

Higher Education
Fixed Assets Guidelines
for
Educational and General Programs

State Council of Higher Education for Virginia

July, 2001

HIGHER EDUCATION FIXED ASSETS GUIDELINES FOR EDUCATIONAL AND GENERAL PROGRAMS

Introduction

The Council of Higher Education has statutory responsibility to consider the future needs of higher education in Virginia, including the programs, facilities, and location of each institution of higher education. This responsibility includes developing policies, formulae, and guidelines for the fair and equitable distribution of public funds among the state-supported institutions of higher education, taking into account enrollment projections and institutional missions.

This Council responsibility has particular significance during this first decade of the 21st century. Current projections indicate that the population of Virginia will increase and so will enrollment in higher education. In addition, as pointed out by the Southern Regional Education Board, "schools, colleges and universities are the institutions to which we turn in order to acquire or create knowledge and to learn the skills that are critical to succeed in a fast-paced, technologically advanced society."

The major fixed assets of colleges and universities are land, buildings, infrastructure, and equipment. These assets are essential to the delivery of education and other services. Sound planning and careful management of them is important for many reasons:

- The amount and suitability of building space, infrastructure, and equipment directly affects the scope and quality of higher-education services that can be provided.
- Buildings, infrastructure, and equipment demand large capital investments and significant annual operating expenditures.
- Buildings, infrastructure, and equipment are long-term commitments that place significant on-going demands on college or university financial resources well into the future.
- Buildings are highly visible aspects of colleges or universities. Their design, construction quality, intensity of use, accessibility, and level of maintenance create the physical environment for education and scholarship.

Assets and Liabilities

Higher education is not only a labor-intensive enterprise; it also is capital intensive. Illustrative of this is the \$4.7 billion current construction value of the almost 3,000 buildings owned by Virginia's public colleges and universities. A central premise of the Council's fixed asset guidelines is that buildings, infrastructure, and equipment are both assets and liabilities:

- As assets, their value should be protected by sufficient annual investment in their maintenance, renewal, and adaptation.
- As assets, maximum return on them should be realized in high utilization or, in the case of revenue-producing facilities, in the dollar return on investment.
- As liabilities, fixed assets have heating, cooling, cleaning, staffing, maintenance, renewal, and future adaptation costs that must be considered before the assets are acquired.

Because new buildings create new liabilities, the economics of renovation must be compared to those of new construction in making decisions about fixed assets. Renovated space may be more or less costly than new space, and demolition and replacement may be the best option if a building is no longer functional. But renovation of existing space should be given full consideration before deciding to add new space.

How Technology Changes Planning Assumptions

The availability of existing technology and the future developments in technology adds both opportunity and complexity to fixed asset decision-making. In addition to population and enrollment growth trends, in 1989 Virginia's Commission on the University of the 21st Century emphasized new ways in which instruction can be delivered -- changes that significantly affect fixed assets. "The constraints of space and time will be reduced by thoughtful introduction of telecommunications and computers into the instructional mission of colleges and universities," the Commission wrote. At a growing number of institutions, students now have the opportunity to access courses via televised classes and draw information from multiple sources using the computers in their rooms. Colleges and universities are beginning to integrate Internet courses and other alternative delivery modes regardless of their physical location. The Commission's vision is becoming reality. As a result, the distinctions between the types of learning activities that go on in classrooms, laboratories, libraries, student centers, residence halls, and offices will become less clear.

Access to, rather than ownership of, information can reduce space requirements. Similarly, access to telecommunicated classes and computer-assisted instruction can reduce the amount of classroom space that is needed. Conversely, technology has its own space requirements. For example, people increasingly need two areas in which to work -- one with a computer and monitor and one without. Computers, printers, fax machines, and climate control equipment also create space needs that previously did not exist. Guidelines and funding mechanisms need to reflect the new opportunities and demands on space requirements and be flexible enough to encourage good choices.

Another word of caution about technology is appropriate. It is expensive to acquire and expensive to maintain. Buildings traditionally go for decades before renewal, but to remain current in technology will require renewal every few years.

Flexibility and Diversity

The guidelines that follow have been established to assist Virginia's public colleges and universities in sound planning and careful management of their major fixed assets. The general statewide guidelines will not always fit each institution's individual situation. However, they provide a framework for considering each institution's vision of its future and its individual needs. They are broad and flexible enough to accommodate the diversity and entrepreneurship which is the hallmark of Virginia's public colleges and universities.

The guidelines encourage renovation and maximum utilization of space before considering new construction, emphasize the increased importance of technology, and encourage institutions to adapt their fixed assets to their specific situations.

The guidelines that follow deal with fixed assets only within educational and general programs. There are no statewide fixed asset guidelines for auxiliary enterprises.

The guidelines are organized into five sections. The first section deals with the quantities of space and equipment needed to provide quality higher education. The second deals with the quality of fixed assets -- how it should be measured and how much spending is needed to sustain it. A third section deals with the productivity of space -- how intensely it should be used and a proxy for the Commonwealth's "return-on-investment" for research space that helps attract grants and contracts from government and the private sector. The fourth section presents the Council's guidelines relating to the funding sources for fixed assets. The last section summarizes the prioritization standards that result from the guidelines contained in the other sections.

HIGHER EDUCATION FIXED ASSETS GUIDELINES
FOR EDUCATIONAL AND GENERAL PROGRAMS

TABLE OF CONTENTS

I. Fixed Asset Needs 1

 A. Educational and General Space 1

 1. Substituting Technology, Privatization, and Shared Use for New Space

 2. Instructional and Academic Support Space

 3. Library Space

 4. Research Space

 5. Public Service Space

 6. Student Services and Institutional Support Space

 7. Physical Plant Space

 B. Educational and General Equipment 7

II. Fixed Asset Quality 8

 A. Routine Maintenance and Plant Renewal 9

 B. Plant Adaptation 10

III. Fixed Asset Productivity 10

 A. Educational and General Space, Except Research 11

 B. Research Space 12

IV. Fund Sources for Support of Fixed Assets 13

V. Prioritization of Projects 14

APPENDICES

- A. Taxonomy of Functions
- B. Higher Education Facilities Condition Reporting Guidelines

HIGHER EDUCATION FIXED ASSETS GUIDELINES FOR EDUCATIONAL AND GENERAL PROGRAMS

I. FIXED ASSET NEEDS

A. Educational and General Space

Since 1972, the Council and the public colleges and universities have used space-planning guidelines to project space needs. The Council has used the guidelines to evaluate requests for funds to construct capital outlay projects. Six of the seven guidelines that follow are based on an allocation of space across the commonly accepted educational and general (E&G) functions of colleges and universities. These functions are taken from the *Postsecondary Education Facilities Inventory and Classification Manual*, published by the National Center for Education Statistics in 1992. Appendix A provides the taxonomy of functions from this manual.

Implicit in these space need guidelines are requirements for high levels of utilization. For example, the guideline for Instruction and Academic Support space assumes that a college or university will use its classrooms at least 40 hours a week, one of the most demanding state-level guidelines in the country.

The term "space need guidelines" indicates the approximate amount of space needed by the institution as a whole. It is not intended that the guidelines be used to design individual buildings.

None of the following guidelines apply to medicine, dentistry, or veterinary medicine. The E&G space for these space-intensive professional disciplines is judged on a case-by-case basis.

1. Guideline for Substituting Technology, Privatization, and Shared Use for New Space

Definition: The use of technology or arrangements with the private sector or with other public institutions as alternatives to providing physical space for the *E&G* functions of a college or university. These functions include instruction and academic support, libraries, research, public service, student services, institutional support, and physical plant.

Colleges and universities increasingly rely on telecommunications, academic and administrative computing systems, and the networks that bind these together to provide services. They also contract with the private sector to provide services and share services and space with other public institutions. Among the benefits of these approaches is that they can reduce the need for space.

Examples of substituting technology for space in instruction and academic support include using computer simulation for laboratory experiments instead of traditional laboratory stations, or having students earn credit from their homes or residence halls with the use of computers, networks, videos, and other technology rather than building more classrooms. Examples of substituting technology in institutional support include allowing some employees to work from home using technology or having purchases processed at another institution rather than building more administrative space. Examples of using private-sector contracts to reduce space needs include leasing warehouse space rather than building it or contracting with a nearby security firm rather than building a police station on campus. Examples of sharing space with other public institutions include offering evening or weekend courses in available classrooms at other institutions or coordinating central stores or warehouse space with other institutions or agencies.

The Guideline: Institutions are encouraged to use technology, private-sector contracts, and shared space with other public institutions as a substitute for adding new E&G space. When proposals to do this are pedagogically sound, efficient, and effective, institutions can expect the Council to recommend the additional resources needed to implement them. Institutions can trade state support for space needs for state support for technology. With the emergence of "virtual" libraries, classrooms, and even offices, institutions will need relatively more investment in technology and telecommunications and relatively less in new space. An example is trading a justified building in order to install a fiber-optic communications infrastructure throughout an institution. Another is reducing the size of a justified classroom building by half in order to install communications and computer equipment in every room for telecommunicated instruction. Institutions that substitute equipment in this way will be given priority in allocating money from an expanded equipment trust fund.

This is a guideline in a different sense than those that follow. It means that institutions should seek alternatives to asking for the space that can be justified by the space need guidelines for instruction and academic support, libraries, research, public service, student services and institutional support, and physical plant.

2. Space Need Guideline for Instruction and Academic Support Space

Definition: Space used primarily for general academic instruction, vocational/technical instruction, special-session instruction, community education, preparatory/remedial instruction, educational media services, academic computing services, academic administration, academic personnel development, and course and curriculum development. This guideline does not include library, ancillary support, museum, or gallery space. Library space has its own guideline and ancillary support, museum, and gallery space needs are evaluated on a case-by-case basis.

The Guideline: Forty-two and one-half (42.5) assignable square feet (ASF), plus up to 7.5 additional assignable square feet, per regular-session full-time equivalent student, depending on the institution's programs and disciplines.¹

An institution requesting additional space that would result in an institutional average of more than 42.5 ASF per student for the institution should submit a detailed justification for the additional space. An example of a factor that would justify the need for more assignable square feet than the basic 42.5 ASF is having large laboratory and related service-area needs in such disciplines as animal sciences, marine biology, engineering, fine arts, occupational therapy, oceanography, or mechanical and engineering technologies. Another example is the small community college (less than 1,500 full-time-equivalent students) that does not have economies of scale, and as a result, may need 50 assignable square feet per student for instruction and academic support.

3. Space Need Guideline for Library Space.²

Definition: Space used primarily for all those activities that directly support the collection, cataloging, storage, and distribution of published materials, primarily in support of the institution's academic programs. To be included in this guideline, a library should be separately organized, including both general and departmental libraries.

The Guideline: There is no square-footage space need guideline for library space. Virginia's institutions are diverse, and the dynamics of acquiring, accessing, storing, and providing information to users are changing so rapidly that future library space needs cannot be reduced to one or even several square-footage prescriptions.

Each institution requesting new library space must demonstrate that the following assumptions have been included as part of the planning process:

- As the use of technology grows, volume holdings alone will become less and less the measure of academic quality. Accessibility and linkages to other repositories of information will continue to increase.
- In addition to their traditional role of owning and lending printed information, libraries will provide access to information in electronic format. No single institution can afford a comprehensive collection, and a finite number of on-campus holdings are needed to provide a current library collection for students

¹ A regular-session full time equivalent student is a statistic derived by dividing the total number of on-campus undergraduate, first professional, and graduate credit-hours for both fall and spring terms by 30,30, and 24 respectively.

²This section draws heavily from *Toward A University Library of the 21st Century*, a report by the George Mason University Library Task Force.

and faculty. Library holdings should reflect the scope of programs offered by each institution and recognize that, in some disciplines, technology can support access in ways other than direct purchase of printed volumes. This means that while new information is continually available, institutions must manage their collections to keep materials for which there is high demand and provide access, or storage in less-costly facilities, for information that is in less demand.

- Electronic publishing has a greater effect on serial literature acquisitions (especially scholarly journals and reference works) than on traditional monographs. While it is difficult to predict the many formats in which library materials will be available, library space plans should consider that some items will be available only in one format and others in several formats. Planning should allow for flexible space.
- As computers have grown smaller and more powerful, students and faculty increasingly carry their personal computers with them. Library patrons, with computers in hand, often look for connections to information networks. As a result, campus infrastructure will need to meet connectivity requirements. Space is needed in libraries as well as other institutional facilities for customer's portable machines and the institution-owned equipment needed to meet increasing demands for electronic access to information.
- Many colleges and universities have modified their expectation that students always physically come to a classroom, or even the campus, to receive information. Libraries, following this trend, have created dial-in or on-line access to library catalogs and other material. Also, the speed of document delivery has improved with the general availability of fax machines. These trends toward electronic delivery of full-text materials outside of the library will continue.

4. Space Need Guideline for Research Space

Definition: Space used primarily to perform activities specifically organized to produce research outcomes, whether commissioned by an agency external to the institution or separately by an organizational unit within the institution. This includes institute and research centers and individual and project research. This guideline does not apply to space for research that is directly supported by the state from the general fund, such as for agriculture at Virginia Tech and Virginia State University or marine science at the College of William and Mary.

The Guideline:

Senior institutions: 800 assignable square feet per \$100,000 (in constant 1993 dollars) of annual research expenditures in the following disciplines: Agriculture and Natural Resources, Engineering, Computer Science, Biological Sciences, Applied Mathematics and Statistics, Physical Sciences, Architecture and Environmental Design, Fine and Applied Arts, Home Economics, Psychology, Communications, and Health Professions (except Medicine, Dentistry, and Veterinary Medicine);

Plus

450 assignable square feet per \$100,000 (in constant 1993 dollars) of annual research expenditures in the following disciplines: Education, Area Studies, Business and Management, Foreign Languages, Letters, Library Science, Mathematics, Public Affairs and Services, Law, and Social Sciences;

Plus

Ten (10) assignable square feet per annual full-time-equivalent on-campus graduate student in all disciplines excluding medicine, dentistry, or veterinary medicine.

5. Space Need Guideline for Public Service Space

Definition: Space used primarily to provide non-instructional services beneficial to individuals and groups external to the institution. Such activities may include seminars, projects, and various organizational entities established to provide services to particular sectors of the community. This includes community services, public broadcasting services, and cooperative extension services.

The Guideline: There is no space planning guideline for this space. Space identified under this category should be justified on a case-by-case basis.

6. Space Need Guideline for Student Services and Institutional Support Space

Definition: Space used for student-service administration, social and cultural development, counseling and career guidance, student admissions and records, financial-aid administration, and student health services. Institutional support space includes executive management, fiscal operations, general administrative services, administrative computing, logistical services, and public relations and development. It excludes physical plant operations.

The Guideline: Seven (7.0), plus up to three (3.0) additional, assignable square feet per regular-session full-time-equivalent student, depending on an institution's unique needs. An institution requesting additional space that would result in an institutional average of more than 7.0 ASF per student should submit a detailed justification for the additional space.

7. Space Need Guidelines for Physical Plant Space.

Definition: Space used primarily for the operation and maintenance of the physical plant. It includes all space for operations established to provide services and maintenance related to campus grounds and facilities.

The Guidelines:

- a. Senior Colleges and Universities: Four (4.0), plus up to three (3.0) additional, assignable square feet per regular-session full-time-equivalent student, depending on an institution's total size of physical plant. An institution requesting additional space that would result in an institutional average of more than 4.0 ASF per student should submit a detailed justification for the additional space.
- b. Two-Year and Community Colleges: Two (2.0), plus up to one and a half (1.5) additional, assignable square feet per regular-session full-time-equivalent student, depending on an institution's total size of physical plant. However, a minimum of 3,000 assignable square feet should be provided for every community college, regardless of the number of students it enrolls. An institution requesting additional space that would result in an institutional average of more than 2.0 ASF per student for the institution should submit a detailed justification for the additional space.

In determining an institution's need for space, SCHEV staff will consider the availability of space at the institution in each of the six areas identified above (instruction and academic support, libraries, research, public service, student services and institutional support, and physical plant). In the event an institution is requesting the addition of new space to replace existing leased or constructed space, SCHEV staff will exclude that space from the total available space to determine the space justification of a specific requested project. The institution must show that the construction of new space is more cost effective and/or programmatically justified than the existing leased space.

If Council staff determines that the institution needs additional space, a requested project will be considered space justified as long as the amount of additional space needed is at least 50% of the amount of space requested. This 50% threshold applies to all space except library space and public service space. An institution's space needs will decrease as projects meet SCHEV approval and are prioritized. The remaining space needs will be compared to the threshold after each allocation. In the event, an institution has multiple requests for the same type of space, the available need will be allocated based on SCHEV's priority ranking and the institution's priority ranking. When space needs run out, projects lose space justification.

In addition, pursuant to Section 23-9.6:1-11 of the Code of Virginia, SCHEV is required:

To review biennially and approve or disapprove all changes in the inventory of educational and general space, which any public institution of higher education may propose, and to make a report to the Governor and the General Assembly with respect thereto. No such change shall be made until thirty days after the adjournment of the session of the General Assembly next following the filing of such report.

B. Educational and General Equipment

Institutions use equipment budgets not only to buy equipment, but also to maintain it and replace what cannot be repaired. In the early 1980s the Council of Higher Education and the institutions established a conceptual framework for assessing equipment needs that had the following objectives: maintaining equipment in good working order, overcoming equipment deficiencies, and replacing obsolete equipment. The Council defines equipment deficiency as the absence of equipment a college or university should have given the curricula it offers. Obsolete equipment is defined as that which exceeds in age its realistic useful-life. Virginia's state comptroller prescribes useful-life guidelines for each type of equipment to help institutions and agencies plan for the regular replacement of equipment. Each piece of equipment with a value in excess of \$2,000 is recorded in the institution's equipment inventory system. This information is provided annually to the Council.

Definition: The state's budgeting and accounting systems establish the following categories for E&G equipment: computer, medical and laboratory, educational and cultural, electronic and photographic, office, specific use and stationary, and motorized. Detailed descriptions of the equipment included in each category is contained in the state's Expenditure Structure, issued by the Virginia Department of Planning and Budget in May 2000.

The Guideline: Each institution should be funded to maintain equipment in good working order, overcome equipment deficiencies, and replace obsolete equipment. In order to do this, institutions should maintain an equipment inventory with an average remaining useful life that does not exceed the Comptroller's useful life guidelines for educational and general equipment. The useful life guidelines for the major categories of equipment and the current distribution of that equipment are shown below.

Educational and General Equipment and Useful Life Guidelines		
Type of Equipment	Percent Of Inventory Value	Comptroller's Average Useful Life In Years
Computer Equipment	37	5
Medical and Laboratory Equip.	25	10
Educational and Cultural Equip.	16	15
Electronic and Photographic Equip.	6	8
Office Equipment	6	10
Specific Use and Stationary Equip.	6	10
Motorized Equipment	4	7

Sources: Department of Planning and Budget Expenditure Structure; Department of Accounts Fixed Asset Accounting System; and Department of Accounts Accounting Policies and Procedure Manual.

II. FIXED ASSET QUALITY³

As in Section I, the guidelines in this section apply only to E&G space.

Since the 1960s, the Council of Higher Education and Virginia's colleges and universities have maintained a room-by-room and building-by-building inventory of space.

In 1982, following the Council's recommendation, a state maintenance reserve program was established to provide funding for the major repair or replacement of roofs, masonry, ceilings, and utility systems; for the correction of building deficiencies to conform with building and safety codes; and for the correction of major erosion and drainage problems.

The maintenance reserve program recognizes that "when physical facilities are not maintained in good condition, their ability to support the mission of the institution diminishes." The Council's recommendations for maintenance reserve appropriations are based on current construction values for buildings and infrastructure, and the cost of the existing building and infrastructure deficiencies reported in the facility condition report. From 1982 to 2002, the state has provided \$296 million in maintenance reserve appropriations to colleges and universities.

In 1992, the Council began requiring institutions to document the specific deficiencies of each E&G building and the dollar amount needed to correct deficiencies. Based on concepts and procedures developed by Coopers and Lybrand in association with Applied Management Engineering, P.C., institutions were asked to report the replacement values and estimated costs of operating and maintenance reserve deficiencies in those facilities. In March 2001, the Council issued guidelines requiring institutions to use current construction costs to value building inventory instead of replacement cost values.³ With this information, the Council and each institution can compare the total amount needed to correct a building's deficiencies to the building's current value and develop a building condition rating of good, fair, or poor for each building, based on scale below:

The cost of deficiencies as a percent of building value is summarized for all buildings at an institution to arrive at an overall condition rating for the institution.

³This section draws heavily from two publications:

Financial Planning Guidelines for Facility Renewal and Adaption, a joint project of The Society for College and University Planning (SCUP), The National Association of College and University Business Officers (NACUBO), The Association of Physical Plant Administrators of Universities and Colleges (APPA), and Coopers and Lybrand. It was published in 1989 by the Society for College and University Planning and was prepared by John A. Dunn Jr.

Managing the Facilities Portfolio: A Practical Approach to Institutional Facility Renewal and Deferred Maintenance, a joint project of Applied Management Engineering, P.C., and Coopers and Lybrand. It was published in 1991 by the National Association of College and University Business Officers.

³ SCHEV's Higher Education Facilities Condition Reporting Guidelines, issued in March 2001, is presented in Appendix B. Appendix C contains SCHEV's infrastructure reporting guidelines issued in July 2001.

Cost of Deficiencies As a Percent of Building Construction Value	Building Condition Rating
Under 5% 5 -10 Over 10	Good Fair Poor

The two categories of investment needed to keep buildings and their infrastructure in "good" condition are routine maintenance and plant renewal, and plant adaptation or expansion.

A. Guideline for Routine Maintenance and Plant Renewal

Definition: Routine maintenance is the regularly scheduled preventive and other maintenance activity funded by physical plant operating expenditures. It does not include custodial or utility expenses. Plant renewal is the replacement of a building's subsystems such as roofing, heating, ventilation, air conditioning, and plumbing. Funds for routine maintenance and plant renewal are provided in institutions' operating budgets and in the state's maintenance reserve appropriations.

The Guideline: Each institution should spend sufficient funds for routine maintenance and plant renewal to maintain the condition of all its facilities and infrastructure at a level such that no more than 5 percent of the asset value is deficient. As shown in the preceding chart, this equates to an overall condition rating of "good" for all of the institution's E&G assets (see Appendix B).

B. Guideline for Plant Renovation (Adaptation)

Definition: Plant renovation (adaptation) is the major renovation of buildings to adjust to changes in building standards; greater efficiency objectives; new technology; or changes in an institution's programs, disciplines, or enrollment. It is different from -- and in addition to -- keeping facilities in good condition.

The Council has recommended the creation of a renovation trust fund that would provide a vehicle for on-going reinvestments to support the renovation of higher education facilities and infrastructure. Like the maintenance reserve program, institutions would be given a single appropriation through the renovation trust fund that could be applied to any renovation project meeting eligibility criteria set forth by the Council. As proposed, the fund would allow institutions to accrue balances from one biennium to the next in order to encourage cost-effective management of capital projects. If adopted by the Governor and General Assembly, specific criteria for project qualification will be incorporated into this guideline.

III. FIXED ASSET PRODUCTIVITY ⁵

The guidelines in this section apply only to E&G space. Periodic evaluation of the use of college and university space can result in more efficient space use and in construction and operating cost savings. Different facilities require different productivity measures: physical, financial, or programmatic. The following paragraph from *Facilities Manager* describes these three measures:

Physical productivity measures focus on how effectively or intensively a space is used, and are generally most suited for evaluating spaces that are not supported by underlying revenue streams. Financial productivity measures focus on revenues generated, costs saved, or the more traditional concept of a financial rate of return. Programmatic productivity measures focus on less quantifiable benefits -- the enhancements to the university's ability to conduct its programs -- that accrue from certain types of facilities. A good example is the improved recruitment potential that a high-quality housing project or recreation facility offers.

Physical productivity measures are used by a number of state systems of higher education and are typically referred to as space utilization guidelines. They are used to evaluate how intensely classrooms, class laboratories, and other instructional space are used. For about 30 years, the Council has analyzed and reported on how intensely classrooms and class laboratories are used and how that intensity of use compares to the guidelines.

Financial productivity measures are appropriate for auxiliary enterprise space such as dormitories, dining facilities, and bookstores. These operations are self-supporting, and Virginia's long-standing policy has been that auxiliary enterprises receive no state funds. Financial productivity standards are also usually specific to a building or group of buildings within an institution. Accordingly, financial productivity measures for auxiliary space are appropriate for each institution to establish for itself.

One area within E&G programs in which financial productivity measures can be useful is research. Research space directly attracts revenues to an institution in the form of grants and contracts from the federal government, the private sector, and other sources; in so doing it provides a return on investment. The financial productivity of research space, therefore, can be measured by comparing the institution's sponsored research activity (expenditures) to the amount of research space it has.

Programmatic productivity measures often are not quantifiable. They are also often specific to an institution or even to a building. Accordingly, programmatic productivity measures are appropriate for each institution to establish for itself, and may provide sufficient justification for state funding.

⁵ The concepts in this section are based on those in "Productivity-Based Facilities Management: Managing to the University Bottom Line," an article by Thomas Hier in *Facilities Manager*, Fall 1992.

The guidelines that follow address the functional areas of college and university operations that are the framework for the space need guidelines in Section I.

A. Space Utilization Guidelines for Educational and General Space, Except Research

Definition: Space used for the E&G functions of instruction and academic support, libraries, public service, student services and institutional support, and physical plant.

The Guidelines: Measurements of productivity apply both at the institutional level and at the levels of classroom and laboratory space.

1. The actual utilization of all E&G space at each institution will be compared to the total amount of E&G space (except research space) that the space need guidelines (Section I) define as needed by that institution.

For example, the space need guidelines might define the cumulative need for E&G space for an institution as 69.5 assignable square feet per student. If the institution actually has 60 square feet per student, then it is using 9.5 square feet less than the space need guidelines define as needed. In this example, the institution would be considered productive in the overall use of all of its E&G space. By comparing each institution's actual E&G space with what the guidelines call for, an overall measure of each institution's utilization of space is obtained.

2. Within the educational and general space at an institution, the guideline for the utilization of all classroom stations (seats) is an average use of at least 24 hours a week. This guideline is the equivalent of using classrooms an average of 40 hours a week and filling an average of 60 percent of the stations in those classrooms when they are in use.
3. Within the E&G space of an institution, the guideline for the utilization of all class laboratory stations is an average use of at least 18 hours a week. This is the equivalent of using class laboratories an average of 24 hours a week and filling 75 percent of the stations in those laboratories when they are in use.

This guideline will be applied based on the type of space requested. Specifically, when the dominant amount of space requested is instructional and academic support space, the classroom station utilization and the class laboratory station utilization will be the units of measure. The utilization measure for all other space requests will be the utilization of all E&G space (except research).

B. Financial Productivity Guideline for Research Space

Definition: Space used for activities specifically organized to produce research outcomes, whether commissioned by an agency external to the institution or separately by an organizational unit within the institution. This includes institutes and research centers and individual project research. This guideline does not apply to space for

research that is directly supported by the state from the general fund, such as space for agriculture at Virginia Tech and Virginia State, or marine science at William and Mary.

The Guideline: Senior Institutions: The generation of at least \$100,000 per year (in constant 1993 dollars) in grant and contract revenues for every 800 assignable square feet of research space in the following disciplines: Agriculture and Natural Resources, Engineering, Computer Science, Biological Sciences, Applied Mathematics and Statistics, Physical Sciences, Architecture and Environmental Design, Fine and Applied Arts, Home Economics, Psychology, Communications, and Health Professions (except Medicine, Dentistry, and Veterinary Medicine). An institution generating more than \$100,000 in grant and contract revenues for every 800 assignable square feet in these disciplines, would exceed the guideline for research space financial productivity;

And

The generation of at least \$100,000 (in constant 1993 dollars) of annual research expenditures for every 450 assignable square feet of research space in the following disciplines: Education, Area Studies, Business and Management, Foreign Languages, Letters, Library Science, Mathematics, Public Affairs and Services, Law, and Social Sciences. An institution generating more than \$100,000 in grant and contract revenues for every 450 assignable square feet in these disciplines would exceed the guideline for research space financial productivity.

IV. FUND SOURCES FOR SUPPORT OF FIXED ASSETS

The Council's guidelines with respect to funding fixed assets are as follows:

- A. Space traditionally termed "educational and general" can be in any campus structure, including dormitories, dining halls, student services, and other types of buildings. State revenues (general fund, general obligation bonds, etc.) should fund all of such space if it is being used for an E&G purpose, or 50% of the space if it is being used for research.
- B. Fifty (50) percent of the cost of capital outlay requests for research space should be supported by state funds (general fund, general obligation bonds, etc.) and 50 percent from nongeneral funds. These nongeneral funds can come from indirect cost recoveries on research grants and contracts or other sources available to the institutions. This does not apply to space for research that is directly supported by the state from the general fund, such as for agriculture at Virginia Tech and Virginia State, or marine science at William and Mary.
- C. State funds (general fund, general obligation bonds, etc.) should not be appropriated to construct new facilities that are specifically designed and equipped for recreation.

- D. Expenditures for land acquisition, site preparation beyond five feet from a building, and the construction of additional outdoor lighting, sidewalks, outdoor athletic and recreational facilities, and parking lots in the community college system shall be made only from non-state funds, including local government appropriations, or the proceeds from a college's issuance of debt authorized by the General Assembly.
- E. Expenditures for operations, maintenance, and repair of athletic, recreational, and public service facilities shall be made only from non-state funds. Expenditures for maintenance, replacement, and repair of outdoor lighting, sidewalks, and other facilities may be made from any appropriated fund. The general policy of the Commonwealth is that parking should be operated as an auxiliary enterprise by all colleges and universities and that institutions should develop sufficient reserves for ongoing maintenance and replacement of parking facilities.
- F. The Commonwealth should encourage private funding for facilities, but E&G buildings acquired by an institution that are not justified by the state's space need guidelines should have pre-established provisions for non-state funds to cover their future operating, renewal and adaptation costs. The annual value of these costs averages 4 to 6 percent of the replacement value of a building. If, at some future date, growth of the institution results in the space in the facility being justified by the space-need guidelines, state funds could be used for its operating costs from that point forward.

V. PRIORITIZATION OF NEW E&G PROJECTS

The following prioritization schedule shall be used in the evaluation of new E&G projects. Prioritization is based on the yes/no answers to four questions.

Prioritization questions for new E&G projects:

1. Is the additional space currently justified?
2. Is the additional space justified in the last year of the second biennium of the institution's six-year plan?
3. Does the additional space have a compelling programmatic justification?
4. Does the institution meet SCHEV utilization criteria?

The following criteria will be considered in determining the extent to which a project is compelling.

1. The institution has explored other alternatives for addressing the new E&G space requested and can show that the alternatives are either more costly or less effective than the creation of new space. For instance, if an institution is requesting new space for a specific academic program, but has a surplus of E&G space overall, the institution would need to demonstrate why it is choosing to construct additional

E&G space rather than renovate existing space. Similarly, the institution would need to demonstrate that it has considered using distance learning, shared space arrangements, leasing options, and public-private partnerships, as appropriate.

2. The institution has specific space needs for the type of educational program that will be housed by the proposed facility. For instance, an institution may not have a space need overall, but may be adding a new academic program that requires specific classroom or laboratory arrangement not found in the campus' existing facilities.
3. For instructional and academic support space, the institution has a need for space in the given discipline(s) for which space is being requested.
4. The institution is currently using leased space to meet the need, but the lease is due to expire within a short time frame.
5. The space will be used to advance a specific institutional niche or a priority area of the Commonwealth.
6. The requested project has already received planning funds or preliminary commitment from the Governor and/or General Assembly.
7. The requested project is a high priority for advancing the institution's strategic goals.
8. The space will address current life, health or safety issues.

The prioritizations will be based on the type of space being requested.

Prioritization of All E&G Space, Excluding Research Space

- All four questions apply.
- For instructional and academic support space, utilization is based on meeting both classroom and class laboratory utilization, as described above. For other E&G space (excluding research), utilization is based on the institution's total available space in the E&G program.

Q1	Q2	Q3	Q4	Priority
Yes	Yes	Yes	Yes	1
Yes	Yes	No	Yes	2
Yes	Yes	Yes	No	2
Yes	Yes	No	No	3
Yes	No	Yes	Yes	2
Yes	No	No	Yes	4
Yes	No	Yes	No	2
Yes	No	No	Yes	4
Yes	No	No	No	4
No	Yes	Yes	Yes	1
No	Yes	No	Yes	3
No	Yes	Yes	No	2
No	Yes	No	No	4
No	No	Yes	Yes	2
No	No	Yes	No	3
No	No	No	Yes	4
No	No	No	No	4

Projects requested by the community colleges would be recommended using the same criteria with the exception of demonstrating a future space need. The community colleges do not project enrollments for future years. As a result, the community colleges' prioritization would be:

Q1	Q2	Q3	Q4	Priority
Yes	X	Yes	Yes	1
Yes	X	No	Yes	2
Yes	X	Yes	No	2
No	X	Yes	Yes	2
No	X	Yes	No	3
No	X	No	Yes	4
No	X	No	No	4
Yes	X	No	No	3

Priority 1 projects would be those that are most critical to the Commonwealth and meet the following conditions:

- a. Is fully space justified today and continues to be space justified in the out years and meet both the compelling justification and space utilization criteria

OR

- b. Is expected to be fully space justified by the end of the second biennium and meet the compelling justification and space utilization criteria.

Priority 2 projects would be those that are still of significant importance to the Commonwealth and the institution and meet the following criteria:

- a. Is either the institution meets 3 of the 4 criteria

OR

- b. SCHEV staff has identified that the combination of current or future space need and the compelling nature of the project merit a high prioritization.

Priority 3 projects would be those that are recommended by the Council, but are less immediate in terms of addressing a space or programmatic need.

Priority 4 projects do not meet SCHEV criteria and are not recommended by the Council.

Prioritization of Research Space

- o Space Utilization question does not apply.

Q1	Q2	Q3	Q4	Priority
Yes	Yes	Yes	X	1
Yes	Yes	No	X	2
Yes	No	Yes	X	2
Yes	No	No	X	4
No	Yes	Yes	X	1
No	Yes	No	X	4
No	No	Yes	X	3
No	No	No	X	4

Priority 1 projects would be those that are most critical to the Commonwealth and meet the following conditions:

- a. Is fully space justified today and continues to be space justified in the out years and meets the compelling justification criteria

OR

- b. Is expected to be fully space justified by the end of the second biennium and meets the compelling justification criteria.

Priority 2 projects would be those that are still of significant importance to the Commonwealth and the institution but do not demonstrate an on-going space need, despite the fact that they meet the criteria for compelling programmatic justification.

Priority 3 projects would be those that are not space justified but have a compelling programmatic justification.

Priority 4 projects do not meet SCHEV criteria and are not recommended by the Council.

The prioritization process serve as the foundation of capital budget recommendations, but Council has the flexibility to prioritize projects on a case-by-case basis based on additional information or considerations not captured by the prioritization process.

Appendix A

Taxonomy of Functions

This taxonomy is adapted from the *Financial Accounting and Reporting Manual for Higher Education* and the earlier *Management Reporting and Accounting for Colleges*, Second Edition (1988) by the National Association of College and University Business Officers (NACUBO). While the taxonomy was originally designed for financial reporting, it may be readily adapted to facilities reporting through limited modifications. For example, the category of Scholarships and Fellowships would not be used as a function in a facility's inventory. Categories for Independent Operations and Hospitals have been added to the taxonomy because they are necessary categories or facilities reporting. The following represents a brief synopsis of a possible adaptation of this taxonomy.

Definitions of Functional Categories

1.0 Instruction. This category includes all activities that are part of an institution's instruction program. Credit and noncredit courses for academic, vocational, and technical instruction for remedial and tutorial instruction, and for regular, special, and extension sessions should be included.

1.1 General Academic Instruction: Includes formally organized and/or separate instructional activities that are: 1) carried out during the academic year, 2) associated with academic disciplines, and 3) offered for credit as part of a formal post secondary education degree or certificate program.

1.2 Vocational/Technical Instruction: Formally organized and/or separate instructional activities that are 1) carried out during the academic year, 2) usually associated with academic disciplines, and 3) offered for credit as part of a formal post secondary education degree or certificate.

1.3 Special Session Instruction: Includes formally organized and/or separately budgeted instructional activities (offered either for credit or not for credit) that are carried out during a summer session, interim session, or other period not common with the institution's regular team.

1.4 Community Education: Includes formally organized and/or separate instructional activities that do not generally result in credit toward any formal post secondary degree or certificate.

1.5 Preparatory/Remedial Instruction: Includes formally organized and/or separate instructional activities that give students the basic knowledge and skills required by the institution before they can undertake formal academic coursework leading to a post secondary degree or certificate.

2.0 Research. This category should include all activities specifically organized to produce research outcomes, whether commissioned by an agency external to the institution or separately by an organizational unit within the institution.

2.1 Institutions and Research Centers

2.2 Individual and Project Research

3.0 Public Service. This category should include activities that are established primarily to provide non-instructional services beneficial to individuals and groups external to the institution.

3.1 *Community Services*

3.2 *Cooperative Extension Services*

3.3 *Public Broadcasting Services*

4.0 Academic Support. This category should include support services for the institution's primary missions -- instruction, research, and public service. Libraries, museums, academic computing, and course and curriculum development are examples of academic support.

4.1 *Libraries*

4.2 *Museums and Galleries*

4.3 *Educational Media Services*

4.4 *Academic Computing Services*

4.5 *Ancillary Support*

4.6 *Academic Administration*

4.7 *Academic Personnel Development*

4.8 *Course and Curriculum Development*

5.0 Student Services. This category should include offices of admissions and registrar and those activities whose primary purpose is to contribute to the student's emotional and physical well being and to his or her intellectual, cultural, and social development outside the context of the formal instruction program.

5.1 *Student Services Administration*

5.2 *Social and Cultural Development*

5.3 *Counseling and Career Guidance*

5.4 *Financial Aid Administration*

5.5 *Student Admissions*

5.6 *Student Records*

5.7 *Student Health Services*

6.0 Institutional Support. This category should include: 1) central executive-level activities concerned with management and long-range planning of the entire institution, such as the governing board, planning and programming, and legal services; 2) fiscal operations, including the investment office; 3) administrative data processing; 4) space management; 5) employee personnel and records; 6) logistical activities that provide procurement, storerooms, safety, security, printing, and transportation services to the institution; 7) support services to faculty and staff that are not operated as auxiliary enterprises; and 8) activities concerned with community and alumni relations, including development and fund raising.

6.1 Executive Management

6.2 Fiscal Operations

6.3 General Administrative Logistical Services

6.4 Administrative Computing Services

6.5 Public Relations/Development

7.0 Operation and Maintenance of Plant. This category should include the operation and maintenance of physical plants for all institutional activities, including auxiliary enterprises and independent operations.

7.1 Physical Plant Administration

7.2 Building Maintenance

7.3 Custodial Services

7.4 Utilities

7.5 Landscape and Grounds

7.6 Major Repairs and Renovations

8.0 This category includes Scholarships and Fellowships but is not used in facilities.

9.0 Auxiliary Enterprises. An auxiliary enterprise is an entity that exists to furnish goods or services to students, faculty, or staff, and that charges a fee directly related to, although not necessarily equal to, the cost of the goods or services.

9.1 Auxiliary Enterprises -- Student

9.2 Auxiliary Enterprises -- Faculty/Staff

9.3 Intercollegiate Athletics

10.0 Independent Operations. This category includes those operations that are independent of, or unrelated to, but which may enhance the primary missions of the institution.

11.0 Hospitals. This category includes patient care operations of the hospital, including nursing and other professional services, general services, administrative services, fiscal services, and physical plant operations and institutional support.

APPENDIX B

STATE COUNCIL OF HIGHER EDUCATION



Higher Education Facilities Condition Reporting Guidelines

March 23, 2001

Higher Education Facilities Condition Reporting Guidelines

Background

In 1982, following the Council's recommendation, the Commonwealth of Virginia established a state maintenance reserve program to provide supplemental funding for major repairs or replacement of roofs, masonry, ceilings, and utility systems, for the correction of building deficiencies to conform with building and safety code regulations, and for the correction of major erosion and drainage problems. The program was established to support educational and general (E&G) facilities.

In 1992, the Council began requiring institutions to document the specific deficiencies of each E&G building. Institutions were asked to report the replacement values and estimated costs of operating and maintenance reserve deficiencies in those facilities in a Facilities Condition Report (FCR).

Using the FCR, staff computed the facilities condition index (FCI), which serves as a relative measure of the condition of a facility or group of facilities. Historically, SCHEV has defined the FCI as the ratio of an asset's deferred maintenance costs to the asset's current replacement value. Staff summarized the condition of all E&G buildings to arrive at an overall facilities condition rating for each institution. The campus condition rating was based on the following scale.

FCI	Campus Condition Rating
Under 5%	Good
5-10%	Fair
Over 10%	Poor

In addition to providing information on the overall condition of an institution's facilities, SCHEV staff also used the FCR data to estimate maintenance reserve needs. Section 23.9-9 of the *Code of Virginia* states that "The State Council of Higher Education shall develop policies, formulae and guidelines for the fair and equitable distribution and use of public funds among the public institutions of higher education." In preparation for the 2000-02 biennial budget recommendations, SCHEV staff noted significant increases in the reported cost of deficiencies at several institutions. Because of potentially significant funding implications attributable to these changes and a growing concern that the assessment criteria used by institutions might not be uniform, the State Council recommended in November 1999 that the Governor and the General Assembly fund a study of the facility condition assessment methods used by the institutions of higher education. The Governor and the General Assembly responded by authorizing SCHEV and the Department of General Services (DGS) to hire a consultant to evaluate the uniformity of facility condition assessment procedures used to determine maintenance reserve needs of the Commonwealth's agencies and institutions of higher education.

The consultant's final report was released in November 2000. The consultant found that institutions used various methodologies to estimate building values and to determine estimated costs of repairing building deficiencies. Specifically, institutions used a variety of methodologies

to determine building values, relying primarily on replacement value data submitted to the Division of Risk Management for insurance purposes. In addition, most institutions reported deficiencies based on existing needs; however, some considered deficiencies to include projected needs based on life-cycle component renewal costs, or other cost components.

As a result, SCHEV staff, with the help of a workgroup of institutional representatives and DGS staff, has developed the following guidelines and procedures for reporting the facility condition ratings of higher education facilities. The goal of these guidelines is to provide public colleges and universities with common definitions, to increase institutional consistency in reporting facility data, and ultimately to recommend the fair and equitable allocation of available maintenance reserve resources to the institutions. Appendix A contains a list of terms and definitions that SCHEV staff and the workgroup have agreed are important in discussing maintenance reserve needs in general and in reporting facilities condition data.

The consultant also found that most institutions did not fully consider the value or deficiencies of their infrastructure. The infrastructure of an institution includes those items, which are required but are not related directly to a building, such as utilities connecting buildings to the power plant, sidewalks, and roads. SCHEV staff and the institutional workgroup continue working to develop a list of infrastructure assets and guidelines for valuing and reporting those assets. The guidelines for infrastructure will be released in late April. Institutions will be asked to report their infrastructure data to SCHEV by late June.

Instructions for Completing the Facilities Condition Report (FCR)

These instructions have been established to clarify what institutions should reported in the FCR. Rather than rely on insured values or replacement values (see Appendix A for definitions), institutions should report a **building value** based on construction costs per gross square foot, adjusted for building-specific factors such as design complexity or historical designation. The Building Value Worksheet should be used to report asset specific information, which should then be summarized in the Facilities Condition Report. A sample of both the building value worksheet and the FCR are provided as Microsoft EXCEL files (accompanied by these instructions in a Microsoft WORD document) on the SCHEV website under Policies and Guidelines / Finance and Facilities. Institutions are asked to download the EXCEL files, replace the sample data with institutional data, and return the completed worksheet and report to SCHEV via diskette or e-mail.

A. Building Value Worksheet: Institutions are asked to complete the worksheet to estimate the current building value of each facility having E&G space. Current building value is the estimated construction cost to replace a facility. This amount should include the total funds required to duplicate the internal and external building envelope to provide the same level of functionality based upon accurate local labor and material costs. Soft costs, such as A&E fees, project management costs, and construction contingencies should not be included. Furnishings and equipment that are particular to a definite tenant

also should not be included. A few of the fields in the worksheet deserve further explanation.

1. **Building Identification.** Institutions should include in the FCR all facilities with E&G space for which the institution has maintenance responsibility. Institutions should identify each building by its building name and number. Institutions should also report the amount of gross square footage (GSF) of the building, the year the facility was built or acquired, and whether the building has been designated as an historic facility.

2. **Building Use.** Each facility should be assigned a building use **based on the predominant use of space within that facility**. Appendix B includes a list of all building categories for use in the FCR. The standard building use categories are incorporated to provide uniformity to the process of valuing state facilities. As a base cost, all buildings of a specific use should be valued at the same construction cost per gross square foot.

3. **Construction Cost Per Gross Square Foot.** As a base construction value, SCHEV recommends that institutions value all buildings of a specific type at the same construction cost per gross square foot. Based on national data from Marshall & Swift®, the unit costs provided in Appendix B are derived from the average construction cost per gross square foot for Classes A and B construction of "good" quality. These national figures have been adjusted to current dollars (January 1, 2001) and adjusted for geographical location.

4. **Estimated Construction Cost.** This calculated figure represents the base cost for the building. The GSF multiplied by the construction cost per square foot will yield the base cost of the facility. Institutions are required to use the unit costs per Appendix B to estimate the base construction cost of the building.

5. **Institution-Specific Adjustments.** It is anticipated that institutions may need to make adjustments to the estimated construction cost of some buildings to reach the actual building value. Appendix C contains a matrix of construction cost per gross square foot based on Marshall & Swift's building type, construction type, and quality levels, which institutions may use as a reference in making any necessary adjustments. For those buildings where adjustments are needed, please indicate the additional cost due to design complexity, historical considerations, recent bid experience, construction type/quality adjustment, or any other cost beyond the base cost. Please briefly explain all institution-specific adjustments.

6. **E&G Share.** The reported GSF should be the building's total gross square footage. The E&G share should be the percentage of the building that contains educational and general programs.

These guidelines aim only at estimating deferred maintenance needs at E&G facilities. Over the last several biennia, many institutions have also received nongeneral fund appropriations to address deferred maintenance needs at non-E&G facilities. To date, SCHEV has made little effort to collect facilities condition data for these buildings; however, in working with the institutional workgroup, there appears to be some value and interest in developing and maintaining system-wide data on non-E&G facilities, as well. Although not required for the 2000 FCR, SCHEV staff will continue working with institutions to determine the feasibility and desirability of collecting this data prior to the 2004-06 biennium.

7. **E&G Building Value.** This calculated figure is the E&G share of the building's construction cost. It is the sum of the estimated construction cost and institution-specific adjustments multiplied by the E&G percentage share of the facility.

B. Facilities Condition Report: The E&G building values calculated on the Building Value Worksheet should be reported in the Facilities Condition Report. In addition, the cost of the buildings' deferred maintenance deficiencies should be reported.

1. **Building Value:** Report each building and its value as calculated on the Building Value Worksheet.

2. **Deficiency costs:** The cost of deficiencies reported in the FCR is the cost of existing maintenance and repair deficiencies. The identified deficiencies should meet guidelines issued by the Department of Planning and Budget (DPB). Soft costs, such as A&E fees, project management costs, and construction contingencies should not be included in deficiency costs.

A deficiency project that meets one or more of the following criteria may be included in the FCR:

- Repair or replacement of functionally obsolete, damaged, or inoperable built-in equipment such as elevators, furnaces, plumbing fixtures, air conditioning, and ventilation;
- Repair or replacement of components of plant such as exterior wood, masonry, ceilings, floors, floor coverings, doors, windows, roofs, sidewalks, parking lots, fencing, and exterior lighting;
- Repair or replacement of existing utility systems, such as steam lines, natural gas, air, electrical, water, and sewer; and
- Correction of problems resulting from erosion and drainage.

The cost of deficiencies included in one or more of the following criteria should **not** be included in the FCR:

- Maintenance contracts to clean, maintain, repair, or protect existing plant, property, or equipment;
- Routine periodic maintenance such as servicing, adjusting, minor repairs, painting, scraping, cleaning, and spraying of plant or property;
- Repair or replacement of office, motorized, medical, laboratory, electronic, photographic, educational, cultural, computerized, and other specific-use, moveable equipment that is not permanently installed as a part of the plant or property; and
- Leak testing and monitoring of underground storage tanks and the removal of underground storage tanks not associated with tank replacement.

DPB guidelines also provide that maintenance reserve funds can be used to address work related to handicapped access, energy conservation, building and safety codes compliance, lead paint abatement, or asbestos correction when the work is determined to be necessary in conjunction with another deficiency project. As a result, institutions should include only deficiencies in these areas that will be addressed through another maintenance reserve project. Stand-alone projects for handicapped access, energy conservation, code compliance, lead paint abatement, and asbestos correction should not be included when completing the FCR. For example, institutions should not report the cost of removing asbestos in a facility as a maintenance deficiency. However, the cost of removing asbestos required as part of a maintenance reserve project should be reported.

In addition, it is important to note that while an institution's maintenance program may include life-cycle projections or planned renewal of components, the Facilities Condition Report should reflect a facility's condition at a point in time. As such, the cost of projected maintenance and repair, and component renewals should not be included in the building deficiencies reported to SCHEV. And, as with building values, the value of deficiencies reported in the FCR should not include soft costs, furnishings, or equipment.

3. Facility condition index. The FCI is calculated as shown on the Facilities Condition Report Worksheet. For each building, it is the cost of the building's deficiencies as a percent of its building value. For the institution as a whole, it is the cost of all deficiencies as a percent of the value of all buildings.

$$\text{Facility condition index} = \frac{\text{Cost of Deficiencies}}{\text{Current Building Value}}$$

The campus condition ratings will continue to be evaluated on the three-tier scale as shown above.

C. Record Keeping: Institutions are not required to submit detailed deficiency data to SCHEV. However, SCHEV staff shall, as needed, request this information on an institution's buildings.

D. Web Access: These instructions can be accessed on the SCHEV website under Policies and Guidelines / Finance and Facilities. The sample worksheet and report can also be downloaded from the website.

Appendix A

Terminology and Definitions

Building Deficiency: Costs of replacing or repairing systems or components suffering from any of the following: a) loss of functionality; b) necessity for frequent repair; c) obsolescence; or d) failure. Building deficiencies can be grouped into two categories depending on the magnitude of the deficiency. Deficiencies ranging between \$25,000 and \$500,000 are normally funded through the maintenance reserve program while deficiencies valued at less than \$25,000 are normally funded through operating budgets.

- **Maintenance Reserve Deficiency:** Deficiencies funded through the maintenance reserve program, with costs ranging between \$25,000 and \$500,000.
- **Operating Deficiency:** Deficiencies funded through institutions' operating budgets, with costs less than \$25,000.

Capital Renewal: Major capital renovations to primary building systems and subsystems (e.g. roof, HVAC, electrical, plumbing, and interior renovations) required either to address specific facility needs for a given program or to manage deferred maintenance. Capital renewal does not include the construction of new buildings.

Component Renewal: Planned replacement of a component or system based on the end of its projected useful life cycle. For purposes of assessing current deficiencies, component renewal should not be reported in either operating or maintenance reserve deficiencies.

Current Building Value: Estimated construction cost to replace a facility. This amount should include the total funds required to duplicate the internal and external building envelope to provide the same level of functionality based upon accurate local labor and material costs. Soft costs such as A&E fees, project management costs, and construction contingencies should not be included.

Current Replacement Value: Current replacement value is the estimated construction cost required to duplicate the internal and external building envelope to provide the same level of functionality based upon labor and material costs (current building value) plus soft costs such as A&E fees, project management costs, and construction contingencies. It should not include the value of furnishings, equipment, or land.

Deferred Maintenance Backlog: The total dollar amount of existing major maintenance repairs and replacements, identified by a comprehensive facilities condition audit of buildings, and infrastructure needs. It does not include projected maintenance and replacement or other types of work, such as program improvements or new construction. These items are viewed as separate capital needs. Deferred maintenance backlog is the sum of operating deficiencies and maintenance deficiencies. *(Other common terminology – Accumulated Deferred Maintenance or Deferred Maintenance.)*

Gross Square Feet: Sum of all space on all floors within a building to the outside faces of exterior walls.

Net Assignable Square Feet: Sum of all space on all floors in a building available for assignment to an occupant for specific use.

Routine Maintenance: Systematic, day-to-day maintenance or upkeep funded through the annual operating budget to control deterioration of the plant facilities (structures, systems, equipment, pavement, grounds), including repetitive work (site maintenance, housekeeping, grounds keeping) and scheduled periodic work (preventative maintenance planned to provide adjustments, cleaning, minor repair, and routine inspections.)

Soft Costs: Costs beyond construction cost that cover items such as A&E fees, daily project inspections, project management or administration, and construction contingencies. It should not include the value of furnishings and equipment, or land.

Unscheduled Major Maintenance: Work requiring immediate action to restore services or prevent risk to health and safety. Examples include loss of electrical power, water, refrigeration, or building failures creating hazards to personnel or equipment.

Appendix B

Construction Cost By Building Use

Predominant Building Use	Construction Cost Per Gross Square Foot
Classrooms	\$111
Library	\$126
Admin/Office	\$109
Laboratory	\$132
Student Union	\$128
Physical Education Building	\$114
Dormitories	\$99

Appendix C

Construction Cost Per Gross Square Foot

Building Type	Type of Construction		Level of Quality		
			1- Average	2-Good	3- Excellent
Classrooms	Rated	(1A, 1B, 2A, 2B)	91	111	136
	Protected	(3A, 4, 5A)	79	99	120
	Unprotected	(2C, 3B)	69	90	109
	Wood Frame	(5B)	64	82	106
Library	Rated	(1A, 1B, 2A, 2B)	93	126	163
	Protected	(3A, 4, 5A)	81	109	143
	Unprotected	(2C, 3B)	70	92	125
	Wood Frame	(5B)	67	89	122
Admin/Office	Rated	(1A, 1B, 2A, 2B)	82	109	137
	Protected	(3A, 4, 5A)	73	98	129
	Unprotected	(2C, 3B)	64	87	121
	Wood Frame	(5B)	61	83	117
Laboratory	Rated	(1A, 1B, 2A, 2B)	107	132	164
	Protected	(3A, 4, 5A)	97	120	149
	Unprotected	(2C, 3B)	88	109	134
	Wood Frame	(5B)	85	105	131
Student Union	Rated	(1A, 1B, 2A, 2B)	105	128	156
	Protected	(3A, 4, 5A)	93	118	146
	Unprotected	(2C, 3B)	81	109	137
	Wood Frame	(5B)	67	89	122

Physical Education Building	Rated	(1A, 1B, 2A, 2B)	83	114	135
	Protected	(3A, 4, 5A)	71	98	125
	Unprotected	(2C, 3B)	59	83	115
	Wood Frame	(5B)	57	80	111
Dormitory	Rated	(1A, 1B, 2A, 2B)	77	99	121
	Protected	(3A, 4, 5A)	67	88	110
	Unprotected	(2C, 3B)	59	78	102
	Wood Frame	(5B)	56	74	100

INSTITUTION NAME

**BUILDING VALUE WORKSHEET
2000 FACILITIES CONDITION REPORT
EDUCATIONAL AND GENERAL PROGRAMS**

Building Identification				A	B	C=A*B	D	E	F	G	H	I	J	K=(C+I)*J	
Building Name	Building Number	Year Built	Historical Designation	Building Type	GSF	Construction Cost Per Square Foot	Estimated Construction Cost	Design Complexity	Historical Considerations	Recent Bid Experience	Type/Quality Adjustment	Other	Subtotal of Adjustments	E&G Share	E&G BUILDING VALUE
Smith Hall	0045	1938	No	Classrooms	54,000	\$111	\$5,994,000	N/A	\$500,000	N/A	N/A	N/A	\$500,000	81%	\$5,260,140
Jones Hall	0129	1961	No	Laboratories	50,000	\$132	\$6,600,000	N/A	N/A	\$1,000,000	N/A	N/A	\$1,000,000	65%	\$4,940,000

¹ Please explain any entry in this section.

INSTITUTION NAME

2000 FACILITIES CONDITION REPORT
EDUCATIONAL AND GENERAL PROGRAMS

FACILITIES	A	B		C	D = (B + C) / A
	Building Value	Deficiency Backlog		Facility Condition Index	
		Operating	Maintenance		
Smith Hall	\$5,260,140	\$22,000	\$320,000		6.5%
Jones Hall	\$4,940,000	\$17,000	\$185,000		4.1%
Total, All Buildings	\$10,200,140	\$39,000	\$505,000		5.3%

APPENDIX C

STATE COUNCIL OF HIGHER EDUCATION



**Higher Education Facilities Condition Reporting Guidelines
Instructions for Reporting Infrastructure Data**

July 9, 2001

Higher Education Facilities Condition Reporting Guidelines

For Infrastructure Assets

Background

In July 2000, the State Council of Higher Education for Virginia (SCHEV) and the Department of General Services (DGS) hired a consultant to evaluate the uniformity of facility condition assessment procedures used to determine the maintenance reserve needs of the Commonwealth's agencies and institutions of higher education.

The consultant's final report was released in November 2000. Among its findings, the consultant reported that institutions used various methodologies to estimate building values and to determine estimated costs of repairing building deficiencies. The consultant also found that most institutions did not fully consider the value of infrastructure assets or the cost of deficiencies of infrastructure assets when reporting the condition of their facilities. The infrastructure of an institution includes those items, which are required but are not related directly to a building, such as utilities connecting buildings to the power plant, sidewalks, and roads.

SCHEV staff, with the help of its consultant, a workgroup of institutional representatives, and DGS, has developed a list of infrastructure assets (see Appendix A) and the following guidelines for valuing those assets and reporting their deficiencies.

Instructions for Reporting Infrastructure Assets in the Facilities Condition Report

These instructions have been established to clarify what institutions should report as infrastructure in the Facilities Condition Report (FCR). Institutions should use the Infrastructure Value Worksheet to report asset specific information. The institution's total infrastructure will be summarized as one line in the FCR. A sample of the infrastructure value worksheet is included in Appendix C. It is also provided as a Microsoft EXCEL file on the SCHEV website under Policies and Guidelines / Finance and Facilities Policies. Institutions are asked to download the EXCEL file, replace the sample data with institutional data, and return the completed worksheet to SCHEV via diskette or e-mail. SCHEV staff will incorporate your infrastructure data into the FCR that has already been submitted for building values and deficiency costs.

These guidelines aim at estimating only the deferred maintenance needs of E&G infrastructure. Although not required for the 2000 FCR, SCHEV staff will continue working with institutions to determine the feasibility and desirability of collecting non-E&G data prior to the 2004-06 biennium.

A. Infrastructure Value Worksheet (Appendix C): Institutions are asked to complete the worksheet to estimate the current value of each type of infrastructure asset the institution maintains. The amount reported should include the total funds required to replace the asset at the same level of functionality based upon accurate local labor and material costs. Soft costs, such as A&E fees, project management costs, and construction contingencies should not be included. Site preparation costs, which were initially incurred, also should not be included in the construction cost of your infrastructure asset.

In addition, it is important to note that while an institution's maintenance program may include life-cycle projections or planned component renewals, the FCR should reflect an asset's condition at a point in time.¹ As such, the cost of projected maintenance and repair, and component renewals should not be included in the infrastructure deficiencies reported to SCHEV.

With these provisions, the infrastructure value worksheet contains each of the elements described below. A detailed description of the required reporting for each element is also required below:

- 1. Infrastructure asset.** Institutions should report all of the major infrastructure assets that they maintain. Appendix A includes the major types of infrastructure assets that should be reported by each institution, if applicable.
- 2. Unit Measure.** The quantity of each infrastructure should be reported using a standard single unit of measure, such as linear or square feet. The worksheet identifies standard unit measures for each infrastructure type.
- 3. Total Units.** Institutions should report the total units of the asset for which it is responsible.
- 4. Cost Per Unit.** As a base value, SCHEV recommends that institutions value all infrastructure of a specific type at the same cost per unit. The standard unit costs provided in Appendix A are based on a compilation of actual cost data provided by several institutions, and national data sources such as RSMeans®, and Marshall & Swift® provided by the consultant and DGS. An inflationary factor has been applied to these figures to adjust them to current (January 1, 2001) dollars.

In addition, Appendix B contains specific schedules in cases where institutions may find enough variability in an asset type that it is difficult to determine one standard

¹ For purposes of the 2000 FCR, institutions should value their assets as of January 1, 2001.

unit cost. These figures were derived in conjunction with DGS and the consultant and are based on national data sources such as R. S. Means® and Marshall & Swift.® An inflationary factor has been applied to all figures to adjust them to current (January 1, 2001) dollars. As indicated in the Infrastructure Unit Cost table located in Appendix A, institutions should refer to the appropriate schedule in Appendix B to estimate the base cost per unit of these asset types.

5. **Estimated Cost Value.** This calculated figure represents the base cost for the asset. The number of units that the institution owns of the infrastructure asset multiplied by the cost per unit will yield the base cost of the infrastructure asset. Institutions are required to use the unit costs per Appendix A to estimate the base replacement costs of the asset.

6. **Institution-Specific Adjustments.** It is anticipated that institutions may need to make adjustments to the estimated base cost of some infrastructure assets due to institution-specific conditions that may increase or decrease the replacement cost for each asset. For those infrastructure assets where an adjustment is made, please indicate the additional cost (or reduction in cost) and briefly explain why the adjustment is necessary.

7. **E&G Share.** The reported number or units of the infrastructure asset should be the institution's total units. The E&G share should be the percentage of the units that belong to the educational and general program.

8. **E&G Infrastructure Value.** This calculated figure is the E&G share of the infrastructure assets cost value. It is the sum of the estimated construction cost and institution-specific adjustments multiplied by the E&G percentage share of the facility. Only the E&G share of the infrastructure assets' values and deficiency costs will be carried forward to the FCR.

9. **Deficiency costs:** The cost of deficiencies reported in the FCR is the cost of existing maintenance and repair deficiencies. The identified deficiencies should meet guidelines issued by the Department of Planning and Budget (DPB). Soft costs, such as A&E fees, project management costs, and construction contingencies should not be included in deficiency costs.

A deficiency project that meets one or more of the following criteria may be included in the FCR:

- Repair or replacement of functionally obsolete, damaged, or inoperable built-in equipment such as elevators, furnaces, plumbing fixtures, air conditioning, and ventilation;

- Repair or replacement of components of plant such as exterior wood, masonry, ceilings, floors, floor coverings, doors, windows, roofs, sidewalks, parking lots, fencing, and exterior lighting;
- Repair or replacement of existing utility systems, such as steam lines, natural gas, air, electrical, water, and sewer; and
- Correction of problems resulting from erosion and drainage.

The cost of deficiencies included in one or more of the following criteria should **not** be included in the FCR:

- Maintenance contracts to clean, maintain, repair, or protect existing plant, property, or equipment;
- Routine periodic maintenance such as servicing, adjusting, minor repairs, painting, scraping, cleaning, and spraying of plant or property;
- Repair or replacement of office, motorized, medical, laboratory, electronic, photographic, educational, cultural, computerized, and other specific-use, moveable equipment that is not permanently installed as a part of the plant or property; and
- Leak testing and monitoring of underground storage tanks and the removal of underground storage tanks not associated with tank replacement.

In addition, it is important to note that while an institution's maintenance program may include life-cycle projections or planned renewal of components, the Facilities Condition Report should reflect a facility's condition at a point in time. As such, the cost of projected maintenance and repair, and component renewals should not be included in the infrastructure deficiencies reported to SCHEV. And, as with building values, the value of deficiencies reported in the FCR should not include soft costs.

B. Facilities Condition Report: The E&G total infrastructure value calculated on the Infrastructure Value Worksheet should be carried forward to the Facilities Condition Report. In addition, the cost of deferred maintenance of infrastructure assets should be reported.

Due to the fact that institutions have already submitted building data for the 2000 FCR, SCHEV staff will add the infrastructure data to the FCR for the 2000 reporting cycle. Therefore, institutions need to only submit the Infrastructure Value Worksheet at this time.

C. Record Keeping: Institutions are not required to submit detailed deficiency data to SCHEV. However, SCHEV staff shall, as needed, request this information on an institution's buildings or infrastructure.

D. Web Access: These instructions can be accessed on the SCHEV website under Policies and Guidelines / Finance and Facilities. The sample worksheet and report can also be downloaded from the website.

Appendix A Infrastructure Unit Cost

Infrastructure Asset Description		Unit of Measure	Valuation Cost Per Unit
Campus Drives & Streets:			
a.	concrete pavement	Sq. Yd.	29.00
b.	asphalt pavement	Sq. Yd.	14.00
c.	parking area - paved	Sq. Yd.	24.00
d.	parking area - unpaved	Sq. Yd.	10.00
e.	pedestrian bridge	Sq. Ft.	107.00
Sidewalks:			
a.	concrete	Sq. Yd.	43.00
b.	asphalt pavement	Sq. Yd.	16.00
c.	brick or flagstone	Sq. Yd.	93.00
d.	gravel	Sq. Yd.	10.00
e.	exterior stairs	Lin Ft.	20.00
Automatic Irrigation		Lin. Ft.	3.00
Exterior lighting		Pole	2,313.00
Signage		Ea.	63.00
Electrical:		Lin. Ft.	19.00
a.	electric Lines	Lin. Ft.	19.00
b.	electric transformers		See Schedule
c.	electric substations		See Schedule
Communication Cable		Lin. Ft.	6.15
Gas Mains		Lin Ft.	33.00
Direct-Bury Steam and Chilled Water Lines		Lin. Ft.	100.00
Steam and Chilled Water in Tunnels:			
a.	up to 3-1/2"	Lin. Ft.	42.00
d.	4" to 8"	Lin. Ft.	159.00
e.	10" and larger	Lin. Ft.	205.00
Water Mains:			
a.	up to 4"	Lin. Ft.	24.00
b.	4-1/2" to 8"	Lin. Ft.	38.00
c.	9" and larger	Lin. Ft.	53.00
Utility Tunnels			See Schedule
Storm Sewer:			
a.	up to 12"	Lin. Ft.	33.00
b.	13" to 26"	Lin. Ft.	62.00
c.	27" to 41"	Lin. Ft.	88.00
d.	42" to 59"	Lin. Ft.	130.00
e.	60" and greater	Lin. Ft.	175.00
f.	4' x 6' box culvert	Lin. Ft.	270.00
Sanitary Sewer:			
a.	up to 2"	Lin. Ft.	36.00
b.	3" to 7"	Lin. Ft.	54.00
c.	8" to 12"	Lin. Ft.	98.00
d.	13" to 15"	Lin. Ft.	108.00
e.	16" to 24"	Lin. Ft.	160.00
f.	greater than 24"	Lin. Ft.	203.00

INFRASTRUCTURE UNIT COST

Infrastructure Asset Description	Unit of Measure	Valuation Cost Per Unit
Septic Tanks/Fields Basic System:		
a. basic system plus pump	Each	5,800.00
b. basic system plus pump and pre-treatment	Each	17,800.00
Sewage Pump Stations:		
a. small station - less than 5,000 gallons/day	Each	23,700.00
b. medium station - 5,000 to 15,000 gallons/day	Each	105,750.00
c. large station - greater than 15,000 gallons/day	Each	227,850.00
Tanks:		
a. water tanks		See Schedule
b. above ground fuel storage		See Schedule
c. underground fuel storage		See Schedule
Fire Plugs	Each	2,242.00
Bulkheads	Sq. Ft.	556.00
Piers	Sq. Ft.	40.00
Retaining Walls	Lin. Ft.	See Schedule
Fencing - chain link	Lin. Ft.	22.00
Phy.Ed./Recreation Areas:		
a. playing fields	Sq. Ft.	5.00
b. outdoor basketball courts	Sq. Ft.	7.75
c. tennis courts	Sq. Ft.	7.35
d. running tracks	Sq. Ft.	8.50
e. bleachers		See Schedule

Appendix B

COSTING SCHEDULES

Transformers				Substations	
Dry Type		Oil Filled			
Single-phase, 240/480-V primary, 120/240 secondary		Three phase or Y, 5-KV or 15-KV with taps, 277/480-V secondary		KVA Rating	Cost/KVA
Size	Cost	Size	Cost	150	\$235
3 KVA	500	150 KVA	14,250	500	\$120
5	600	300	17,500	1000	\$85
7.5	890	500	27,250	2000	\$60
10	1,075	750	34,250		
15	1,300	1,000	45,000		
25	1,675	1,500	49,000		
37.5	2,500	2,000	58,000		
50	2,950	2,500	60,500		
75	3,800	3,000	72,000		

Underground Fuel Storage

Costs are averages for fiberglass and steel tanks, completely installed, including fittings.

Nominal Capacity (gallons)	Fiberglass		Steel (sti-P3)		Fiber Coated Steel	
	Single Wall Tank Cost	Double Wall Tank Cost	Single Wall Tank Cost	Double Wall Tank Cost	Single Wall Tank Cost	Double Wall Tank Cost
1,000	3,150	5,775	2,520	4,305	3,045	4,550
2,000	3,990	7,210	3,290	5,165	3,850	5,600
3,000	4,515	8,068	3,675	6,020	4,375	6,937
4,000	5,093	9,398	4,288	6,720	4,935	7,350
5,000	5,810	10,150	4,900	8,365	5,583	8,925
6,000	6,720	11,830	5,810	9,503	6,475	10,115
8,000	7,490	12,513	6,510	10,675	7,245	11,410
10,000	8,960	14,525	7,928	13,055	8,680	14,000
12,000	10,325	16,485	8,925	14,210	9,975	15,960
15,000	12,600	19,950	10,920	18,970	12,250	19,425
20,000	16,450	25,025	14,175	21,875	15,925	23,660
25,000	2,030	30,450	17,675	27,195	19,600	28,700
30,000	24,325	35,525	20,825	32,725	23,275	33,600
50,000	40,250	56,000	32,900	50,925	N/A	51,625

COSTING SCHEDULES

Above Ground Fuel Storage Tanks

Costs are average for UL-listed cylindrical internal steel tanks encased inside a 6" pre-cast concrete vault, providing a 2-hour fire-wall and ballistic protection. The protective concrete outer shell is pre-cast in two sections to allow periodic internal tank inspection. Costs include fittings and installation on the buyer's foundation.

Capacity (gallons)	Size (feet)	Single Compartment		Dual Compartment	
		Single Wall	Double Wall	Single Wall	Double Wall
1,000	5 1/2 x 12	\$9,725	\$12,450	\$11,000	\$14,000
2,000	7 x 14	14,875	19,250	16,250	2,100
4,000	9 1/2 x 13	23,250	30,250	27,000	35,000
6,000	9 1/2 x 18	30,000	39,000	33,750	44,000
8,000	9 1/2 x 23	40,000	52,000	43,500	56,750
10,000	9 1/2 x 29	43,500	56,750	47,000	61,250
12,000	9 1/2 x 34	52,500	68,750	56,500	73,500

Utility Tunnels

The following costs of tunnels carrying utilities between buildings are smoothed averages of reinforced concrete-lined tunnels **per cubic foot** of tunnel including lighting and drainage.

Wall Thickness	Light Soil	Medium Soil	Hardpan	Rock
3"-5"	\$12.55	\$13.75	\$15.25	\$16.75
5"-7"	14.70	16.50	18.00	20.15
7"-10"	17.20	19.20	21.65	24.10

Retaining Walls (concrete)

Per Lin. Ft.

Wall Height (excluding footing)	Concrete Gravity Wall	Reinforced Concrete
4'	\$133	\$133
6'	\$204	\$199
8'	\$270	\$245
10'	\$581	\$520
20'	\$770	\$689

COSTING SCHEDULES

Welded Steel Water Tanks

Costs are average costs of surface reservoirs including typical tank ancillaries such as roofs, ladders, painting, fittings on tank, etc.

Capacity (gallons)	Cost	Capacity (gallons)	Cost
100,000	\$ 93,450	750,000	\$ 289,800
125,000	\$ 100,800	1,000,000	\$ 334,950
150,000	\$ 108,938	1,500,000	\$ 467,513
200,000	\$ 123,113	2,000,000	\$ 569,363
250,000	\$ 138,863	2,500,000	\$ 665,700
300,000	\$ 153,825	3,000,000	\$ 761,775
400,000	\$ 192,413	4,000,000	\$ 929,250
500,000	\$ 225,750	5,000,000	\$ 1,086,488

Grandstands and Bleachers

The following are typical costs of grandstands and bleachers. Costs include stairs, ramps, handicap platforms and press boxes commensurate with type and quality, as well as designers' fees.

Type	Per Square Foot (Horizontal Projection)	Per Seat
Permanent bleachers, wood frame and benches		
up to 1,000 seats	\$16.00	\$53.00
1,000 to 2,000 seats	\$15.00	\$50.00
over 2,000 seats	\$14.00	\$46.00
Grandstand bleachers, open steel frame, metal, fiberglass or wood benches, school or fairground type;		
up to 1,000 seats	\$40.00	\$130.00
1,000 to 5,000 seats	\$38.00	\$120.00
over 5,000 seats	\$37.00	\$110.00
add for roofed areas	\$8.00	\$24.00
add for press box area	\$40.00	
Concrete or steel bleachers, no interior construction, stadium type, closed deck;		
under 5,000 seats	\$62.00	\$210.00
5,000 to 10,000 seats	\$61.00	\$205.00
over 10,000 seats	\$60.00	\$200.00
add for roofed areas	\$10.00	\$30.00
Concrete or steel bleachers with built-in dressing and training rooms, restrooms snack bars, press box, lighting, college or small municipal stadium type;		
under 5,000 seats	\$100.00	\$300.00
5,000-15,000 seats	\$83.00	\$260.00
over 15,000 seats	\$80.00	\$250.00
add for roofed areas	\$10.00	\$30.00

Appendix C

INFRASTRUCTURE VALUE WORKSHEET 2000 FACILITIES CONDITION REPORT

Infrastructure Asset	Baseline Costs				Institution-Specific Adjustments ¹	E&G Share	E&G Infrastructure Value	DEFICIENCY BACKLOG	
	Unit Measure	Quantity	Unit Cost	Estimated Value				Operating	Maintenance Reserve
Water Main up to 4"	Linear Feet	3,500	\$23	\$80,500	\$1,500	80%	\$65,600	\$0	\$0
Paved Parking Area	Square Yard	5,000	\$24	\$120,000	\$0	10%	\$12,000	\$0	\$0
Total Infrastructure				\$200,500	\$1,500		\$77,600	\$0	\$0

¹ Please explain why the adjustment is necessary.