP costs associated with buildings that were the subject of Bond Program projects were deleted in previous years, but the adjustment amounts are not available.

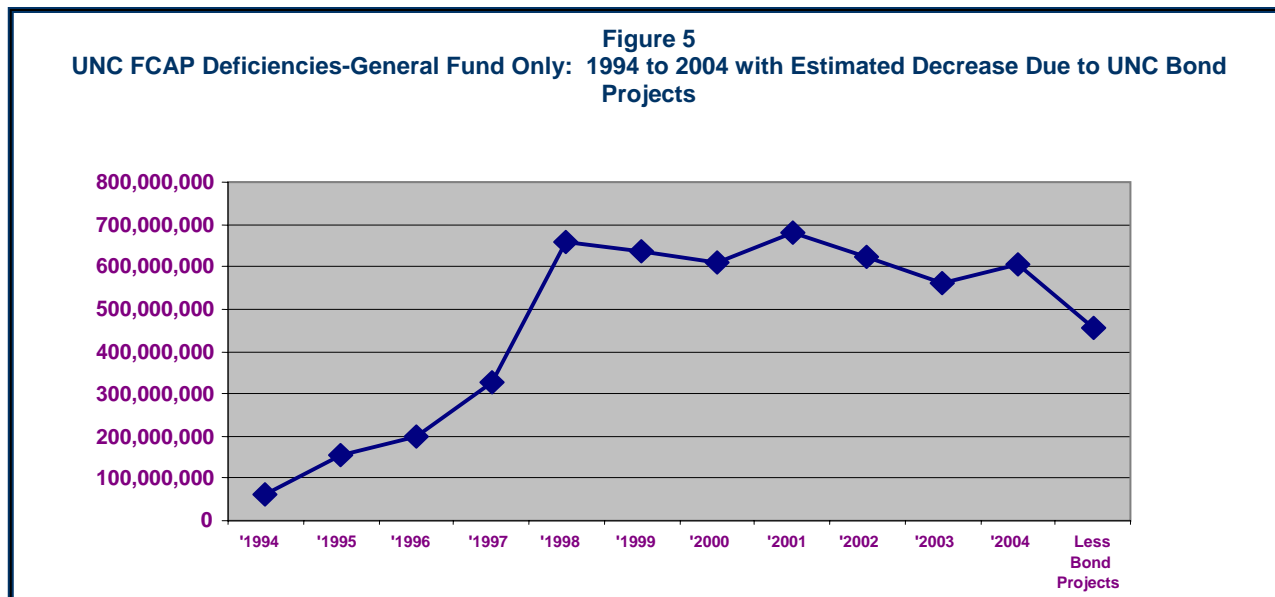
⁵University General Fund amounts for 1993 are not available.

⁶State Agency Totals include same amount for General Fund and All Facilities, since no accurate estimate for receipt-supported costs was available at the time of this report.

Source: Office of State Construction



Figure 5 graphs the trend in actual *FCAP* figures from Figure 4, as reported by State Construction. The figure shown for "Less Bond Projects" is an estimated deduction of \$148,909,120 that State Construction considers should be deleted, as a result of Bond Program major building renovation projects.



UNC's *FCAP* deficiencies peaked in 2001 and then have been declining, presumably as a result of modernization projects in the Bond Program. From a separate analysis, it appears that approximately \$840 million of Bond Program projects, in varying stages of planning to completion, are renovations. As some of the costs are for modernization that are not costs included in *FCAPs*, there is not a one-to-one relationship between the Bond Program renovation projects and *FCAP* reductions. However, it is likely that substantially more than \$149 million in *FCAP* deficiencies will be eliminated from UNC facilities when/as these projects are completed. (Exhibit 1 provides a detailed list of these Bond Program projects by UNC institution).

R&R Allocations to UNC and to Other State Agencies

Figure 6 summarizes the history of the North Carolina *R&R Reserve* funding for the entire State and UNC's share, since the 1993 *R&R* funding legislation.

Figure 6
\$ Total Funding for All Agencies and UNC Share: 1993-2003

Year	All Agencies	UNC Share	UNC % of Total	Comments
1993	57,000,000	31,350,000	55.0%	Initial split based on relative GSF
1994	60,000,000	33,000,000	55.0%	
1995	125,000,000	57,500,000	46.0%	Reserve base change from 1.5% to 3% of CRV and change in UNC share from 55% to 46%, based on relative <i>FCAP</i> deficiencies (per State Construction)
1996	130,000,000	59,800,000	46.0%	
1997	174,260,985	94,770,330	54.4%	\$62,100,000 was allocated to the UNC BOG for internal distribution, and \$32,670,330 was applied in special appropriations from the General Assembly; not part of UNC's allocation managed by the BOG.
1998	145,000,000	66,700,000	46.0%	
1999	110,000,000	89,000,000	80.9%	Of \$81 million initially appropriated for R&R to all other state agencies; \$60 million was reverted due to Hurricane Floyd recovery, leaving \$21 million. (UNC's \$72 million of reversion was from its capital projects, not R&R funds.)
2000	60,500,000	46,000,000	76.0%	Of \$54 million initially appropriated for R&R to all other state agencies, \$39.5 million was reverted to help balance the state budget, leaving \$14.5 million.
2001	0	0	N/A	\$57.5 million initially allocated to UNC was reverted to cover state budget shortfall.
2002	0	0	N/A	No R&R allocation in 2002
2003	315,000,000	161,692,492	51.3%	UNC's share included = \$4,595,187 (<i>General Fund</i>) + \$157,097,305 (<i>COPs Program</i>).
Totals	1,176,760,985	\$639,812,822	54.4%	Total UNC share of R&R funds to UNC: 1993-2003



SUMMARY OF UNC'S SHARE

Theoretical Allocations to UNC

In 1993 and 1994, UNC was to receive 55% of the total allocation, based on UNC's share of the total GSF of state buildings. State Construction indicates that, from 1995 on, the basis for the division was relative share of total state FCAP deficiencies as of 1995. Under this revised allocation basis, UNC was to receive 46% of the total.

Actual Allocations to UNC

As Figure 6 shows, the hypothetical allocations were modified, in actuality, by several factors, including additional special appropriations and state budget reversions. The actual history of UNC allocation portions is as follows:

- ❑ UNC received 55% in 1993 and 1994
- ❑ UNC received 46% in 1995, 1996, and 1998
- ❑ In 1997, the General Assembly allocated \$62,100,000 to the Board of Governors and appropriated \$32,670,330 in R&R for specific UNC institution projects. With the total of \$94,770,330, UNC received 54.5% in 1997.
- ❑ In 1999, other state agencies initially received an allocation of \$81 million, but \$60 million of that amount was reverted due to Hurricane Floyd. (In that same year, UNC's share of the Hurricane Floyd reversions was not from its *R&R Reserve* funds. Rather, UNC reverted \$72,006,405 from capital projects.) Thus, UNC received 80.9% of R&R funding provided in 1999.
- ❑ In 2000, of the \$54,000,000 initially allocated to other state agencies, \$39,500,000 was reverted to balance the state budget. Consequently, UNC received 76% of the funding in that year.
- ❑ As a result of some special allocations in which State Construction made recommendations, UNC received 51.3% of funding in 2003, including the COPS funding.
- ❑ Overall, for the life of the *R&R Reserve Fund* Program, from 1993 through 2003, UNC has received 54.4% of total R&R funding.

ALTERNATIVES FOR THE UNC-STATE AGENCY ALLOCATION

As relative *FCAP* needs have changed in the nearly 10 years since the current allocation split was established (in 1995) it would be appropriate to either:

- ❑ Maintain relative *FCAP* as the allocation basis, but update the percentages based on current *FCAP* data, OR
- ❑ Take this review opportunity to reconsider altogether the basis of allocation between UNC and other state agencies.

To assess these alternatives, EKA considered four alternative metrics for the split between UNC and state agencies—*GSF*, *CRV*, *FCAP*, and the *Facility Condition Index (FCI)*, which is a ratio of the *FCAP* deficiencies to the *CRV*. The results of the alternative calculations are summarized in Figure 7.

A drawback of all three alternatives is the exclusion of (non-building) infrastructure from the metrics. Following is a brief discussion of the alternatives in Figure 7 (following page).

Gross Square Feet

Building *GSF*, as originally used in 1993 and 1994, is not an optimal measure of need, as it does not reflect the higher per square foot *CRV* and higher maintenance and repair costs of many highly specialized facilities common in the higher education and health care sectors.

Also, *GSF* does not provide any basis for including the value of non-building infrastructure which also must be maintained.

Third, at present, *GSF* has the drawback of data unreliability. Two sets of *GSF* data exist. One is maintained by State Insurance, and contains all state agencies, including UNC. State Insurance does not feel fully confident in these figures, as the Department indicates it does not always receive agency updates when space is added or deleted. *GSF* data also are maintained by the NC Higher Education Facilities Commission; however, if this database is more accurate for UNC facilities, its drawback is that it does not include *GSF* for state agencies other than higher education.

In Figure 7, an allocation based hypothetically upon *GSF* for General Fund-Only facilities would distribute R&R funds as follows:

UNC	52%
Other State Agencies	48%



Figure 7
Comparison of Alternative Allocation Bases for UNC and Other State Agencies

	University		Other State Agencies		Total-All State Facilities	
	Value	Percent	Value	Percent	Value	Percent
Gross Square Feet (GSF)						
GSF-GENERAL FUND ONLY	32,893,129	51.82%	30,584,769	48.18%	63,477,898	100%
GSF-SPECIAL FUND ONLY	21,095,777	59.88%	14,136,820	40.12%	35,232,597	100%
Gross Square Feet-ALL FACILITIES	53,988,906	54.69%	44,721,589	45.31%	98,710,495	100%
Current Replacement Value (CRV)						
CRV-GENERAL FUND ONLY	5,056,793,140	59.34%	3,464,741,907	40.66%	8,521,535,047	100%
CRV-SPECIAL FUND ONLY	2,676,150,321	70.10%	1,141,700,600	29.90%	3,817,850,921	100%
CRV-ALL FACILITIES	7,732,943,461	62.67%	4,606,442,507	37.33%	12,339,385,968	100%
FCAP Deficiencies 2004 (FCAP)						
FCAP-GENERAL FUND ONLY	603,619,392	N/A	Not Available	N/A	N/A	N/A
FCAP-SPECIAL FUND ONLY	256,816,680	N/A	Not Available	N/A	N/A	N/A
FCAP-ALL FACILITIES	860,436,072	70.05%	367,956,292	29.95%	1,228,392,364	100%
Facility Condition Index (FCI)= (FCAP/CRV)						
FCI General Fund Only		0.12		N/A		N/A
FCI Special Fund Only		0.10		N/A		N/A
FCI-ALL		0.11		0.08		0.10

1. FCAP 2004 data provided by State Construction. FCAP 2004 are a compilation of the most recent FCAP studies for each university/agency. The dates of the actual most recent studies vary by agency/university, as the studies are done typically in 3-year cycles.
2. GSF and CRV data provided by State Insurance. GSF data may not be entirely accurate.

Current Replacement Value

Hypothetically, if one could start with all buildings in excellent condition and with no deficiencies, CRV clearly would be the correct basis for allocation of R&R funding.

At present, the drawback is that the CRV data do not include the replacement value of in-ground, non-building infrastructure, which can be considerable and expensive to maintain.

Two CRV databases exist. One is maintained for risk management purposes by State Insurance; another is maintained by the NC Higher Education Facilities Commission. The latter, again, only includes higher education institutions.

An allocation of funding based upon CRV of physical plant, even though CRV excludes infrastructure, is a more equitable basis than GSF for allocating R&R Reserve funding. At least, this measure has the benefit of accounting for the higher values of specialized facilities, which also require more expensive system replacements and other repairs.

In Figure 7, a hypothetical allocation based on CRV of General Fund-Only facilities, as supplied by State Insurance, would result in distribution of R&R Reserve funds as follows:

UNC 59%
Other State Agencies 41%

This CRV distribution is logical, reflecting the greater share of highly complex buildings, including many science and technology buildings that characterize the UNC campuses.

Another argument in favor of using CRV for the UNC-other agency split is that CRV is used as the basis for determining the annual pool of R&R funding, to begin with. It therefore would be entirely consistent and logical to use CRV also to make the split.

FCAP Deficiencies

Although the existing split, based on FCAP data from 1995, is clearly out of date, FCAP deficiencies also are a better basis for R&R allocation than GSF. Given the fact that there is an existing state of actual deficiencies, FCAP is a more direct measure of need than CRV, in that the FCAP data most directly reflect the extent of actual deficiencies of state property, as measured by the FCAP methodology.



At present, the major drawback in using *FCAP* deficiencies to allocate between UNC and other state agencies is that data are not available on the *FCAP* deficiencies for General Fund-Only facilities for other state agencies. Therefore, the only way to do this now is to compare UNC General Fund-Only facilities with All Facilities for other state agencies, an alternative that seems inequitable.

The only alternative, at present, is to make a hypothetical allocation of the General Fund portion of the *FCAP* deficiencies in other state agencies, by applying the ratio of *CRV* values as a proxy.

This calculation would be as follows for other state agencies:

- ❑ *CRV* (Other state agencies General Fund-Only Facilities) = \$3,464,741,907
- ❑ *CRV* (Other state agencies-All Facilities) = \$4,606,442,507
- ❑ Therefore, *CRV* of General Fund Facilities of other state agencies is 75.2% of the total.
- ❑ If *FCAP* deficiencies follow the same ratio, then *FCAP* Deficiencies of General-Fund-Only Facilities of other state agencies = 75.2% x \$367,956,292, or \$276,703,132.
- ❑ Then, if *R&R Reserve* funds were allocated on the basis of **current estimated *FCAP* deficiencies**, with the General Fund-Only as derived above for other state agencies, then the hypothetical split of *R&R Reserve* funding between UNC and other state agencies would be as shown in Figure 8.

	\$ <i>FCAP</i> Deficiencies General Fund Only Facilities	% of <i>FCAP</i> Deficiencies General Fund-Only Facilities
UNC	603,619,392	68.6%
Other State Agencies-- Hypothetical (based on <i>CRV</i> ratio of General Fund to Total Facilities)	276,703,132	31.4%
All General Fund-Only Facilities	880,322,524	100.0%

Facility Condition Index

The *FCI* is an accepted "industry" standard for evaluation of the extent of condition problems in facilities, and also can serve as a relative comparison. It is commonly accepted that:

- FCI* less than .05 = "Good" condition**
- FCI* of .05 to .10 = "Fair" condition**
- FCI* greater than .10 = "Poor" condition.**

The *FCI* cannot be calculated for other state agencies for General Fund-Only Facilities, as *FCAP* data are not provided separately. From Figure 8 above, the calculated *FCIs* for "All Facilities" is:

- UNC 0.11 ("Poor")**
- Other state agencies 0.08 ("Fair")**

These *FCIs* cannot be applied to a distribution in the same way as the other factors can, as they are ratios. But they could be used indirectly in some sort of "weighting."

Based on these data, it seems that UNC overall has a higher *FCI*, at 0.11 than other state agencies, at 0.08. Also, for General Fund-Only Facilities, UNC's *FCI* is even higher, at 0.12. While this does not necessarily provide a basis for calculation, it is a piece of evidence that reflects that UNC may have more serious relative condition deficiencies than other state agencies.

Summary

To summarize, with current data, all plausible bases of allocation lead to a conclusion that UNC has more than 46% of the burden:

- Allocation to UNC based on GSF 52%**
- Allocation to UNC based on *CRV* 59%**
- Allocation to UNC based on *FCAP* 68.6%**

Based on the foregoing analysis, it thus seems reasonable that future *R&R Reserve* funding should be distributed in a different proportion between UNC and other state agencies. (See *Chapter 5—Recommendations*.)



3—ANALYSIS AT THE UNC (SYSTEM) LEVEL

UNC Repair and Renovation Needs

For UNC campuses, data on needs for repairs, major maintenance, and renovation of existing state buildings come from a variety of sources. These are summarized briefly.

UNC SYSTEMWIDE FCAP REQUIREMENTS: 1993-2003

Figures 9-A, 9-B, and 9-C show the trend in FCAP deficiencies for UNC separately for the 16 universities and for the affiliates.²

As FCAP studies are done in cycles, totals do not include all UNC institutions until 1995. Once all UNC entities were surveyed once, the initial total deficiencies were in the range of \$355 million.

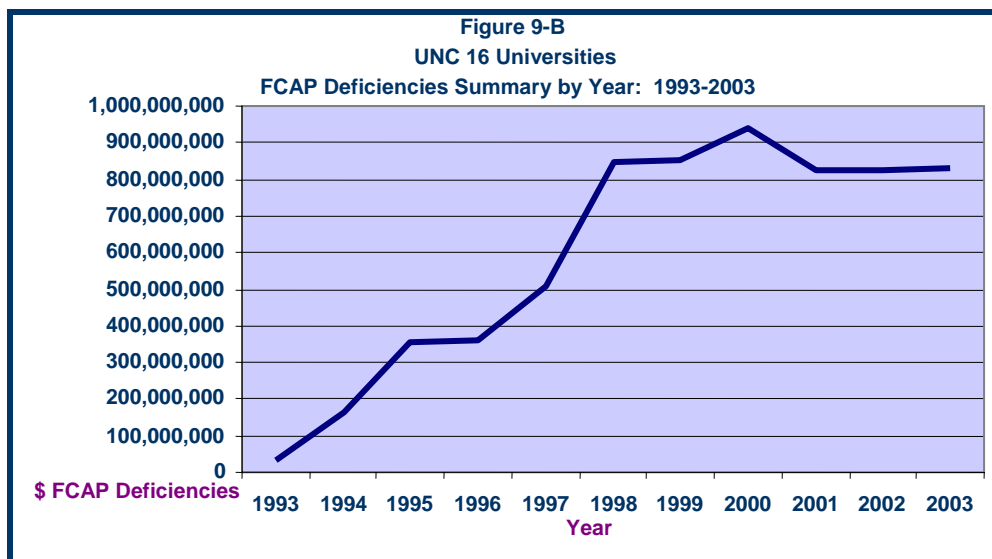
From then, the studies resulted in rising deficiency levels, until the figure peaked at \$947 million in 2000.³

State Construction reports that FCAP report totals have increased since the initial assessments, in part because of improvements in the methodology and, in part, due to greater experience of staff—both at the agencies and at State Construction—in finding and reporting deficiencies. Also accounting for increases is the fact that FCAP studies began to include infrastructure deficiencies in 1996, and not all infrastructure was included until 1998. In addition, a major reason for the increase is that a decade of building aging has occurred. Substantially more systems are nearing the end of their life. Finally, there were two years, 2001 and 2002, in which no funding was applied at all.

Figure 9-A
UNC FCAP Summary By Year: 1993-2003
All Facilities

	UNC 16 Universities	UNC Affiliates	UNC Total
1993	33,570,400	2,656,900	36,227,300
1994	162,840,005	2,656,900	165,496,905
1995	352,955,495	2,656,900	355,612,395
1996	359,668,605	4,303,400	363,972,005
1997	505,900,670	4,303,400	510,204,070
1998	844,486,680	4,303,400	848,790,080
1999	852,380,520	4,343,400	856,723,920
2000	938,847,920	7,740,700	946,588,620
2001	826,798,580	7,892,700	834,691,280
2002	825,394,690	7,892,700	833,287,390
2003	832,359,290	6,841,500	839,200,790

Note: These data do not match those in previous tables. They may be for Main Campus sites only, excluding other properties owned by UNC.
 Source: Office of State Construction

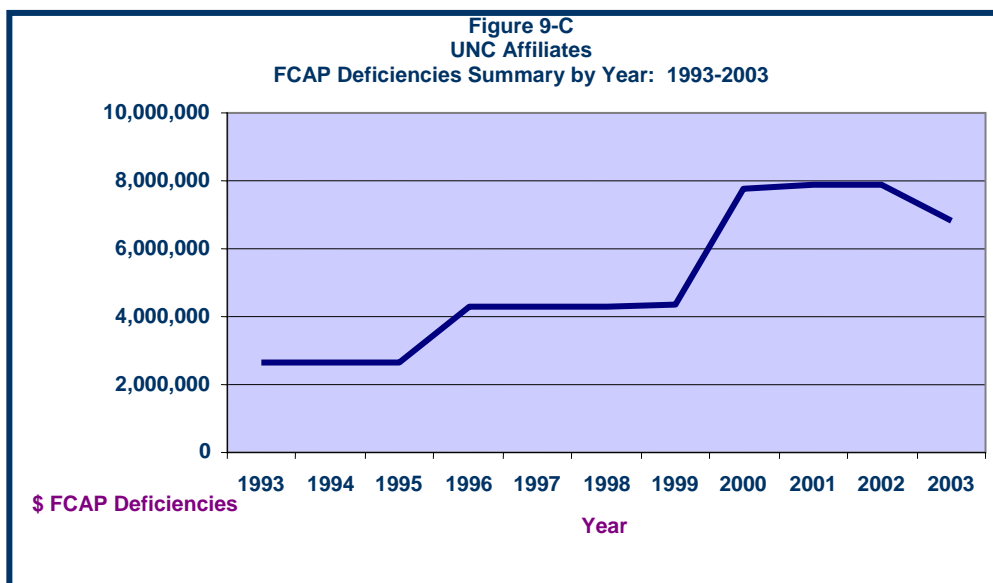


Source: Office of State Construction

The most current FCAP studies reveal a total of \$839 million, reflecting a significant decline from the peak of \$947 million in 2000. As there were no R&R allocations in 2001 and 2002, the decline is attributable to Bond Program modernization projects and other modernizations of receipts-supported facilities that UNC institutions are funding from other sources.

²According to State Construction, UNC FCAP studies capture information for UNC "main campus sites" and for "all UNC properties." There are variations in FCAP reports. Some include 74 "main campus" sites with 1,420 buildings. Others include 107 sites, with 2,740 buildings. All "buildings" are defined as structures of 3,000 SF or greater.

³This data set goes from 1993 through 2003 and shows the peak year as 2000, while Figure 5 goes from 1994 through 2004 and shows the peak year as 2001. We assume these are due to different report formats maintained by State Construction.



CAMPUS-GENERATED CONDITION DATA

Various UNC campuses also have other sources of data on repair and renovation needs.

- ❑ Several campuses, including UNC-Asheville, UNC-Charlotte, East Carolina University, UNC-Chapel Hill and NC State, have their own internal condition audit programs and databases, supported by staff and software. These institutions conduct regular inspections of facilities, in the manner of the *FCAP* program, but more regularly.
- ❑ Campuses with well-developed preventive maintenance programs also derive required maintenance data from/for those programs.
- ❑ In addition, due to special situations, some buildings are the subject of detailed special inspections and engineering studies.
- ❑ Building users at each campus also are a source of information on renovation needs that may include technology upgrades or reconfiguration of space to meet instructional purposes.
- ❑ Finally, some additional data are developed in connection with insurance and risk management.

UNC CAPITAL EQUITY AND ADEQUACY STUDY

In 1998-1999, EKA conducted a major study of capital needs and developed the *UNC 10-Year Capital Plan*, as the Board of Governors' response to a legislative special provision mandating the study. This work led to the current bond program for higher education.

One major focus of the EKA study was the *Facility Condition and Quality Assessment (FCQA)*. This was the study's major methodology to address both *equity* and *adequacy*.

The *FCQA* methodology, which was based on a set of *Baseline Facility Quality Criteria*, generated estimates of costs to bring older facilities (buildings and infrastructure) *to the equivalent of contemporary facilities*. The *Criteria* included factors such as technology, functionality, configuration, and use changes, along with pure condition and code compliance factors.

In the Study, the estimate of total costs for required renovation, modernization or replacement of facilities (expressed in 2000-2001 dollars) was about \$3.0 billion for all UNC facilities, including receipts-supported facilities, comprised as follows:

Buildings:	\$2.4 billion
General Campus:	\$0.2 billion
Infrastructure:	\$0.4 billion
Total Modernization Needs	\$3.0 billion

Most of the dollars in the building category were for modernization of existing facilities, but the \$2.4 billion also included 19 new science/technology buildings—required because the *FCQA* analysis indicated that the cost of modernization of the existing science buildings would exceed their replacement value, and therefore, was not an economically optimal solution.

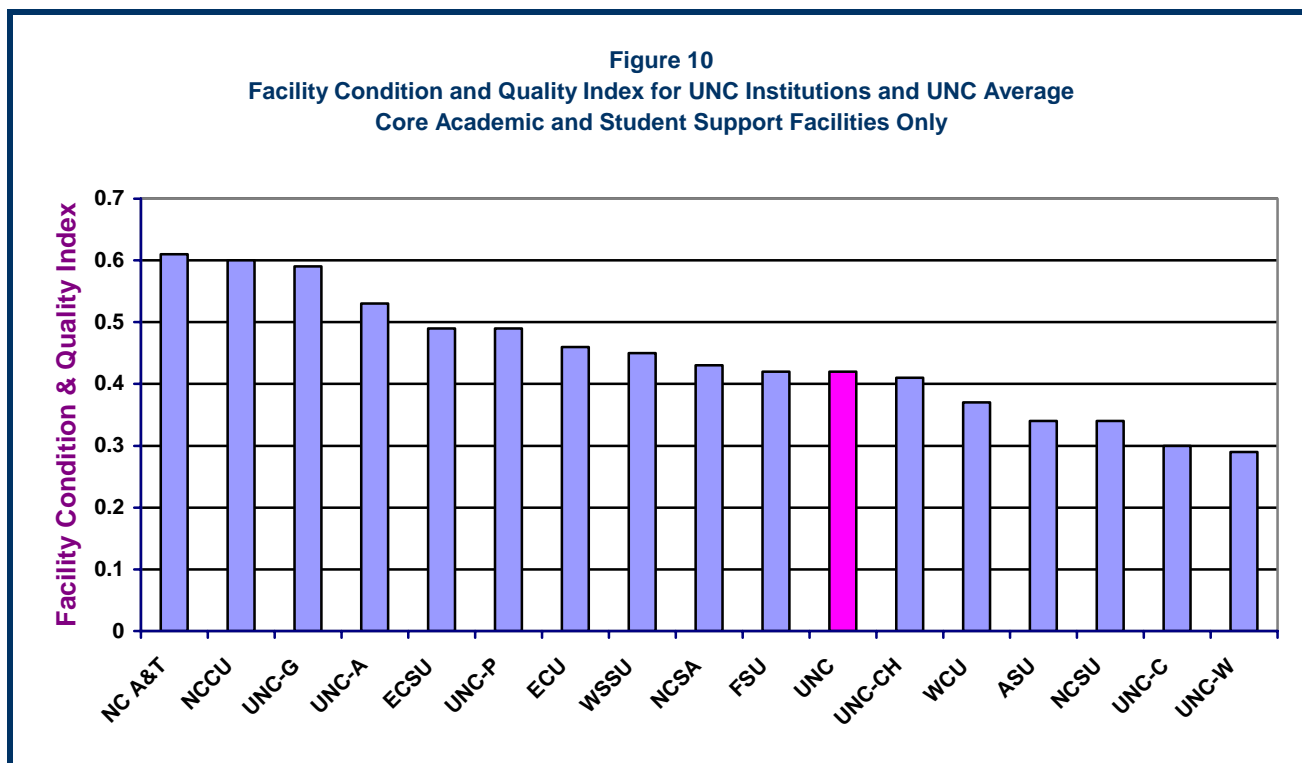


Because the *FCQA* methodology benchmarked buildings to qualitative criteria and included assessment of functionality and obsolescence factors, the \$3 billion result is substantially higher than the 1998 *FCAP* deficiency total, which was, at that time, about \$888 million.

These findings were the basis for numerous major modernization projects in the *10-Year Capital Plan*, many of which are in the six-year Bond Program.

The modernization needs thus derived then were expressed as an index for each building and overall for each campus, the *Facility Condition and Quality Index*. The *FCQI* is a relative measure of the cost requirements to bring all campus buildings to a state of good repair and to fully meet contemporary standards, divided by the *CRV* of equivalent new structures building requirements, equivalent of modern divided by the *CRV* of that campus:

$$FCQI = \frac{\text{Current costs for R\&R and modernization}}{\text{Cost for equivalent new facilities}}$$



UNC R&R Allocation Policy and Formula

In 1994, UNC's Board of Governors adopted a formula for allocation of its R&R funds, based on recommendations in a study conducted by EKA. In the 1994 formula, there were multiple variables, organized into three weighted sets:

1. **Size** = weighted at 20%, included three variables:
 - *Net Assignable Square Feet (NASF) of Campus Space*
 - *Gross Square Feet (GSF) of Campus Space*
 - *Campus Population (Students + Employees)*
2. **Mission** = weighted at 20% included two variables to serve as metrics of mission complexity:
 - *Net Assignable Square Feet (NASF) of Laboratory Space*
 - *Number of Degree Programs*
3. **Condition** = weighted at 60%, included two variables:
 - *Current Replacement Value (CRV)*
 - *Facility Condition Assessment Program (FCAP) Deficiencies*



There were two additional provisions:

1. **Affiliate Needs.** Some amounts of *R&R Reserve* funds are designated for the affiliate entities prior to the formula allocation to the 16 institutions.
2. **Floor for Small Institutions.** A minimum or floor of 2.25% of total available funding is applied to ensure that the smaller campuses receive viable levels of funding.

After the EKA *Capital Equity and Adequacy Study* was completed in 1999, the UNC BOG added the *Facility Condition and Quality Index (FCQI)*, described above, as an eighth variable to the formula. This variable was included with "condition," which receives, overall, 60% of the formula weight.

Funding Summary by Institution

Figure 11 provides a summary of *R&R Reserve* fund allocations to the 16 UNC institutions and the UNC affiliate programs, from 1993 through 2003, based on internal UNC policy and the formula.

With the infusion of funds from the 2003 *COPs* program, the current total of funding, from 1993 through 2003, is \$607 million, of which \$555 million was allocated to the 16 universities and \$32.8 million to the affiliates.

Evaluation of the Allocation Formula

Overall, the allocation formula still seems reasonable. Its strength is that, while it gives the greatest weight to condition factors (60%), it also takes into account mission complexity and size factors. Another argument in favor of the formula is that it represents about one year of work that included extensive consultations and participation of the UNC campuses. At that time, the Committee of campus representatives considered that factors for *Mission Complexity* and *Size* were important and relevant to consider, in addition to *Condition* factors, particularly as some of the funding is used to renovate for functionality reasons.

In recent interviews with UNC chief financial officers, there was general agreement that the formula generates reasonable results, with some relatively minor concerns expressed:

- UNC-Chapel Hill expresses the view that a factor for age of facilities could be included. This would provide some acknowledgement of the relative age of the facilities inventory at various campuses. In connection with this, UNC-Chapel Hill participants also suggest consideration of a factor that would acknowledge historic architecture and renovation needs. We agree with these points, in general, but do not see a practical way of application in a formula.
- Several institutions questioned the continued inclusion of the 1999 *FCQI* in the formula, due to the aging of the *FCQI* data (generated from EKA's 1999 analysis). As changes occur in campus buildings and as bond program modernization projects are undertaken, the 1999 snapshot that the *FCQIs* represented becomes less and less useful. Another drawback, although a minor one, is that the *FCQI* was derived from the 1999-2000 assessment that only included primary campus buildings, not all buildings. Therefore, several UNC participants feel that consideration should be given to either updating the modernization analysis, or eliminating the *FCQI* from the formula.
- An alternative would be to simplify the formula by removing not only the *FCQI* but also some other factors.
- Finally, the allocation formula could be abandoned entirely, and UNC could use relative *FCAPs* or relative *CRVs*, or a mix of the two, as the basis for the allocation.

In either of the two above alternatives, we would want to consider continuation of a "floor" for smaller institutions, with a possible change in that floor, and continuation of the "off-the-top" set of specific allocations for the affiliated entities.

Summary

Overall, UNC *FCAP* deficiencies are beginning to decline, as a result of Bond Program renovation projects. The formula for internal allocation of *R&R* funds still seems reasonable, but there are some alternatives to consider. (See recommendations in Chapter 5.)



Figure 11
Annual R&R Reserve Funding:
UNC Universities and Affiliates: 1993-2003

	1993	1994	1995	1996	1997	1998	1999	2000	2001 ²	2002	2003	COPS 2003	TOTAL
Appalachian State University	1,618,196	1,747,600	3,488,000	3,237,300	3,188,300	2,946,800	3,666,600	2,406,600			246,200	7,663,400	30,208,996
East Carolina University	2,308,185	2,788,500	4,826,700	4,968,000	6,725,700	5,277,700	5,874,800	3,679,100			387,500	12,062,500	48,898,685
Elizabeth City State University	2,040,219	858,600	1,090,100	1,290,900	1,351,700	1,209,900	4,242,600	1,087,200			106,400	3,313,200	16,590,819
Fayetteville State University	523,904	623,900	1,090,100	1,290,900	1,351,700	1,209,900	3,847,600	1,105,000			102,700	3,197,800	14,343,504
North Carolina A&T State University	1,080,138	1,728,500	3,596,500	3,250,900	3,390,600	2,843,200	9,475,105	2,335,800			247,900	7,716,400	35,665,043
North Carolina Central University	5,003,657	1,088,700	1,693,000	2,411,000	2,313,600	2,042,600	7,466,295	1,798,600			181,500	5,648,300	29,647,252
North Carolina School of the Arts	160,875	573,000	1,090,100	1,290,900	1,351,700	1,209,900	1,514,600	968,600			95,900	2,985,900	11,241,475
North Carolina State University	3,718,301	6,401,400	9,827,500	11,112,000	11,156,400	10,032,500	11,233,000	7,867,900			778,000	24,214,800	96,341,801
UNC Asheville	4,139,890	843,200	1,090,100	1,290,900	1,351,700	1,209,900	1,951,000	1,244,200			119,200	3,710,200	16,950,290
UNC Chapel Hill	4,076,994	8,648,800	14,165,200	14,754,500	14,884,800	13,227,400	14,149,700	9,259,100			897,387	27,934,500	121,998,381
UNC Charlotte	2,010,477	1,731,700	2,318,100	2,353,400	2,581,800	2,306,500	3,012,200	1,976,400			226,900	7,061,400	25,578,877
UNC Greensboro	1,721,770	1,941,800	3,431,000	3,237,000	3,519,800	3,972,700	5,435,700	3,672,100			337,700	10,510,100	37,779,670
UNC Pembroke	397,821	558,600	1,090,100	1,290,900	1,351,700	1,209,900	4,349,600	1,164,400			113,400	3,529,700	15,056,121
UNC Wilmington	1,030,000	884,900	1,624,600	1,586,700	1,779,000	1,566,600	2,209,400	1,457,900			149,100	4,641,500	16,929,700
Western Carolina University	903,006	1,610,300	2,946,800	2,717,700	2,427,100	2,295,900	2,918,200	1,868,300			165,300	5,144,000	22,996,606
Winston-Salem State University	431,567	600,300	1,135,600	1,290,900	1,351,700	1,209,900	4,262,300	1,159,600			108,400	3,373,300	14,923,567
Subtotal-Institutions	31,165,000	32,629,800	54,503,500	57,373,900	60,077,300	53,771,300	85,608,700	43,050,800			4,263,487	132,707,000	555,150,787
Subtotal-Affiliates (UNCGA, NCSSM, NC Arboretum, CPTV, NCCAT, etc.)	185,000	370,200	2,896,500	2,426,100	2,022,700	12,928,700	3,391,300	2,949,200			331,700	5,293,000	32,794,400
ECSU-Water System Supplement-1995			100,000										
NCCU Mold, UNCC Library, NCCAT-Ocracoke												19,097,305	
Subtotal-Other Alloc			100,000									19,097,305	
TOTAL	31,350,000	33,000,000	57,500,000	59,800,000	62,100,000¹	66,700,000	89,000,000	46,000,000			4,595,187	157,097,305	607,142,492¹

Notes:

¹In 1997, an additional \$32,670,330 was appropriated to UNC institutions, which are not shown in this Figure. With that additional funding, UNC's total for the entire period shown would be \$639,812,822, as shown in Figure 6.

²In 2001, the General Assembly allocated \$57.5 million to the Board of Governors for repairs and renovations. These funds were later reverted to the General Fund to address the budget shortfall.

Source: UNC Board of Governors, Office of the President



4—ANALYSIS AT THE INSTITUTION LEVEL

General Overview

The consultants reviewed generally the R&R expenditure trends for all UNC institutions, and selected a sample of six UNC institutions for a more detailed examination, which is presented in the next section of the report.

Given the universe of data sources on facility condition and many decision variables involved, there is no single direct way to assess the appropriateness of R&R projects selected to be funded. This review, therefore, sought to determine, based on objective and subjective review, how well UNC has done, overall, based on three parameters:

- ❑ **Decision Processes.** Appropriateness of the campus internal processes for selecting projects to fund
- ❑ **Legislative Intent—12 Categories.** Whether projects funded fall within the 12 categories of defined repair and renovation needs in the legislation and whether levels of funding for the various categories are reasonable, in light of FCAP deficiencies by category
- ❑ **Project Scopes.** Whether the scope of projects, from minor repairs to major renovations, seems appropriate.
- ❑ **Repairs vs. Renovations.** Whether the selection of projects to fund balances reasonably between minor scope repair items and major renovations.

CAMPUS R&R DECISION PROCESSES

The consultants requested that each UNC institution provide a written summary of its internal process for deciding how to allocate R&R funding to priorities. These were submitted and reviewed.

Required repair & renovation needs are typically developed from several sources:

- ❑ A principal source of R&R requirements is the FCAP studies that are conducted for each state institution every three years. FCAP studies seek to identify all known R&R needs for both buildings and infrastructure.
- ❑ As noted earlier, additional R&R requirements are identified through additional inspections conducted by several institutional staffs, special condition evaluations made by consultants, facility user observations, or periodic identification of new requirements noted through facility preventive maintenance program staffs or other users. Several have used reports by the NC Department of Insurance, and one cited feedback from local/county agencies.

Repair and renovation project decision processes vary among UNC institutions, and documentation of the internal processes also varies greatly—from a brief narrative to extensive written policy detail. In general, the typical internal campus process for R&R project prioritization includes the following four elements:

1. Review and analysis of FCAP information
2. Facilities staff feedback
3. Academic departments' feedback
4. Development and internal reviews of project lists.

Some campus processes include a range of participants from the chancellors down through the organization. Others are conducted primarily by the facilities staff. In between these extremes, there are those campuses that involve both facilities staff and input from academic departments.

Reviews of campus project lists typically include Facilities Directors, Associate Vice Chancellors for Facilities, and Associate Vice Chancellors for Business and Finance. The review also includes the Provost and/or Chancellor on some campuses.

PROJECT SELECTION AND FUNDING BY 12 LEGISLATIVE CATEGORIES OF R&R

To make some assessment of each institution's emphasis in its R&R expenditures, total FCAP requirements for each of the 12 R&R categories in each of the years in which FCAP reports were made and the trends in both dollar terms and percentages of each category were reviewed. Overall conclusions are difficult to make because of the significant growth in overall FCAP requirements, which is due to:

- ❑ Improved overall quality and completeness of State Construction's reports as staff become more experienced at FCAP inspections
- ❑ The addition of infrastructure requirements to the FCAP studies beginning with the studies done in 1996, with infrastructure included for all campuses in 1998.



- ❑ Additional inspection data, generated by institutional staff or consultants
- ❑ Growth of requirements due to normal aging of buildings during a decade of the R&R Reserve program, including periods of no R&R funding
- ❑ Impact of whole building modernizations in the bond program.

Overall, for UNC, observations on project selection are as follows:

- ❑ R&R projects reviewed by the consulting team in all cases appeared to represent work that is appropriate and clearly within the scope of repair & renovation projects as defined by the legislation.
- ❑ Systemwide, typical UNC R&R annual project lists include needs in all 12 of the R&R project categories established by the R&R legislation.
- ❑ For any given campus, in any given year, there typically is a distribution of funds to several categories.
- ❑ There has typically been a reasonable level of funding applied to each of the 12 categories, based on requirements in those categories.

SCOPE OF PROJECTS—MAJOR RENOVATIONS VS. SMALLER REPAIRS

The R&R legislation sets no minimum or maximum dollar levels for projects to qualify for this funding. The consultants believe this is wise, as priorities can legitimately range from major renovations to smaller, discrete repair items.

Accordingly and presumably based on relative urgency of priorities, UNC institutions have used these funds for a wide range of project scopes, from very small projects to more major renovations.

Overall, it is difficult to argue whether major renovations are, or are not, an optimal use of R&R funding. It should be noted that the Office of State Construction has moved toward advocacy of major renovations, on the theory that piecemeal fixes of building elements are not cost-effective.

- ❑ Use of limited annual R&R funds for major renovation projects severely limits the availability of money for smaller, or more routine repairs that also are needed.
- ❑ Sometimes, piecemeal renovations of building systems or spot repairs are not the most cost-efficient solution and “whole building” or “whole area” renovations are a better use of the funding.

We do note that some UNC institutions have used these funds for relatively significant projects, with examples such as these:

- ❑ **Elizabeth City State University.** The renovation of Butler Hall (1993), at \$2.0 million, took virtually all of ECSU's R&R allocation in that year.
- ❑ **North Carolina A & T State University.** During a period of several years \$6.82 million was applied to renovations for Hines Hall, \$3.26 million for T.E. Neal Boiler Plant, and \$1.14 million for Dudley Hall. These projects represented significant portions of A&T's R&R funding.
- ❑ **North Carolina Central University.** Repairs to utility infrastructure at \$3.0 million required some 40% of total R&R funding in 1993, while major renovation of the Women's Gym costs were \$1.0 million, and renovations of Robinson Science required \$1.2 million.
- ❑ **UNC Asheville.** An R&R allocation of \$3.97 million for the Ramsey Library in 1993 required almost the entire R&R appropriation for UNC Asheville in that year.
- ❑ **UNC Chapel Hill.** R&R allocations, and in several cases multiple allocations over two or more years, were applied to a number of projects at levels well in excess of \$1 million. Renovation of Beard Hall was at \$1.6 million. Taylor Hall HVAC system was at \$2.1 million. Total campus fiber optic network improvements were at \$5 million. Renovation of the Laundry Building was at \$2 million. Replacement of Boiler No. 5 was at \$9.4 million. Classroom and lecture hall renovations were at \$3.5 million. Renovation of Carroll Hall was at \$4.3 million. South Chiller Plant Expansion was at \$4.4 million.
- ❑ **Winston-Salem State University.** Renovation of Anderson, Jr. High School took the entire \$1.4 million authorization for WSSU in 1997.

Assuming that considered judgments were involved, the consultants find no reason to be concerned about the wide range of project sizes/scopes.



REPAIRS TO INDIVIDUAL SYSTEMS VS. GENERAL BUILDING RENOVATIONS

The *R&R Reserve* program is an excellent use of state funds in that, in the long run, it protects state assets from deterioration and maximizes their life and utility. However, as this program began in 1993, following many decades of no corrective funding for existing facilities, there have been great pressures on UNC institutions to use R&R funding to both replace building systems or correct long-deferred maintenance, and to do general renovations. As renovations of space to improve use is one of the allowable categories, some funding naturally is used for this purpose, when reconfiguration, change of use, technology upgrades, or other alteration is required for functional (rather than condition) reasons.

Probably due to the needs of academic programs and pressures from users, there has been a considerable emphasis on these general renovation projects, resulting, for some campuses, in a greater reduction of renovation needs than in the needs in the other 11 R&R categories.

It must be noted that, until recently, the *R&R Reserve* funding was usually the only source of funding available for making any general renovations, including changes of use within buildings. Now, as Bond Program proceeds and as capital investments in the future will focus on whole-building modernizations, it should be possible to shift the mix of *R&R Reserve* funds toward more routine building system repairs and replacements.

Review of R&R for Six Sample UNC Institutions

To review in greater detail how *R&R Reserve* funding is being applied by UNC institutions, a sample of six institutions was reviewed in some greater detail. These were:

- ❑ Appalachian State University
- ❑ NC A&T State University
- ❑ NC School of the Arts
- ❑ NC State University
- ❑ UNC-Greensboro
- ❑ Western Carolina University.

APPALACHIAN STATE UNIVERSITY

Summary Statistics

Figure 12-A summarizes key statistics for Appalachian State University, pertaining to R&R.

Gross Square Feet	2,400,488
Current Replacement Value	323,105,928
\$ FCAP Deficiencies (2000)	61,169,400
FCQI (1999)	0.340
Cumulative R&R Funding (1993-2003 including COPS Program):	30,208,996
Sources: GSF, CRV, and FCQI from UNC BOG; FCAP deficiencies from State Construction	

FCAP History

FCAP reports were made for Appalachian State University in 1994, 1997, and 2000.

Figure 12-B shows the history of Appalachian's FCAP needs. Appalachian's total FCAP deficiency needs rose during this period, from \$27.8 million in 1994 to \$61.2 million in 2000. It is almost certainly the case that the first study, in 1994, resulted in low figures due to being early in the FCAP program.



**Figure 12-B
 Appalachian State University
 FCAP Summary by Categories**

	1994	1997	2000
Roof Repairs & Replacements	1,284,500	2,523,500	2,779,000
Structural Repairs	244,000	279,900	335,000
Repairs to Meet Federal & North Carolina Standards	306,100	158,100	63,000
Repairs to Electrical, Plumbing & HVAC Systems	11,280,000	13,543,000	28,085,900
Improvements to Meet ADA Requirements	540,000	0	2,900,000
Improvements to Meet Fire Safety Needs	4,003,200	3,808,500	5,986,500
Improvements To Facilities For Energy Efficiency	2,257,000	2,347,500	3,323,000
Removal of Asbestos, Lead Paint, USTs, Etc.	0	255,000	0
Renovations to Improve Existing Space	7,300,000	13,110,000	11,272,000
Historical Restoration	0	0	0
Improvements to Roads, Walks, Drives & Utilities	622,500	1,729,000	5,975,000
Drainage & Landscape Improvements	0	506,500	450,000
Grand Total	27,837,300	38,261,000	61,169,400

R&R Funding History

Figure 12-C provides Appalachian's actual R&R funding from 1993 to 2003.

**Figure 12-C
 Appalachian State University
 R&R Funding History**

Year	\$ R&R Funds
1993	1,618,196
1994	1,747,600
1995	3,488,000
1996	3,237,300
1997	3,188,300
1998	2,946,800
1999	3,666,600
2000	2,406,600
2001	0
2002	0
2003	246,200
2003 COPs	7,663,400
Total Funding: 1993-2003	30,208,996

Source: UNC BOG

R&R Projects

Appalachian's actual R&R expenditures were as follows:

- ❑ Work in 1993 included water system work, removal of architectural barriers, with a principal allocation of \$1.3 million for building repairs and renovations.
- ❑ Work in 1994 included improvements to pedestrian areas and a major \$1.6 million improvement project for life safety, ADA, and window and door replacements for 16 campus areas.
- ❑ Work in 1995 included repairs and renovations for 24 buildings and road and walk repairs.
- ❑ Work in 1996 included roof replacement, window replacement, road and walk improvements, ADA compliance, HVAC replacement, drainage and landscape improvements, fire safety improvements and over \$12 million for renovations to five buildings.
- ❑ Work in 1997 included roof repairs, improvements of roads, walks, and drainage, ADA and fire and life safety improvements, HVAC repairs, and a major \$1.5 million renovation program for existing space.
- ❑ Work in 1998 included roof repairs, ADA, fire safety and other improvements, HVAC improvements, road and walk improvements, and space improvements.



- ❑ Work in 1999 included roof repairs, improvements to electrical, plumbing, HVAC, systems, fire safety improvements, energy conservation improvements space improvements, and roads and walks improvements.
- ❑ Work in 2000 included roof repairs and replacements, electrical, mechanical, heating and HVAC upgrades, ADA, fire safety, and asbestos and lead paint removal, energy efficiency improvements, building renovations, and road, walk, and drainage improvements.
- ❑ Work for 2003 is to include roof repairs and replacement, utilities infrastructure improvements, heating and HVAC upgrades, fire safety and ADA elevator installation, building repairs, and roads and sidewalk improvements.

Changes in FCAP Need Levels

Figure 12-D shows the percentage distribution of FCAP deficiencies into the 12 categories for each of the three FCAP studies, compared with the cumulative R&R expenditures and percentages for those same categories.

In only two areas of very limited needs were FCAP requirements reduced in any of the 12 FCAP categories (repairs to meet federal and state requirements, and removal of asbestos, lead paint, etc.).

While actual dollar needs increased in all other areas, there were three areas in which there were significant reductions of needs as a percentage of total needs. These were:

- ❑ Fire safety improvements, from 14.4% to 9.8%
- ❑ Improvements for energy efficiency, from 8.1% to 6.1%
- ❑ Renovations to improve existing space, from 26.2% to 18.4%.

During the decade, there was a notable increase in the proportion of FCAP requirements for repairs to electrical, plumbing, and HVAC systems, from 40.5% to 45.9%.

**Figure 12-D
 Appalachian State University
 Comparison of FCAP and R&R Expenditures by Legislative R&R Categories**

	% of Total FCAP			Total Cumulative R&R Expenditures	
	1994	1997	2000	\$	%
Roof Repairs & Replacements	4.61%	6.60%	4.54%	\$3,986,040	13.19%
Structural Repairs	0.88%	0.73%	0.55%	\$0	0.00%
Repairs to Meet Federal & North Carolina Standards	1.10%	0.41%	0.10%	\$1,819,061	6.02%
Repairs to Electrical, Plumbing & HVAC Systems	40.52%	35.40%	45.91%	\$4,920,284	16.28%
Improvements to Meet ADA Requirements	1.94%	0.00%	4.74%	\$2,704,158	8.95%
Improvements to Meet Fire Safety Needs	14.38%	9.95%	9.79%	\$1,819,432	6.02%
Improvements To Facilities For Energy Efficiency	8.11%	6.14%	5.43%	\$3,835,264	12.69%
Removal of Asbestos, Lead Paint, USTs, Etc.	0.00%	0.67%	0.00%	\$102,103	0.34%
Renovations to Improve Existing Space	26.22%	34.26%	18.43%	\$6,770,087	22.40%
Historical Restoration	0.00%	0.00%	0.00%	\$0	0.00%
Improvements to Roads, Walks, Drives & Utilities	2.24%	4.52%	9.77%	\$3,518,035	11.64%
Drainage & Landscape Improvements	0.00%	1.32%	0.74%	\$744,380	2.46%
GRAND TOTALS	100%	100%	100%	\$30,218,844	100%

Note: The cumulative total for ASU does not exactly match the total reported in Figure 12-C because of adjustments made after allocations.

Conclusion

Appalachian State's R&R expenditures have been well within the scope and nature of projects that are appropriate for the R&R program. At this campus, there was a relatively high percentage of projects for general building renovation, compared to expenditures for more basic R&R needs. We understand that one of Appalachian's early R&R Reserve projects added some footprint, but this occurred before the legislative change that precluded use of funds in ways that expand footprints.



NORTH CAROLINA A & T STATE UNIVERSITY

Summary Statistics

Figure 13-A summarizes key statistics for North Carolina A&T State University, pertaining to R&R.

Gross Square Feet	1,961,658
Current Replacement Value	326,890,233
FCAP Deficiencies (2000):	39,896,950
FCQI (1999)	0.610
Cumulative R&R Funding (1993-2003 including COPS Program):	29,932,838
Sources: GSF, CRV, and FCQI from UNC BOG; FCAP deficiencies from State Construction	

FCAP History

FCAP reports were made for NC A&T State University in 1994, 1997, and 2000. Figure 13-B shows the history of NC A&T's FCAP needs. During this period, NC A&T's FCAP rose from \$32.3 million to \$42 million, and then declined, in 2000, to \$39.9 million.

	1994	1997	2000
Roof Repairs & Replacements	1,841,500	2,663,700	4,539,000
Structural Repairs	382,000	1,947,200	3,320,000
Repairs to Meet Federal & North Carolina Standards	320,500	171,000	1,240,200
Repairs to Electrical, Plumbing & HVAC Systems	9,158,000	21,083,600	11,878,750
Improvements to Meet ADA Requirements	420,000	185,000	1,217,000
Improvements to Meet Fire Safety Needs	1,229,000	787,000	1,684,000
Improvements To Facilities For Energy Efficiency	4,642,500	4,300,300	5,515,000
Removal of Asbestos, Lead Paint, USTs, Etc.	0	0	0
Renovations to Improve Existing Space	14,078,000	10,402,000	9,683,000
Historical Restoration	0	0	0
Improvements to Roads, Walks, Drives & Utilities	221,300	553,500	820,000
Drainage & Landscape Improvements	0	0	0
Grand Total	32,292,800	42,093,300	39,896,950

R&R Funding History

Figure 13-C shows the history of R&R funding to NC A&T State University.

Year	\$ R&R Funds
1993	1,080,138
1994	1,728,500
1995	3,596,500
1996	3,250,900
1997	3,390,600
1998	2,843,200
1999	9,475,105
2000	2,335,800
2001	0
2002	0
2003	247,900
2003 COPS	7,716,400
Total Funding: 1993-2003	35,665,043
Source: UNC BOG	



R&R Projects

NC A&T State's actual R&R expenditures were as follows:

- ❑ Work in 1993 included roof replacement, HVAC repair, removal of architectural barriers, and building repair
- ❑ Work in 1994 included life safety improvements, building repairs, and a major roof replacement program
- ❑ Work in 1995 included building repairs, electrical and heating repairs and replacements, and a major repair project for Hines Hall
- ❑ Work in 1996 included fire safety improvements, roof replacement, boiler replacement, and renovations, including \$1 million for Hines Hall
- ❑ Work in 1997 included boiler plant repairs, electrical upgrades, building repairs, and major renovations to Dudley and Hines Halls
- ❑ Work in 1998 included University Farm repairs, Hines Hall renovations, other repairs and renovations, and HVAC repairs
- ❑ Work in 1999 included roof repairs, HVAC replacements and technology enhancements, miscellaneous building repairs, and planning for renovations
- ❑ Work in 2000 included roof repairs, electrical, mechanical, heating, and HVAC upgrades, energy efficiency improvements, building renovations, roads and walk improvements, and farm damage repairs
- ❑ Work for 2003 is to include major investment for HVAC replacements and improvements, steam lines, and plumbing repairs for mold and mildew correction, roof repairs and replacements, fire safety improvements, building repairs, renovations, lighting and electrical upgrades, and roads and walks.

Changes in FCAP Need Levels

Figure 13-D shows the distribution of FCAP deficiencies by the 12 categories for each of the three FCAP studies, compared with the cumulative R&R expenditures and percentages for those same categories.

In two categories, NC A&T State has achieved substantial decrease in FCAP deficiencies:

- ❑ The substantial requirements for improvements to existing space was reduced from 43.6% of the FCAP total to only 24.3%
- ❑ The substantial requirements relating to electrical, plumbing, and HVAC systems that appeared in the 1997 study have been reduced from 50% to 29.8% of FCAP needs.

In fact, NC A&T State University has concentrated a significant percentage, nearly 63% of its total R&R funding on repairs to these systems. Major areas of increased needs, both in dollar requirements and the percentage of total needs, include roof repair, from 5.7% to 11.4% and structural repairs, from 1.2% to 8.3%.



Figure 13-D
NC A&T State University
Comparison of FCAP and R&R Expenditures by Legislative R&R Categories

	% of Total FCAP			Total Cumulative R&R Expenditures	
	1994	1997	2000	\$	%
Roof Repairs & Replacements	5.70%	6.33%	11.38%	3,462,900	12.05%
Structural Repairs	1.18%	4.63%	8.32%	0	0.00%
Repairs to Meet Federal & North Carolina Standards	0.99%	0.41%	3.11%	1,112,900	3.87%
Repairs to Electrical, Plumbing & HVAC Systems	28.36%	50.09%	29.77%	18,023,537	62.74%
Improvements to Meet ADA Requirements	1.30%	0.44%	3.05%	400,000	1.39%
Improvements to Meet Fire Safety Needs	3.81%	1.87%	4.22%	618,062	2.15%
Improvements To Facilities For Energy Efficiency	14.38%	10.22%	13.82%	2,208,000	7.69%
Removal of Asbestos, Lead Paint, USTs, Etc.	0.00%	0.00%	0.00%	0	0.00%
Renovations to Improve Existing Space	43.59%	24.71%	24.27%	2,231,338	7.77%
Historical Restoration	0.00%	0.00%	0.00%	0	0.00%
Improvements to Roads, Walks, Drives & Utilities	0.69%	1.31%	2.06%	582,900	2.03%
Drainage & Landscape Improvements	0.00%	0.00%	0.00%	87,000	0.30%
GRAND TOTALS	100.00%	100.00%	100.00%	28,726,637	100.00%

Conclusion

NCA&T State's R&R expenditures were within the intended scope and nature of the R&R legislation and reflect funding of elements in the full range of categories of the legislative categories and FCAP requirements. Significant funding has been devoted to mechanical, electrical and HVAC systems.

The magnitude of R&R expenditures for Hines Hall repairs and renovations at \$6.82 million, the boiler plant at T.E. Neal Boiler plant at \$3.26 million, and Dudley Hall renovations at \$1.14 million have consumed much of the available annual R&R allocations over several years. As a result, funding for other more basic, or smaller-scope, R&R needs at NCA&T was quite limited.

NORTH CAROLINA SCHOOL OF THE ARTS

Summary Statistics

Figure 14-A summarizes key statistics for North Carolina School of the Arts, pertaining to R&R.

Figure 14-A NC School of the Arts R&R Key Statistics	
Gross Square Feet	637,869
Current Replacement Value	71,632,737
FCAP Deficiencies (2003)	10,150,300
FCQI (1999)	0.430
Cumulative R&R Funding (1993-2003 including COPs Program):	11,241,475
Sources: GSF, CRV, and FCQI from UNC BOG; FCAP deficiencies from State Construction	

FCAP History

FCAP reports were made for NC School of the Arts in 1993, 1997, 2000, and 2003. As of the writing of this report, NCSA is the only UNC institution that has four completed FCAP report cycles.

Figure 14-B shows the history of NCSA's FCAP needs. During this period, NCSA's total FCAP rose from \$2.5 million to \$10.2 million. FCAP deficiencies have more than tripled from 2000 to 2003. It



must be assumed that better identification and reporting of deficiencies is a factor, or that some major problem has emerged.

Figure 14-B
NC School of the Arts
FCAP Summary by Categories

	1993	1996	2000	2003
Roof Repairs & Replacements	337,000	375,150	257,000	689,000
Structural Repairs	37,500	96,500	73,000	101,000
Repairs to Meet Federal & North Carolina Standards	6,600	8,600	3,000	5,000
Repairs to Electrical, Plumbing & HVAC Systems	741,700	766,200	1,085,000	3,736,000
Improvements to Meet ADA Requirements	15,000	50,000	35,000	45,000
Improvements to Meet Fire Safety Needs	527,200	598,000	944,000	678,500
Improvements To Facilities For Energy Efficiency	429,000	392,500	430,000	588,800
Removal of Asbestos, Lead Paint, USTs, Etc.	0	0	0	0
Renovations to Improve Existing Space	228,000	90,000	161,000	3,863,000
Historical Restoration	0	0	0	0
Improvements to Roads, Walks, Drives & Utilities	216,500	233,200	64,300	196,000
Drainage & Landscape Improvements	0	0	0	248,000
Grand Total	2,538,500	2,610,150	3,052,300	10,150,300

R&R Funding History

Figure 14-C shows NC School of the Arts' R&R Reserve funding history.

Figure 14-C
NC School of the Arts
R&R Funding History

Year	\$ R&R Funds
1993	160,875
1994	573,000
1995	1,090,100
1996	1,290,900
1997	1,351,700
1998	1,209,900
1999	1,514,600
2000	968,600
2001	0
2002	0
2003	95,900
2003 COPS	2,985,900
Total Funding: 1993-2003	11,241,475

R&R Projects

Actual NCSA R&R expenditures were as follows:

- ❑ Work in 1993 included safety and architectural barrier corrections, repairs to buildings and HVAC, and one renovation project
- ❑ Work in 1994 included fire safety and security, HVAC, electric, and water system repairs, roof repairs, building repairs, with one small improvement project
- ❑ Work in 1995 included roof repairs, building repairs, and HVAC and electrical repairs and renovations, with a single landscape and site improvement project
- ❑ Work in 1996 included fire safety and ADA improvements, repairs and improvements to HVAC and utility systems and improvements to landscaping, site, roads, and walks
- ❑ Work in 1997 included HVAC renovations, building repairs, roof repairs, De Mille theatre renovations, and campus landscaping and signage improvements
- ❑ Work in 1998 included HVAC improvements, fire safety work, major landscaping and site improvements, and building renovations
- ❑ Work in 1999 included HVAC and electrical replacements, reproofing, roads and walks improvements, and major renovation projects for the Student Commons, acquired properties, and other facilities



- ❑ Work in 2000 included roof repairs, building structural repairs, electrical and HVAC upgrades, an ADA elevator installation, road and site improvements, and drainage/ grounds restoration
- ❑ Work for 2003 is to include fire safety and building code improvements, electrical and HVAC upgrades, roof replacement and waterproofing work, Dept. of Insurance corrections, and building structural repairs.

Changes in FCAP Need Levels

Figure 14-D shows the distribution of FCAP deficiencies by the 12 categories for each of the four FCAP studies, compared with the cumulative R&R expenditures and percentages for those same categories.

**Figure 14-D
 NC School of the Arts
 Comparison of FCAP and R&R Expenditures by Legislative R&R Categories**

	% of Total FCAP				Total Cumulative R&R Expenditures	
	1994	1996	2000	2003	\$	%
Roof Repairs & Replacements	13.28%	14.37%	8.42%	6.79%	\$1,378,846	11.80%
Structural Repairs	1.48%	3.70%	2.39%	1.00%	\$137,600	1.18%
Repairs to Meet Federal & North Carolina Standards	0.26%	0.33%	0.10%	0.05%	\$794,700	6.80%
Repairs to Electrical, Plumbing & HVAC Systems	29.22%	29.35%	35.55%	36.81%	\$3,095,537	26.49%
Improvements to Meet ADA Requirements	0.59%	1.92%	1.15%	0.44%	\$243,400	2.08%
Improvements to Meet Fire Safety Needs	20.77%	22.91%	30.93%	6.68%	\$463,700	3.97%
Improvements To Facilities For Energy Efficiency	16.90%	15.04%	14.09%	5.80%	\$52,100	0.45%
Removal of Asbestos, Lead Paint, USTs, Etc.	0.00%	0.00%	0.00%	0.00%	\$10,000	0.09%
Renovations to Improve Existing Space	8.98%	3.45%	5.27%	38.06%	\$2,475,510	21.18%
Historical Restoration	0.00%	0.00%	0.00%	0.00%	\$0	0.00%
Improvements to Roads, Walks, Drives & Utilities	8.53%	8.93%	2.11%	1.93%	\$1,642,969	14.06%
Drainage & Landscape Improvements	0.00%	0.00%	0.00%	2.44%	\$1,391,865	11.91%
GRAND TOTALS	100%	100%	100%	100%	\$11,686,227	100%

Changes in FCAP Need Levels

In only two categories of very limited needs were FCAP requirements reduced:

- ❑ Repairs to meet federal and state standards, from 0.3% to 0.1%
- ❑ Improvements to roads, walks and drives, from 8.5% to 2.1%.

While actual dollar needs increased in all other areas, there were three additional categories in which there were significant reductions of needs as a percentage of total needs. These were:

- ❑ Roof repairs and replacement, from 13% down to 6.8%
- ❑ Improvements to meet life safety needs, from 21% to 6.7%
- ❑ Improvements for energy efficiency, from 17% to 6%.

There were substantial increases in the proportion of FCAP requirements for:

- ❑ Repairs to electrical, plumbing and HVAC systems, from 29% to 37%
- ❑ Renovations to improve existing space, from 9% to 38%. This is the most notable single change for NCSA.

Conclusions

NCSA's R&R expenditures are well within the intended scope and nature of R&R projects, and reflect the full range of all categories of FCAP requirements. Current R&R expenditures are focused to the areas of principal need, for repairs to electrical, plumbing, and HVAC systems, and renovations to improve existing space.



NORTH CAROLINA STATE UNIVERSITY

Summary Statistics

Figure 15-A summarizes key statistics for North Carolina State University, pertaining to R&R.

Gross Square Feet	7,781,266
Current Replacement Value	1,158,676,536
FCAP Deficiencies (2001)	111,824,740
FCQI (1999)	0.340
Cumulative R&R Funding (1993-2003 including COPS Program):	96,341,801
Sources: GSF, CRV, and FCQI from UNC BOG; FCAP deficiencies from State Construction	

FCAP History

FCAP reports were made for NC State University in 1995, 1998, and 2001.

Figure 15-B shows NC State's FCAP totals. From an initial 1995 FCAP total estimate of \$30.8 million, NC State's second FCAP in 1998 resulted in much larger total requirements, estimated at \$173.2 million. It seems likely that the 1995 report, early in the FCAP program, did not capture many deficiencies. The most recent FCAP (in 2001) estimated total needs have declined to \$111.4 million, a significant decrease of about \$62 million.

	1995	1998	2001
Roof Repairs & Replacements	390,500	5,784,700	10,331,000
Structural Repairs	63,000	717,630	3,395,500
Repairs to Meet Federal & North Carolina Standards	1,977,000	0	0
Repairs to Electrical, Plumbing & HVAC Systems	16,777,000	55,810,140	44,113,640
Improvements to Meet ADA Requirements	5,000	2,593,000	4,912,000
Improvements to Meet Fire Safety Needs	721,000	9,304,410	5,960,500
Improvements To Facilities For Energy Efficiency	1,454,500	4,586,900	11,397,500
Removal of Asbestos, Lead Paint, USTs, Etc.	200,000	3,340,000	1,552,000
Renovations to Improve Existing Space	0	66,099,500	19,974,000
Historical Restoration	0	0	0
Improvements to Roads, Walks, Drives & Utilities	4,560,700	20,765,800	5,613,600
Drainage & Landscape Improvements	4,650,000	4,240,600	4,575,000
Grand Total	30,798,700	173,242,680	111,824,740



R&R Funding History

Figure 15-C shows the history of NC State's R&R Reserve funding.

Year	\$ R&R Funds
1993	3,718,301
1994	6,401,400
1995	9,827,500
1996	11,112,000
1997	11,156,400
1998	10,032,500
1999	11,233,000
2000	7,867,900
2001	0
2002	0
2003	778,000
2003 COPS	24,214,800
Total Funding: 1993-2003	96,341,801

R&R Projects

Actual NC State R&R expenditures were as follows:

- ❑ Work in 1993 included a preponderance of requirements in electrical, mechanical, water, heating, and HVAC repairs, and also included life safety and architectural barrier improvements, and building repairs
- ❑ Work in 1994 work included major projects for HVAC repairs and utilities system improvements, safety, fire safety, and ADA projects, classroom improvements, building repairs, and storm drainage
- ❑ Work in 1995 projects included safety, fire safety, and ADA improvements, HVAC and utilities infrastructure requirements, energy conservation, and classroom improvements and building renovations
- ❑ Work in 1996 included extensive electrical and HVAC repairs and upgrading and utilities infrastructure, fire safety and ADA, building repairs, and a major project (\$4.9 million) for HVAC and air quality improvements to seven academic buildings
- ❑ Work in 1997 included ADA improvements, fire safety and other safety needs, extensive electrical, plumbing and HVAC repairs and upgrades and utility infrastructure, air quality improvements, roof repairs, landscaping, and building renovations
- ❑ Work in 1998 included electrical, mechanical and plumbing, and HVAC repairs and replacements, utility infrastructure, ADA improvements, fire detection, roof replacements, building repairs, campus improvements, and infill of Harrelson Hall
- ❑ Work in 1999 included roof repairs and replacements, structural repairs, ADA and fire safety improvements, and major projects for electrical, mechanical, plumbing, and HVAC repairs and upgrade, and roads, walks and drainage
- ❑ Work in 2000 included roof repairs and replacements, building structural repairs, repairs for federal and state standards, major electrical, mechanical, heating, and HVAC upgrades, ADA improvements, fire safety improvements, energy efficiency, building renovations, roads, walks, and infrastructure improvements, and drainage and landscaping
- ❑ Work for 2003 is to include major electrical, mechanical, heating, and HVAC upgrades, rood replacements, safety improvements, energy efficiency improvements, elevator replacement, building repairs, building renovation, and road improvements.

Changes in FCAP Need Levels

For NC State, significant increases in requirements between 1998 and 2001 include:

- ❑ Road repairs, from 3.3% to 9.2%
- ❑ Electrical, plumbing, and HVAC requirements increased as a percentage of needs, from 32.2% to 39.4%, although the total dollar requirements dropped from \$55.8 million to \$44.1 million.
- ❑ The most significant reduction in NC State's FCAP needs has come in requirements for renovations to existing space, which has been reduced from 38.2% of the 1998 FCAP, at \$66.1 million, to 17.9% of the 2001 FCAP, at \$20 million.



Figure 15-D shows the distribution of FCAP deficiencies by the 12 categories for each of the four FCAP studies, compared with the cumulative R&R expenditures and percentages for those same categories.

**Figure 15-D
 NC State University
 Comparison of FCAP and R&R Expenditures by Legislative R&R Categories**

	% of Total FCAP			Total Cumulative R&R Expenditures	
	1995	1998	2001	\$	%
Roof Repairs & Replacements	1.27%	3.34%	9.24%	5,216,378	5.41%
Structural Repairs	0.20%	0.41%	3.04%	2,642,013	2.74%
Repairs to Meet Federal & North Carolina Standards	6.42%	0.00%	0.00%	984,593	1.02%
Repairs to Electrical, Plumbing & HVAC Systems	54.47%	32.22%	39.45%	38,192,687	39.64%
Improvements to Meet ADA Requirements	0.02%	1.50%	4.39%	5,057,944	5.25%
Improvements to Meet Fire Safety Needs	2.34%	5.37%	5.33%	8,800,221	9.13%
Improvements To Facilities For Energy Efficiency	4.72%	2.65%	10.19%	1,896,295	1.97%
Removal of Asbestos, Lead Paint, USTs, Etc.	0.65%	1.93%	1.39%	983,671	1.02%
Renovations to Improve Existing Space	0.00%	38.15%	17.86%	10,666,244	11.07%
Historical Restoration	0.00%	0.00%	0.00%	0	0.00%
Improvements to Roads, Walks, Drives & Utilities	14.81%	11.99%	5.02%	20,247,762	21.02%
Drainage & Landscape Improvements	15.10%	2.45%	4.09%	1,654,004	1.72%
GRAND TOTALS	100%	100%	100%	96,341,811	100.00%

CONCLUSIONS

NC State's R&R expenditures are well within the intended scope and nature of R&R projects, and reflect the full range of all categories of FCAP requirements. NC State is one of the campuses with an extensive internal condition audit capability and aggressively manages its renovations program.

NC State also is one of the few state institutions that has been able to show an actual and material decline in total FCAP funding needs from the 1998 FCAP to the 2001 FCAP study. The decrease of about \$62 million in NC State's FCAP accounts for a significant portion of the overall decrease for UNC as a whole. The consultants presume this is as a result of NC State's major building modernization projects, funded in the Bond Program.

UNIVERSITY OF NORTH CAROLINA AT GREENSBORO

Summary Statistics

Figure 16-A summarizes key statistics for UNC-Greensboro, pertaining to R&R.

**Figure 16-A
 UNC—Greensboro
 R&R Key Statistics**

Gross Square Feet	2,547,673
Current Replacement Value	229,489,823
FCAP Deficiencies (2000)	84,992,400
FCQI (1999)	0.590
Cumulative R&R Funding (1993-2003 including COPs Program):	37,779,670
Sources: GSF, CRV, and FCQI from UNC BOG; FCAP deficiencies from State Construction	



FCAP History

FCAP reports were made for UNC at Greensboro in 1995, 1997, and 2000.

The initial 1995 UNCG evaluation (\$32.5 million) appears to have significantly understated the actual needs. FCAP progress may better be evaluated through comparing 1997 and 2000 data. A significant reduction in the estimated total FCAP needs is reflected, from \$117.6 million in 1997 to \$85 million in 2000.

**Figure 16-B
 UNC—Greensboro
 FCAP Summary by Categories**

	1995	1997	2000
Roof Repairs & Replacements	1,085,000	3,791,000	3,955,500
Structural Repairs	101,500	1,920,500	1,289,500
Repairs to Meet Federal & North Carolina Standards	80,000	0	0
Repairs to Electrical, Plumbing & HVAC Systems	7,992,800	22,005,100	40,354,500
Improvements to Meet ADA Requirements	223,000	488,000	4,158,000
Improvements to Meet Fire Safety Needs	3,559,500	3,206,800	4,912,400
Improvements To Facilities For Energy Efficiency	2,320,000	1,967,500	1,793,000
Removal of Asbestos, Lead Paint, USTs, Etc.	340,000	0	0
Renovations to Improve Existing Space	16,713,000	74,142,000	22,805,500
Historical Restoration	0	0	0
Improvements to Roads, Walks, Drives & Utilities	76,700	8,953,800	5,144,000
Drainage & Landscape Improvements	28,000	1,118,000	580,000
Grand Total	32,519,500	117,592,700	84,992,400

R&R Funding History

Figure 16-C shows UNC-Greensboro's history of R&R funding.

**Figure 16-C
 UNC--Greensboro
 R&R Funding History**

Year	\$ R&R Funds
1993	1,723,770
1994	1,941,800
1995	3,431,000
1996	3,237,000
1997	3,519,800
1998	3,972,700
1999	5,435,700
2000	3,672,100
2001	0
2002	0
2003	337,700
2003 COPS	10,510,100
Total Funding: 1993-2003	37,779,670

R&R Projects

Actual UNC-G R&R expenditures were as follows:

- ❑ Work in 1993 included electrical improvements, a chemical storage building, and removal of architectural barriers
- ❑ Work in 1994 projects included roofing repairs, fire safety and safety improvements, repairs to steam and chiller plant systems, building renovations, and repairs to walks and drive
- ❑ Work in 1995 work included ADA modifications, asbestos abatement, and safety projects, roofing and waterproofing, utility infrastructure renewal, building repairs and renovations, energy conservation, and landscape renovations
- ❑ Work in 1996 included fire detection and sprinkler system, hazardous waste improvements, asbestos removal, and ADA improvements, electrical, chilled water, and steam system upgrades, building repairs and renovations
- ❑ Work in 1997 projects included safety improvements, asbestos removal, and architectural barrier removals, electrical, mechanical and HVAC upgrades, rood replacement and building repairs and renovations



- ❑ Work in 1998 work included asbestos abatement, OSHA modifications, and ADA modifications, electrical, mechanical, and HVAC upgrades, roofing and waterproofing building repairs and renovation, and landscaping, road, and walk improvements
- ❑ Work in 1999 projects included asbestos abatement, OSHA repairs, and ADA requirements, infrastructure and technology upgrades, energy conservation, improvements to roads and walks, and extensive repairs and renovation of buildings
- ❑ Work in 2000 included roof repairs and replacement, structural repairs, repairs to meet code requirement, HVAC repairs and replacements, ADA improvements, fire safety replacement and installation, cooling tower replacement for energy efficiency, removal of contaminants, building renovations, historic preservation, road repairs and lighting installation, and drainage and landscaping
- ❑ Work in 2003 is to include waterproofing and roof repairs, electrical, steam distribution, and HVAC upgrades, energy efficiency improvements, fire alarm improvements, ADA improvements, elevator repairs, building repairs, classroom renovations, bridge and street repairs, and landscaping improvements.

Changes in FCAP Need Levels

Figure 16-D shows the distribution of FCAP deficiencies by the 12 categories for each of the four FCAP studies, compared with the cumulative R&R expenditures and percentages for those same categories.

The most significant increase in UNC-G's FCAP requirements between 1997 and 2000 was for repairs to electrical, mechanical and HVAC systems, which increased from 18.7% of total needs in 1997 to 47.5%, or \$22 million, in the 2000 FCAP needs.

Other, smaller areas of increased needs were in improvements to meet ADA requirements and fire safety requirements.

Substantially decreased requirements between the 1997 and 2000 FCAPs have included:

- ❑ Renovations to improve existing space, from \$74.1 million to \$22.8 million
- ❑ Structural repairs
- ❑ Improvements to roads, walk, and utilities.

	% of Total FCAP			Total Cumulative R&R Expenditures	
	1995	1997	2000	\$	%
Roof Repairs & Replacements	3.34%	3.22%	4.65%	8,452,338	22.38%
Structural Repairs	0.31%	1.63%	1.52%	3,626,700	9.60%
Repairs to Meet Federal & North Carolina Standards	0.25%	0.00%	0.00%	1,974,495	5.23%
Repairs to Electrical, Plumbing & HVAC Systems	24.58%	18.71%	47.48%	6,794,052	17.99%
Improvements to Meet ADA Requirements	0.69%	0.41%	4.89%	1,981,374	5.25%
Improvements to Meet Fire Safety Needs	10.95%	2.73%	5.78%	1,368,547	3.62%
Improvements To Facilities For Energy Efficiency	7.13%	1.67%	2.11%	1,192,954	3.16%
Removal of Asbestos, Lead Paint, USTs, Etc.	1.05%	0.00%	0.00%	1,774,213	4.70%
Renovations to Improve Existing Space	51.39%	63.05%	26.83%	6,364,603	16.85%
Historical Restoration	0.00%	0.00%	0.00%	443,507	1.17%
Improvements to Roads, Walks, Drives & Utilities	0.24%	7.61%	6.05%	3,415,804	9.04%
Drainage & Landscape Improvements	0.09%	0.95%	0.68%	380,529	1.01%
GRAND TOTALS	100.00%	100.00%	100.00%	37,769,116	100.00%



Conclusions

UNC-Greensboro's R&R expenditures are well within the intended scope and nature of R&R projects, and reflect the full range of all categories of FCAP requirements. UNC-G is one of the few institutions that has accomplished a material reduction in total FCAP requirements, from \$117.6 million in 1997 to \$85 million in 2000. This may include major changes brought about by the new science building and related renovation of the old science building, early projects in the Bond Program.

WESTERN CAROLINA UNIVERSITY

Summary Statistics

Figure 17-A summarizes key statistics for Western Carolina University, pertaining to R&R.

Figure 17-A Western Carolina University R&R Key Statistics	
Gross Square Feet	1,634,222
Current Replacement Value	154,160,100
FCAP Deficiencies (2000)	27,264,260
FCQI (1999)	0.370
Cumulative R&R Funding (1993-2003 including COPs Program):	22,996,606
Sources: GSF, CRV, and FCQI from UNC BOG; FCAP deficiencies from State Construction	

FCAP History

FCAP reports were made for Western Carolina University in 1994, 1997, and 2000.

Figure 17-B shows the history of FCAPs. Reflecting the trend of most FCAP reports, Western's total FCAP requirements have significantly increased over the three inspection periods, from \$16.8 million in 1994 to \$22 million in 1997, to \$27.3 million in 2000.

Figure 17-B Western Carolina University FCAP Summary by Categories			
	1994	1997	2000
Roof Repairs & Replacements	1,931,250	1,134,000	3,535,000
Structural Repairs	54,500	152,500	1,346,000
Repairs to Meet Federal & North Carolina Standards	310,000	237,500	627,000
Repairs to Electrical, Plumbing & HVAC Systems	1,002,500	1,866,500	1,241,000
Improvements to Meet ADA Requirements	0	40,000	6,821,960
Improvements to Meet Fire Safety Needs	1,829,000	1,306,000	2,303,000
Improvements To Facilities For Energy Efficiency	347,500	4,635,000	3,220,500
Removal of Asbestos, Lead Paint, USTs, Etc.	0	37,000	0
Renovations to Improve Existing Space	2,562,000	1,962,000	1,483,500
Historical Restoration	0	0	0
Improvements to Roads, Walks, Drives & Utilities	8,736,500	10,568,500	6,684,300
Drainage & Landscape Improvements	15,000	15,000	0
Grand Total	16,788,250	21,974,000	27,264,260



R&R Funding History

Figure 17-C shows the history of *R&R Reserve* funding for Western Carolina.

Year	\$ R&R Funds
1993	903,006
1994	1,610,300
1995	2,946,800
1996	2,717,700
1997	2,427,100
1998	2,295,900
1999	2,918,200
2000	1,868,300
2001	0
2002	0
2003	165,300
2003 COPS	5,144,000
Total Funding: 1993-2003	22,996,606

R&R Projects

Western Carolina's actual R&R expenditures were as follows:

- ❑ Work in 1993 included fire safety, roof repairs, removal of architectural barriers, building repairs and renovations, and walks and drives
- ❑ Work in 1994 included fire safety, roof repairs, architectural barrier removals, building repairs ad renovations, and roads and walks
- ❑ Work in 1995 included roof repairs and waterproofing, ADA improvements, asbestos abatement, and OSHA safety requirements, utility system improvements, building repairs and renovation, and road and walk improvements
- ❑ Work in 1996 included roof repairs, steam plant, chiller, and electrical system improvements, fire safety improvements, and building renovations
- ❑ Work in 1997 included safety improvements, ADA improvements, and fire safety, roof repairs, steam plant and chiller upgrades, building repairs, and roads and walks improvements
- ❑ Work in 1998 included ADA corrections, OSHA safety, and fire safety improvements, energy improvements, building repairs and renovations, and road and walk improvements
- ❑ Work in 1999 included roof replacement, steam and chiller plant upgrades, building repairs and renovations, and energy management system
- ❑ Work in 2000 included roof repairs, ADA improvements, energy efficiency work, building renovation, improvements to roads and walks, and drainage and landscaping work
- ❑ Work for 2003 is to include roof replacements, building repairs, fire safety improvements, water system upgrade, and asbestos abatement work.

Changes in FCAP Need Levels

Figure 17-D shows the distribution of *FCAP* deficiencies by the 12 categories for each of the four *FCAP* studies, compared with the cumulative R&R expenditures and percentages for those same categories. Major areas of increased requirements at Western Carolina include:

- ❑ Roof repairs, which has increased to 13% of total needs at a cost of \$3.5 million
- ❑ ADA improvements needs have grown to 25% of total needs at a cost of \$6.8 million
- ❑ Fire safety needs that have increased to a total cost of \$3.2 million.

Major areas that have seen reductions include:

- ❑ Repairs to electrical, plumbing, and HVAC systems, which have decreased to 4.6% of total needs at a cost of \$1.2 million
- ❑ Energy conservation improvements at 11.8% at a cost of \$3,2 million
- ❑ Renovations to improve existing space, which are at 5.4% of total needs at a cost of \$1.5 million
- ❑ Improvements to roads, walks, and drives that have been reduced to 24.5% of total needs at an estimated cost of \$6.9 million.



Figure 17-D
Western Carolina University
Comparison of FCAP and R&R Expenditures by Legislative R&R Categories

	% of Total FCAP			Total Cumulative R&R Expenditures	
	1994	1997	2000	\$	%
Roof Repairs & Replacements	11.50%	5.16%	12.97%	4,447,345	19.34%
Structural Repairs	0.32%	0.69%	4.94%	1,229,399	5.35%
Repairs to Meet Federal & North Carolina Standards	1.85%	1.08%	2.30%	637,042	2.77%
Repairs to Electrical, Plumbing & HVAC Systems	5.97%	8.59%	4.55%	2,391,204	10.40%
Improvements to Meet ADA Requirements	0.00%	0.18%	25.02%	188,635	0.82%
Improvements to Meet Fire Safety Needs	10.89%	5.94%	8.45%	2,710,778	11.79%
Improvements To Facilities For Energy Efficiency	2.07%	21.09%	11.81%	1,954,097	8.50%
Removal of Asbestos, Lead Paint, USTs, Etc.	0.00%	0.17%	0.00%	401,600	1.75%
Renovations to Improve Existing Space	15.26%	8.93%	5.44%	5,301,142	23.05%
Historical Restoration	0.00%	0.00%	0.00%	0	0.00%
Improvements to Roads, Walks, Drives & Utilities	52.04%	48.10%	24.52%	3,676,164	15.99%
Drainage & Landscape Improvements	0.09%	0.07%	0.00%	59,200	0.26%
GRAND TOTALS	100%	100%	100%	22,996,606	100.00%

Conclusions

Western Carolina's R&R expenditures are well within the intended scope and nature of R&R projects, and reflect the full range of all categories of FCAP requirements.

Summary

Overall, this review does not reveal any significant problems with the use of R&R Reserve funding and R&R project priorities of the institutions. Some additional information with submissions might be helpful for future monitoring. (See Recommendations in Chapter 5.)



5—RECOMMENDATIONS

In this chapter, we summarize recommendations for the state level, UNC (system) level, and campus level that follow from the analyses in Chapters 2, 3, and 4.

State Level

Recommendation #1: Sustain North Carolina's commitment to preservation and renewal of capital assets by funding the R&R Reserve Fund annually, with the intent of reducing the condition deficiency backlog

North Carolina has been a national leader in its treatment of capital asset renewal. The *R&R Reserve Fund* is an extremely significant state leadership accomplishment. It would be fiscally prudent for the State to continue to fund the *R&R Reserve Fund Account* based on the current legislative formulation that requires 3% of *CRV* annually. This amount will not suffice to eliminate the long-accumulated backlog, but it will address a portion of that backlog, as well as provide for current maintenance and renewal. If *CRV* of infrastructure is added to the *CRV* base, as we believe it should be, the funding requirements will increase.

As an alternative, the General Assembly could consider a "catch-up" program, perhaps in the form of a multi-year debt program, to work off a major portion of the deficiency backlog, and then reduce annual R&R funding to accommodate current deficiencies.

The *COPs* Program provides an extremely interesting example of an opportunity. The current *FCAP* deficiency for all state facilities is \$971,575,684. Some *R&R Reserve* funding is used for "renovations" that may not be included in that figure. Nonetheless, in very round numbers (as there is never a one-to-one correlation of *FCAP* deficiencies with renovation project plans), it is interesting to note that just two or three *COPs* issuances in the range of \$300 million might bring the deficiency backlog down to nearly nothing. In fact, not all deficiencies are of equal urgency; thus, a smaller total amount could work off the most urgent of the renewal needs, especially if certain limitations were applied for a few years. Then, when the backlog (or backlog of most serious condition problems) has been addressed, an annual *R&R Reserve* funding amount in a smaller range, for example 1.5% of *CRV*, might suffice to maintain facilities in reasonable condition for the long term.

Recommendation #2: Refine State Construction's approach to *FCAP* condition audits to ensure that the procedures are generating equivalent data for all agencies and provide State Construction's advice on highest R&R priorities.

The Office of State Construction has expressed concern about the fact that some UNC institutions are better able to identify deficiencies than are other state agencies. Consequently, the *FCAP* reports of these institutions reveal greater needs. There also are issues about whether and how "full building renovations" are or should be included uniformly, where applicable.

It is our opinion that North Carolina already is well ahead of most states in having consistent condition data, because State Construction staff conduct all the studies. However, as good as the program is, it might not be perfect. If there are concerns, State Construction might find ways to refine its procedures, to increase its own "comfort" that all state agency facilities are being evaluated properly and in the same way.

Also, as noted above, there are many considerations, in addition to *FCAP* studies, that go into R&R priorities. The *FCAP* reports already organize deficiencies by priority level, which is quite helpful information. We suggest that State Construction might consider an additional step. It might provide "advice memoranda" to all state agencies with its opinions on the highest or most urgent priorities for projects to be funded from *R&R Reserve* funds. This would be another level of useful input to agency decisions.

Recommendation #3: Update the method to allocate R&R funds between UNC and other state agencies, using a combination of *CRV* and *FCAP* to define relative need.

As indicated in our data discussed in Chapter 2, we understand that the basis for allocation of *R&R Reserve* funding between UNC and all other state agencies was established in 1995 based on relative *FCAP* needs at that time. While this was a reasonable approach, the relative condition needs appear to have shifted significantly since this formulation was established nearly a decade ago.

In order to assure an equitable sharing of total *R&R Reserve* resources, we recommend that the present allocation of funding be modified. In general, *CRV* represents the best indication of permanently recurring R&R funding requirements and, in the absence of any other data, would be the most accurate and complete basis for allocating R&R funding.



Then, in North Carolina, we have the benefit of regularly conducted condition audits. Therefore, to recognize that information about the actual condition of the physical plant at each state agency installation also should be considered in R&R funding allocations, we suggest that current FCAP figures also should be used as an additional metric for allocation of *R&R Reserve* funding.⁴

We therefore suggest consideration of a two-variable formula to allocate funding between UNC and other state agencies as follows:

- 50% of R&R funding allocated on the basis of current relative *CRV*
- 50% of R&R funding allocated on the basis of current relative *FCAP*.

Using the recent COPs program amount of \$300 million as the basis of an example, the hypothetical allocation under this suggested formula would be derived as follows:

Step 1. Use annually updated \$CRV and \$FCAP data (for General Fund-only facilities), as shown for 2004 data in Figure 18.

Figure 18
2004 Summary of Relative CRV and FCAP--2004: UNC and Other State Agencies
General Fund-Only Facilities

	\$ CRV	% of Total State CRV	\$ FCAP Deficiencies	% of Total State FCAP Deficiencies
UNC	5,056,793,140	59.3%	603,619,392	68.6%
Other State Agencies	3,464,741,907	40.7%	276,703,132	31.4%
State Totals	8,521,535,047	100.0%	880,322,524	100.0%

Source: From Figures 7 and 8. \$FCAP for General Fund facilities for Other State Agencies is estimated.

Step 2. Divide available *R&R Reserve* funding into two pools, at 50% and 50%.

50% x \$300,000,000 = \$150,000,000 available to allocate based on relative *CRV*.

50% x \$300,000,000 = \$150,000,000 available to allocate based on relative *FCAP*.

Step 3. Calculate the allocations based on the combined formula, as follows.

Figure 19
Hypothetical Allocation of \$300,000,000 COPs Funding for R&R Reserve Funds
Based on Proposed New Formula
GENERAL FUND-ONLY FACILITIES

	UNC	Other State Agencies	Total State (All Agencies)
I. 50% of Available R&R Reserve Funds Allocated based on Relative \$CRV			
\$CRV	\$5,056,793,140	\$3,464,741,907	\$8,521,535,047
% of Total State CRV	59.3%	40.7%	100.0%
Allocation of \$150 million per \$CRV	\$89,012,011	\$60,987,989	\$150,000,000
II. 50% of Available R&R Reserve Funds Allocated Based on Relative \$FCAP Deficiencies			
\$ FCAP Deficiencies	\$603,619,392	\$276,703,132	\$880,322,524
% of Total State FCAP Deficiencies	68.6%	31.4%	100.0%
Allocation of \$150 million per \$FCAP	\$102,851,973	\$47,148,027	\$150,000,000
III. Summary of R&R Allocation:			
Total Allocation of \$300 million to UNC and Other State Agencies	\$191,863,984	\$108,136,016	\$300,000,000
Combined Allocation %	64.0%	36.0%	100%

¹Portion of FCAP deficiencies that is attributable to General Fund-Only facilities for other state agencies is estimated by EKA. This figure should be derived correctly when data can be provided.

⁴ An alternative would be to use the FCI, a ratio of the FCAP to CRV, but this ratio is harder to apply directly in a formula allocation.



Recommendation #4: Improve the completeness and reliability of critical state facilities data

As discussed in Chapter 2, our review of data used in the allocation of *R&R Reserve* funding at the state level indicates that there are a number of areas of doubtful accuracy, or areas for which complete information is unavailable. We recommend that, as a part of any reconsideration of the *R&R Reserve* funding allocation, the appropriate state agencies should consider the following:

1. **Current Replacement Value of Infrastructure.** Consider augmenting the currently maintained *CRVs* to include all non-building infrastructure, including roads, utilities, and other non-building installations, reflecting the significant cost of maintaining such facilities for agencies with campus environments. (If State Insurance is not the correct agency to maintain *CRV* data on infrastructure, another suitable home for such data may be required.)
2. **Reliability of GSF and CRV.** Review and revise, as necessary, procedures that will ensure that all agencies provide current and accurate *GSF* data and *CRV* data to State Insurance (or other agency) on a regular basis.
3. **General Fund vs. Receipt-Supported Facilities.** Review and revise as necessary procedures that will accurately provide and maintain data that identifies and separates all General Fund-supported from receipt-supported or "special fund" facilities, with respect to *GSF*, *CRV*, and *FCAP* data. As there may be many cases of facilities that have both General Fund and other sources of initial capital funding, a suitable methodology for allocating values for such buildings should be developed, perhaps by OSBM.

UNC (System) Level

Recommendation #5: Phase out use of the FCQI in the internal UNC allocation formula and EITHER use the formula as originally developed OR use the same formula as shown above for allocating between UNC and other state agencies.

We concur with the expressed concern that the data underlying the *FCQI* ratios are aging, and therefore recommend that use of the *FCQI* should be phased out. For example, we suggest that the formula with the *FCQI* might be used for one more year of *R&R* allocations in 2004, and then changed for 2005.

Alternative #1: UNC could return to the multivariate formula as it was originally developed in 1994, without the eighth *FCQI* variable.

Alternative #2: UNC could abandon the 1994 formula altogether and use the same formula for internal allocation that is recommended above for derivation of the state-level split, i.e., 50% of allocation based on *CRV* and 50% of allocation based on *FCAP* deficiencies.

Recommendation #6: Consider increasing the "floor" for the smaller institutions from 2.25% to 2.5% or 2.75%.

As considerable time has passed, what can be accomplished with a given amount of funding is less than it was in 1994, when the formula was implemented. Therefore, it would be reasonable to adjust upward the "floor" so that small institutions would receive a higher minimum allocation. Based on preliminary testing, it looks like a new floor in the range of 2.5% to 2.75% would be reasonable.

Recommendation #7: Use methods developed in this review to periodically evaluate the relationship between R&R projects proposed for funding against FCAP deficiencies/needs

The comparisons developed in this review between *FCAP* needs and *R&R* projects are not "scientific" and their validity should not be overstated. Many factors are involved in *R&R* priorities. However, the UNC BOG may find these tools of some use, for general periodic evaluations to ensure that *R&R* projects institutions select for funding are, in general, driving down their *FCAP* deficiencies as time goes on. For example, there could be a new format of requirements for *R&R* projects/plan submissions. Each submission of projects could include, for each project, data on which categories of *FCAP* needs are addressed in that building and what *FCAP* reductions will result from the proposed project.

UNC Institution Level

Recommendation #8: Continue to give high priority to critical life safety, code compliance, and building integrity needs, while continuing to respond to other pressing need categories

It is the case that there are many conflicting pressures that are considered in formulation of *R&R* project priorities. There are times when certain types of needs are of highest urgency. Also clearly,



not all needs within any given category, even the life safety category, are of equivalent urgency. Therefore, it is not sensible to mandate that all of any entire category of *FCAP* deficiencies should be addressed all at once or in a lock-step priority order. Nonetheless, to the extent that there remain urgent or high priority life safety, code compliance, or building integrity needs associated with campus buildings that are not scheduled to undergo comprehensive renovations, UNC institutions should work to fund the most critical of these needs from *R&R Reserve* funding in the near term, while continuing to respond, in balance, to substantial pressures for classroom modernization and other renovations priorities.

Recommendation #9: In defining building renovation projects, focus on addressing multiple needs at the same time, when doing so is cost-effective, and incorporate FCAP deficiency corrections in such projects.

Whenever possible, it is useful to define R&R projects broadly enough to correct multiple specific deficiencies in a given building. As it is, in the end, a more cost-effective way to deploy funds, it is good practice to use the funds to achieve renovations of a meaningful scale. At the same time, there is a modest amount of anecdotal information to suggest that some building renovation projects funded in the Bond Program did not include correction of *FCAP* deficiencies for that building. If this did occur in some cases, there likely are good reasons. However, it is important to remember that the intent of the “modernization” projects was to address **both** *FCAP* condition deficiencies and more general modernization needs. UNC institutions should try to include correction of *FCAP* condition deficiencies in plans for major renovations of buildings as much as possible.

An Additional Recommendation for State and Board of Governors Consideration

Recommendation #10: Create a “reserve for renewal” fund(s), with amounts to be “invested” that are associated with each new building funded in the Bond Program and for all other future new buildings

This recommendation addresses issues beyond the immediate scope of this analysis but which derive from it, and which require consideration by both the State and the Board of Governors.

Even with the benefit of years of *R&R Reserve* funding, there remains an enormous base of condition and quality deficiencies in state facilities, and UNC has a substantial share of the State’s total backlog problem. The *R&R Reserve* and the UNC Bond Program have been instrumental in addressing these critical needs, but have not yet wiped out the problem.

As UNC is adding new capacity and new specialized facilities with Bond Program funding, the UNC *CRV* base is increasing materially. In the future, the total base of properties to maintain and renew will only be greater. The consultants do not believe it is realistic for UNC to assume that there ever will be enough R&R funding to **both** work off the long-accumulated backlog **and** to protect and renew all investment in future new buildings. We therefore urge UNC to consider a major new initiative that would be designed to avert a future crisis and to ensure a sound future—by setting aside and maintaining funds for future renewal for all new buildings currently being added to UNC campuses.

A detailed plan or model for such a program is well beyond the scope of this study. However, to illustrate the concept, three sources of funding are:

- ❑ Sinking fund reserves included with each University debt issuance
- ❑ A sinking fund reserve carved out of capital appropriations as part of initial project budgets (may require special legislation to use capital funds in this way)
- ❑ A student capital fee.

Amounts required would need to be calculated as “future values” or treated as an annuity. That is, how much do I have to put away today, or put away each year, in order to have “X” dollars available (to replace building systems) in 20-30 years?

This would be a major change, requiring not only financial creativity, but also commitment and discipline.



EXHIBIT 1: UNC BOND PROGRAM RENOVATION AND MODERNIZATION PROJECTS

Appalachian State University		
Complete		
40080-309	B.B. Dougherty Hall Renovation	\$1,000,000.00
		\$1,000,000.00
Construction		
40080-303	Rankin Science Building	\$16,213,500.00
40080-305	Turchin Visual Arts Center Addition	\$4,374,700.00
40080-307	Founders Hall - Comprehensive Renovation	\$1,044,100.00
40080-308	Walker Hall Renovation	\$1,733,800.00
40080-313	Rankin Science Building - Annex	\$0.00
		\$23,366,100.00
Design		
40080-306	Smith-Wright Hall Renovation	\$1,636,100.00
		\$1,636,100.00
Appalachian State University Total		\$26,002,200.00
East Carolina University		
Complete		
40086-311	Campus Computing Center Renovation	\$1,785,000.00
		\$1,785,000.00
Construction		
40086-302	Flanagan Building - Renovation & Conversion	\$13,421,300.00
40086-304	Expansion & Renovation of Old Nursing Building	\$14,685,500.00
40086-306	Classroom Improvements - Technology Upgrades and Renovations	\$3,648,400.00
		\$31,755,200.00
Design		
40086-309	Old Cafeteria Office Building Renovation	\$4,442,100.00
40086-305	Belk Building Renovation & Conversion	\$7,791,300.00
		\$12,233,400.00
East Carolina University Total		\$45,773,600.00
Elizabeth City State University		
Complete		
40083-304	Williams Hall Classroom Building Renovation	\$2,822,700.00
		\$2,822,700.00
Construction		
40083-303	Johnson Hall Classroom Building Renovation	\$3,156,300.00
40083-306	White Graduate Center & Continuing Education Bldg Renovation	\$1,514,000.00
		\$4,670,300.00
Design		
40083-301	Lane Hall Classroom Building Renovation	\$2,360,600.00
40083-305	Lester Hall Classroom Building Renovation	\$250,000.00
40083-308	Mitchell-Lewis Residence Hall Renovation	\$0.00
40083-309	Wamack Residence Hall Renovation	\$0.00
		\$2,610,600.00
Inactive		
40083-302	Trigg Hall Classroom Building Renovation	\$2,109,000.00
40083-307	Wilkins Laboratory Building Renovation	\$451,800.00
40083-310	Doles Residence Hall Renovation	\$0.00
		\$2,560,800.00
Elizabeth City State University Total		\$12,664,400.00



Fayetteville State University

Complete		
40084-312	Student Residence Halls - Fire Safety Improvements	\$611,700.00
		\$611,700.00
Construction		
40084-306	Charles Chestnutt Library - Compr. Renovation	\$875,900.00
40084-311	Cook Dining Hall - Compr. Renovation & Conversion	\$1,773,500.00
40084-308	Seabrook Auditorium - Comprehensive Renovation	\$6,825,000.00
40084-314	Compr. Renovation & Conversion of Spaulding (Old Infirmary) for Public Safety Fac.	\$1,029,100.00
40084-316	Seabrook Auditorium	\$0.00
		\$10,503,500.00
Design		
40084-304	Continuing Education Center - Compr. Renovation	\$432,600.00
40084-310	Lilly Gymnasium - Compr. Renovation & Conversion of Bldg for Student Services	\$3,256,400.00
40084-302	Lyons Science and Laboratory Bldg - Compr. Renovation & Addition	\$15,146,900.00
40084-309	Taylor Gymnasium - Conversion of Bldg for Academic Use	\$3,360,000.00
40084-303	Science Annex - Comprehensive Renovation	\$1,740,500.00
40084-305	Taylor Social Sciences Classroom Bldg - Compr. Renovation	\$884,300.00
		\$24,820,700.00
Inactive		
40084-307	William Collins Building - Comprehensive Renovation	\$640,600.00
		\$640,600.00
Fayetteville State University Total		\$36,576,500.00

North Carolina A&T State University

Complete		
40087-323	Campus Security Improvements	\$828,716.00
		\$828,716.00
Construction		
40087-320	Three Classroom Building (Dudley, Gibbs & Moore) Renovation	\$4,797,100.00
40087-309	Morrison Residence Hall Renovation	\$3,701,100.00
40087-312	School of Agriculture Improvements	\$1,832,700.00
		\$10,330,900.00
Design		
40087-319	Cherry Hall Laboratory Building Renovation	\$8,438,200.00
40087-313	Barnes Hall Laboratory Renovation	\$5,550,100.00
40087-314	Graham Hall Engineering Laboratory Renovation	\$5,782,200.00
40087-308	Holland Residence Hall Renovation	\$0.00
40087-310	Zoe Barbee Residence Hall Renovation	\$4,550,600.00
40087-303	Harrison Auditorium Renovation	\$2,895,200.00
		\$27,216,300.00
North Carolina A&T State University Total		\$38,375,916.00



North Carolina Central University

Complete		
40085-309	McLean Residence Hall	\$305,800.00
40085-318	Code Compliance Corrections	\$375,000.00
40085-320	Public Safety	\$840,000.00
		\$1,520,800.00
Construction		
40085-305	Rush Residence Hall - Comprehensive Renovation	\$2,089,400.00
40085-307	Shepard Residence Hall	\$4,357,800.00
40085-311	Student Residence Halls - Fire Safety and Security	\$1,541,000.00
40085-312	Turner Law School	\$7,028,800.00
40085-324	Mold Remediation	\$10,400,000.00
		\$25,417,000.00
Design		
40085-306	Eagleson Residence Hall	\$6,869,500.00
40085-308	Latham Residence Hall	\$3,411,600.00
40085-310	Pearson Cafeteria	\$8,994,300.00
40085-313	Shepard Library	\$4,374,800.00
40085-315	Alexander Dunn Building	\$1,779,300.00
40085-323	Health and Safety Repairs	\$1,809,003.00
		\$27,238,503.00
Inactive		
40085-302	Farrison Newton	\$1,448,700.00
40085-314	Old Senior Dorm	\$0.00
40085-317	Hoey Building	\$0.00
		\$1,448,700.00
North Carolina Central University Total		\$55,625,003.00

North Carolina School of the Arts

Complete		
40088-302	Stevens Center - Comprehensive Modernization & Major Renovations	\$4,434,500.00
		\$4,434,500.00
Design		
40088-305	Dance Costume Shop - Comprehensive Renovation	\$420,000.00
40088-306	Workplace Building #2 - Comprehensive Renovation	\$0.00
40088-307	Crawford Hall and the Recital Hall - Comprehensive Renovation	\$0.00
40088-309	Gray Classroom Building - Partial Renovation	\$0.00
40088-311	Renovation of DeMille Theatre	\$5,967,900.00
		\$6,387,900.00
North Carolina School of the Arts Total		\$10,822,400.00



North Carolina State University

Complete		
40074-313	Clark Hall Conversion and Renovation	\$2,415,000.00
		\$2,415,000.00
Construction		
40074-309	1911 Building Comprehensive Renovation	\$6,972,000.00
40074-306	David Clark Lab Renovation & USTL Phase 2	\$23,752,800.00
40074-322	Field Research Laboratories and Outlying Research Facilities - Phase I	\$2,500,000.00
		\$33,224,800.00
Design		
40074-302	Withers Hall - Comprehensive Renovation	\$11,480,400.00
40074-312	Harrelson Classroom Building, Modernization	\$13,608,500.00
40074-310	Park Shops Comprehensive Renovation	\$6,310,700.00
40074-308	South Gardner Hall Laboratory Renovation	\$15,214,500.00
40074-314	Schaub Food Science Building - Comprehensive Renovation CM@Risk	\$10,515,500.00
40074-315	Williams Hall Laboratory Building Renovation	\$12,865,500.00
40074-316	Polk Hall Laboratory - Comprehensive Renovation	\$15,053,000.00
40074-317	Leazar Hall Laboratory Building - Comprehensive Renovation	\$8,361,100.00
40074-318	Daniels Hall Laboratory Building - Phase 1	\$7,864,500.00
40074-311	Riddick Lab - Comp Renov Lab to Classroom	\$26,020,900.00
40074-326	College of Veterinary Medicine - Mechanical and Electrical System Improvements	\$21,000,000.00
		\$148,294,600.00
North Carolina State University Total		\$183,934,400.00

University of North Carolina at Asheville

Construction		
40077-302	Highsmith Center Renovation	\$11,522,000.00
40077-309	Justice Gymnasium Renovation	\$195,000.00
40077-308	Highsmith Center	\$356,800.00
		\$12,073,800.00
Design		
40077-303	Carmichael Hall Renovation	\$5,524,200.00
40077-304	Zageir Hall Renovation	\$2,569,100.00
		\$8,093,300.00
University of North Carolina at Asheville Total		\$20,167,100.00



University of North Carolina at Chapel Hill

Complete		
40073-303	Murphy Hall Classroom	\$6,723,500.00
40073-307	Peabody Hall Classroom Renovation	\$8,509,800.00
40073-310	Institute of Marine Science Renovation-Morehead	\$1,833,300.00
40073-337	RB House Library	\$9,898,700.00
		\$26,965,300.00
Construction		
40072-301	Medical Science Research Building (MSRB)	\$12,895,000.00
40072-302	Health Sciences Library	\$11,000,000.00
40072-303	School of Dentistry (Old Dental Bldg. Reno.)	\$8,397,100.00
40072-306	Burnett Womack	\$24,848,000.00
40073-306	Saunders Hall Classroom Building	\$4,194,100.00
40073-308	Memorial Hall Renovation	\$9,200,000.00
40073-313	Caldwell & Howell Halls Classroom Renovation	\$1,732,000.00
40073-315	Hanes/Manning/Alumni Classroom Renovation	\$2,233,000.00
40073-318	Phillips Hall Classroom Renovation	\$1,450,000.00
40072-307	Berryhill Hall Renovation	\$10,700,000.00
		\$86,649,200.00
Design		
40073-334	440 West Franklin Street Renovation	\$9,170,000.00
40072-305	Brauer Hall	\$13,415,400.00
40072-308	Beard Hall Classroom	\$3,500,000.00
40073-304	New West Classroom Renovation	\$4,500,000.00
40073-309	Smith Hall Renovation	\$1,355,200.00
40073-311	Hamilton Hall Classroom Renovation	\$1,539,000.00
40073-312	Gerrard Hall Classroom Renovation	\$1,350,000.00
40073-319	Hill & Davie Classroom Renovation	\$1,949,000.00
40073-316	Woolen & Fetzer Classroom Renovations	\$1,598,000.00
40073-317	Greenlaw Hall Classroom Renovation	\$1,825,000.00
40073-335	Wilson Hall Laboratory Renovation	\$8,920,000.00
40072-304	Rosenau Hall Laboratory	\$9,000,000.00
40073-314	Coker and Mitchel Classroom Renovation	\$1,718,000.00
		\$59,839,600.00
Inactive		
40073-305	Steele Building Comprehensive Renovation	\$3,428,600.00
		\$3,428,600.00
University of North Carolina at Chapel Hill Total		\$176,882,700.00

University of North Carolina at Charlotte

Construction		
40076-309	Rowe Classroom Building - Comprehensive Renovation	\$4,306,500.00
		\$4,306,500.00
Design		
40076-310	McEniry Classroom Building - Comprehensive Renovation	\$3,433,000.00
		\$3,433,000.00
University of North Carolina at Charlotte Total		\$7,739,500.00

University of North Carolina at Greensboro

Construction		
40075-306	Stone Classroom Building Renovation	\$8,930,400.00
		\$8,930,400.00
Design		
40075-302	Petty Building Renovation	\$16,272,300.00
40075-303	Brown Classroom Building Renovation	\$6,493,900.00
40075-305	Aycock Auditorium Renovation	\$17,163,000.00
40075-307	Alumni House Code Compliance	\$3,258,000.00
40075-310	McNutt Classroom Building Renovation	\$2,724,000.00
		\$45,911,200.00
Inactive		
40075-309	Forney Classroom Building Renovation	\$3,565,400.00
		\$3,565,400.00
University of North Carolina at Greensboro Total		\$58,407,000.00



University of North Carolina at Pembroke		
Construction		
40081-309	Jones Physical Education Complex - Comprehensive Renovation	\$8,243,700.00
40081-302	Oxendine Science Building	\$0.00
		\$8,243,700.00
Design		
40081-303	Locklear Hall Classroom Bldg. - Comprehensive Renovation	\$2,000,000.00
40081-304	D. F. Lowry Classroom Bldg. - Comprehensive Renovation & Addition	\$1,950,500.00
40081-305	Business Administration Bldg. - Comprehensive Renovation	\$1,059,800.00
40081-306	Moore Classroom Hall - Comprehensive Renovation	\$2,639,700.00
40081-311	Renovation of Former Physical Plant Facility	\$2,696,000.00
		\$10,346,000.00
Inactive		
40081-308	West Residence Hall - Comprehensive Renovation	\$977,300.00
		\$977,300.00
University of North Carolina at Pembroke Total		\$19,567,000.00
University of North Carolina at Wilmington		
Construction		
40078-311	Kenan Auditorium-Comprehensive Renovation	\$3,095,300.00
40078-307	Westside Hall Classroom Building-Comprehensive Renovation	\$2,687,300.00
40078-306	Alderman Hall Administration Building-Comprehensive Renovation	\$2,940,800.00
		\$8,723,400.00
Design		
40078-304	King Hall Classroom Building-Comprehensive Renovation	\$2,697,400.00
40078-308	Kenan Hall Classroom Building-Comprehensive Renovation	\$3,056,600.00
40078-305	Hoggard Hall Classroom Building-Comprehensive Renovation	\$3,550,400.00
40078-309	James Hall Administration Building-Comprehensive Renovation	\$1,468,000.00
40078-310	Friday Hall Laboratory Building-Comprehensive Renovations	\$7,693,400.00
		\$18,465,800.00
University of North Carolina at Wilmington Total		\$27,189,200.00
Western Carolina University		
Complete		
40079-303	McKee Classroom Building Renovation	\$7,126,200.00
40079-304	Bird Building - Renovation & Conversion for Student Health Center	\$0.00
		\$7,126,200.00
Construction		
40079-306	Breese Gymnasium Renovation	\$1,161,300.00
40079-310	Killian Clinic Annex Renovation	\$0.00
40079-311	Killian & Killian Annex	\$4,676,200.00
		\$5,837,500.00
Design		
40079-302	Stillwell Lab Building Renovation	\$15,057,500.00
40079-305	Residential Learning Facility	\$1,887,100.00
40079-312	Forsyth Classroom and Computer Labs Renovation	\$7,064,000.00
		\$24,008,600.00
Western Carolina University Total		\$36,972,300.00



Winston-Salem State University

Construction		
40082-304	Anderson Center - Compr. Renovation & Change of Use for Early Childhood/Gerontology	\$6,917,900.00
40082-312	Coltrane Hall - Renovation for Gerontology	\$0.00
		\$6,917,900.00
Design		
40082-302	Carolina Hall - Renovation and Conversion from Computer Center to Classrooms	\$4,270,700.00
40082-305	Health Center Bldg and Old Nursing Bldg - Compr. Renovation for Student Health	\$2,265,900.00
		\$6,536,600.00
Winston-Salem State University Total		\$13,454,500.00

University of North Carolina - Public TV

Construction		
40089-301	Digital Conversion	\$64,995,000.00
		\$64,995,000.00
University of North Carolina - Public TV Total		\$64,995,000.00

North Carolina School of Science and Math

Complete		
40069-302	Renovation of Royall Outreach Center	\$1,990,400.00
		\$1,990,400.00
Construction		
40069-301	Renovation of Bryan Center	\$3,172,600.00
		\$3,172,600.00
North Carolina School of Science and Math Total		\$5,163,000.00

Grand Total: \$840,311,719.00

Source: State Property Office, May 19, 2004