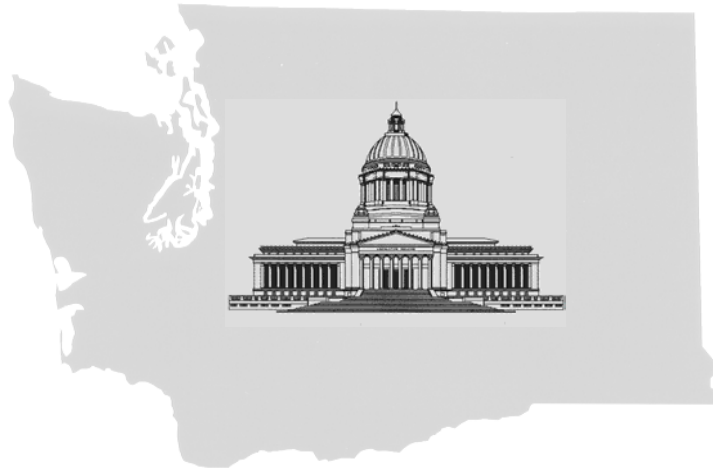


**State of Washington  
Joint Legislative Audit and Review Committee (JLARC)**



**Higher Education  
Facilities Preservation Study**

**Interim Report 02-11**

**September 18, 2002**

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in alternative formats for persons with disabilities.*

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The Joint Legislative Audit and Review Committee (JLARC) carries out oversight, review and evaluation of state-funded programs and activities on behalf of the Legislature and the citizens of Washington State. This joint, bipartisan committee consists of eight senators and eight representatives, equally divided between the two major political parties. Its statutory authority is established in RCW 44.28.

JLARC staff, under the direction of the Committee and the Legislative Auditor, conduct performance audits, program evaluations, sunset reviews and other policy and fiscal studies. These studies assess the efficiency and effectiveness of agency operations, impacts and outcomes of state programs, and levels of compliance with legislative direction and intent. The Committee makes recommendations to improve state government performance and to correct problems it identifies. The Committee also follows up on these recommendations to determine how they have been implemented. JLARC has, in recent years, received national recognition for a number of its major studies.

**HIGHER EDUCATION  
FACILITIES  
PRESERVATION  
STUDY**

**INTERIM REPORT**

**REPORT DIGEST**

SEPTEMBER 18, 2002



STATE OF WASHINGTON

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## OVERVIEW

Washington's public higher education institutions manage over two-thirds of all state facilities—totaling over 52 million square feet. Currently, policy makers have little information about the conditions, maintenance levels, and repair backlogs at these higher education facilities. Nor do they have operating and capital budget information related to facility preservation, or how these expenditures might relate to the condition of facilities.

The 2001 Legislature mandated this study in order to understand the condition of public higher education facilities and to estimate maintenance and repair backlogs. This JLARC interim report also evaluates connections between the state's operating and capital budget practices and higher education facility stewardship. Further analysis and study recommendations will be included in JLARC's December 2002 Report.

## FACILITY PRESERVATION EXPENDITURES ANALYSIS

Ongoing investment in a variety of maintenance and repair projects can ensure that public higher education building assets are preserved, that health, safety, education, and research needs are met, and that facility life-cycle costs are minimized. Higher education institutions fund such projects in both their operating and capital budgets.

- **Operating budgets** generally pay for ongoing and preventive maintenance activities, as well as small repairs. The Legislature does not appropriate the majority of higher education operating budgets. Higher education institutions have a great deal of discretion over how they spend their operating budgets.
- **Capital budgets** usually pay for major repairs, building system replacements (e.g., roofs), and renovations, as well as new construction and land acquisition. The Legislature exercises detailed control over the disbursement of state capital budget dollars.
- Preventive maintenance must compete with all other institutional priorities for resources from operating budgets. When preventive maintenance funding is insufficient in institutions' operating budgets, the state capital budget becomes an increasing source for repair, replacement, and renovation projects.
- Over the last decade, the percentage of total operating and capital budget facility maintenance and repair expenditures funded by the **capital budget** has increased from 56 percent in 1992 to 65 percent in 2001.

- JLARC compared operating and capital budget expenditures for facility maintenance and repairs with external benchmarks for such expenditures. Washington's higher education institutions spend close to, or above, the benchmark average for such **capital** budget expenditures. Only the University of Washington meets or exceeds JLARC's benchmarks for **operating** budget facility maintenance expenditures.
- Thus, Washington's budget structure may create unintended incentives for institutions to underfund facility maintenance in their operating budgets, increasing pressure on the largely state-appropriated and funded capital budget.

## COMPARABLE FRAMEWORK ANALYSIS

JLARC and its consultants collected and assembled existing data to get more accurate inventories of higher education buildings, gauge the relative condition of buildings, and estimate the magnitude of preservation backlogs across institutions on a comparable basis. This collaborative effort with higher education institutions produced a wealth of information for now, and set the basis for updates to this Comparable Framework in the future. Highlights include:

- Washington's public higher education institution facilities cover 52 million square feet of space. This is 9 million square feet greater than previous estimates.
- Institutions rely on State Capital Budget funding for over 75 percent of their buildings.
- The average age of higher education buildings is 36 years. Over half of all buildings are older than 30 years.
- Most buildings are used for teaching and study purposes.
- The estimated replacement value of all public higher education buildings is **\$11.5 billion**.
- **More than half of all higher education building space is in superior or adequate condition.**
- The estimated preservation backlog for all institutions totals **\$1.3 billion**.
- The estimated preservation backlog for those buildings in the worst condition totals **\$430 million**.

## CONCLUSION

JLARC's Interim Report concludes that ongoing, central collection of facility inventory, condition, preservation backlog, and expenditure data would improve the visibility and accountability of higher education building preservation. Accountability and oversight responsibilities of the Legislature, the Office of Financial Management, the Higher Education Coordinating Board, and the State Board for Community and Technical Colleges would be enhanced with the ready availability of such data.

## NEXT STEPS

This Interim Report analyzes Facility Preservation Expenditures and provides an introduction to the Comparable Framework. JLARC's December Report will introduce more detailed results from the Comparable Framework analysis. That Report will also examine relationships between the amount of money spent on facility preservation and the relative condition of facilities across institutions. It will also include an analysis of major building renovation projects proposed in higher education institutions' 2003-05 capital budget requests.

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# CHAPTER 1 – INTRODUCTION

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## BACKGROUND

Washington’s public higher education institutions—community and technical colleges, as well as research universities and regional universities—manage over 52 million gross square feet of publicly-owned facilities, contained in 2,463 buildings at 133 sites across the state. These public assets comprise over two-thirds of all state facilities. With this stock of current capital assets, ongoing investment in a broad range of maintenance, repair, and renewal efforts is required to ensure an adequate level of preservation, to meet health and safety requirements, to address education and research demands, and to minimize facility life-cycle costs.

**Comparable information** to gauge the overall condition of these higher education facilities, to assess the level of maintenance and repair management efforts, and to know the magnitude and severity of higher education preservation backlogs is **not currently available** to state decision makers. The Higher Education Coordinating Board, in its budget decision packages for 2001-03, requested \$1.5 million to conduct a one-time uniform condition assessment of higher education buildings across the state.

To explore the feasibility of gathering comparable information, the 2001-03 Capital Budget provided JLARC with \$500,000 to collect, assess, evaluate and analyze facility preservation information and outline a potential **comparable framework**. The 2001-03 Capital Budget also directed JLARC to assess operating and capital budget processes for facilities maintenance, repair and renovation throughout Washington’s public higher education system, as well as to understand the incentives inherent in these budget processes and in their implementation at the higher education institutions. Work began on this JLARC study in September 2001.

## STUDY PROCESS

With a study directive in hand, JLARC staff developed a study approach, outlined the study’s scope and direction, and presented these directions to JLARC at its October 2001 meeting. Two advisory and technical processes were set up to assist JLARC staff in the course of this project. A **Legislative Advisory Group**, comprised of interested legislators from JLARC, fiscal committees and relevant policy committees, as well as committee and caucus staff, was convened. This Group has met twice in the early stages of the study.

Since collecting information from existing condition assessment and preservation management systems at all of Washington’s higher education institutions was key to progress of this study, JLARC staff also convened a **Technical Review Panel** comprised of staff from the Office of Financial Management, the Higher Education Coordinating Board, the State Board for Community and Technical Colleges, a Community College, and the six public four-year universities and state college. The Panel met a number of times for work sessions during the course of this JLARC effort.

Moreover, individual staff from our public higher education institutions contributed considerable time and energy, as well as data, to this study. They completed a comprehensive survey about

the content and format of their preservation information, as well as participated in and helped facilitate the field surveys done as part of the JLARC study. To supplement their existing preservation information, staff at Central Washington University and The Evergreen State College applied the condition assessment methodology used in JLARC's field surveys to their entire stock of buildings.

Finally, with some of the additional resources provided by the 2001 Legislature, JLARC staff, through a competitive bid process, selected Meng Analysis, a Seattle-based firm with considerable experience in Washington's public higher education sector, to assist in this extensive study.

## OUTLINE OF THE INTERIM REPORT

Due to the magnitude and complexity of the topic and the volume of data collected, JLARC, for its September 2002 reporting date, is providing an interim report on our results to date. Additional work is required in order to fully analyze the complex data that is at hand, with the next report to be heard at JLARC's December 4, 2002 meeting.

**CHAPTER 2** provides an analysis of budget and expenditure patterns for higher education facility preservation. Funding sources, state requirements and guidelines, incentives and disincentives for facility preservation, and comparisons of expenditure levels for preservation—both within Washington and with national benchmarks—are covered in this chapter.

**CHAPTER 3** outlines the **comparable framework**, which is the system that JLARC staff, with our consultants, developed to translate and cross-walk information maintained by Washington's public higher education institutions, the Office of Financial Management, the Higher Education Coordinating Board, and the State Board for Community and Technical Colleges. This framework includes data on facility inventories, condition of facilities, and cost information. The latter element focuses on replacement values of buildings and estimates of preservation backlogs: that is, those maintenance, repair and system replacement projects that are necessary to preserve facilities for their current use.

**CHAPTER 4** summarizes the initial conclusions reached from JLARC's analyses of budget and expenditure patterns, as well as the analyses drawn from the comparable framework, to understand a process that can be used to update facility inventory, condition, preservation backlog, and expenditure information in the future.



# CHAPTER 2 - BUDGET AND EXPENDITURE ANALYSIS

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Both operating and capital budgets of higher education institutions provide funds for facilities preservation purposes. In general, routine and preventive maintenance is paid for from operating budgets while major repairs, building system replacements (e.g., roofs), and renovations are paid for from capital budgets. A higher level of operating budget expenditures for routine and preventive maintenance may reduce the need for capital budget requests and expenditures for major repairs and renovations. Additionally, should operating budget expenditures for routine and preventive maintenance be inadequate, correcting the problems thus created with future capital budget expenditures for major repairs and renovations may be more costly than if operating budget expenditures had been adequate. Because the sources of funds and restrictions over expenditures varies substantially between the operating and capital budgets, JLARC's analysis examines the incentives created by these budgetary policies.

Specifically, JLARC's analysis examines the following questions:

- What sources of funding are available for higher education facilities preservation?
- What requirements or guidance does the state provide with respect to expenditures of funds for facility preservation purposes?
- What incentives or disincentives for facility preservation are created as a result of the budgeting process?
- How do expenditures for facility preservation compare among Washington's higher education institutions?
- How do expenditures for facility preservation among Washington's higher education institutions compare with comparative information drawn from other states?

## SUMMARY OF FINDINGS

- Most operating budget funding for higher education institutions is not appropriated and, therefore, not subject to direct legislative control. Additionally, while the Legislature identifies certain expectations for operating budget expenditures (e.g., enrollment targets), it exercises very little direction over the specifics of how operating budget funds are spent. Therefore, institutions have a great deal of discretion over how operating budget funds are spent, and funding for facility maintenance must compete with all other institutional priorities for funding. The degree of control over operating budgets granted by the Legislature to institutions has increased significantly over time.
- Conversely, the Legislature appropriates substantially all capital budget funding which is earmarked for specific projects. This budget structure may result in an unintended incentive for institutions to underfund facilities maintenance in their operating budgets because the largely state-funded capital budget may be seen as a safety net for such underfunding.

- Over the last decade, Washington’s public higher education institutions have gradually decreased inflation-adjusted *operating* budget expenditures for facility maintenance per gross square foot, while increasing their inflation-adjusted *capital* budget expenditures for facility preservation.
- When comparing operating and capital expenditures for facility preservation in Washington’s higher education institutions with national benchmarks, several of Washington’s institutions are spending close to, or more than, the benchmarks. However, this is largely due to higher *capital* budget expenditures. Only the University of Washington meets or exceeds the average of JLARC’s benchmarks for *operating* budget facility preservation expenditures.

## HIGHER EDUCATION OPERATING AND CAPITAL REVENUE SOURCES AND STATE POLICIES GUIDING EXPENDITURES

### Operating Budget Revenues

Figure 2-1, on the following page, illustrates the relative significance of the major sources of operating funding at the various institutions.<sup>1</sup> State appropriations range from 15 percent of operating revenue at UW to 44 percent at the CTC’s. Funds that are not appropriated are not subject to legislative direction. While the Legislature could theoretically exert a great deal of control over appropriated funding via earmarked appropriations or budget provisos, it has chosen not to do so. For example, only about one-half of one percent of UW’s \$4.5 billion biennial operating budget is specifically provisoed or controlled by the Legislature.

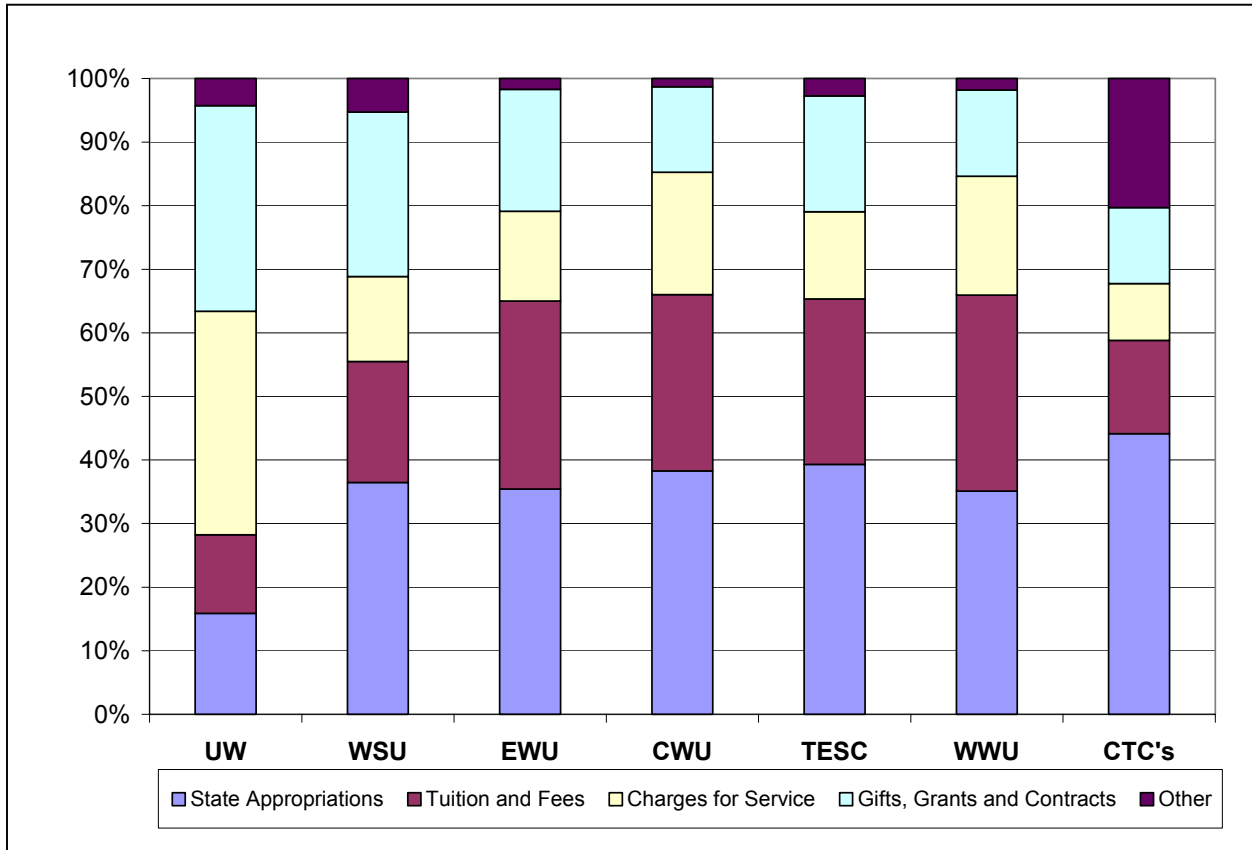
Non-appropriated sources of revenue include Tuition and Fees, Charges for Service (e.g., dormitory fees and food service revenues), and Gifts, Grants, and Contracts. Revenue from several other sources (e.g., investment income) that doesn’t fit into these categories was classified as “Other” for Figure 2-1. At the Community and Technical Colleges, the “Other” category includes \$129 million in revenue for scholarships that most likely is categorized differently within the Annual Financial Statements of the four-year institutions. This helps to explain why the “Other” category at the CTC’s is much larger than at the four-year institutions. Also, at the University of Washington, the Charges for Service category includes revenues of the University of Washington Hospital, which amount to over \$400 million/year. Since UW is the only institution that operates a hospital, this helps to explain why this category is so much larger than for other institutions.

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<sup>1</sup> The data in Figure 2-1 is based on the Annual Financial Statements of the 4-year institutions, and data provided by the State Board for Community and Technical Colleges (SBCTC) for the Community and Technical Colleges. Because the Community and Technical Colleges as a group do not have a comprehensive financial statement, JLARC requested the SBCTC to categorize FY 2001 revenues into the categories used in Figure 2-1. It is possible that some types of revenue were categorized by the SBCTC differently than the way that the four-year institutions categorize revenue in their financial statements.

Capital Budget Higher Education Facilities Study

Figure 2-1  
Washington's Higher Education Institutions - FY 2001 Revenue Sources



Source: Institutions' FY 2001 Annual Financial Statements and data provided by SBCTC.

Figure 2-2  
FY 2001 Operating Budget Revenue Sources

	State Appropriations	Tuition & Fees	Charges for Service	Gifts, Grants & Contracts	Other	Total
UW	\$341,451,000	\$266,223,000	\$756,875,000	\$695,320,000	\$91,892,000	\$2,151,761,000
WSU	\$197,168,523	\$102,796,703	\$72,239,398	\$139,959,933	\$28,490,888	\$540,655,445
EWU	\$43,970,171	\$36,729,297	\$17,492,991	\$23,839,179	\$2,112,117	\$124,143,755
CWU	\$42,148,143	\$30,565,354	\$21,197,497	\$14,782,527	\$1,439,806	\$110,133,327
TESC	\$24,869,694	\$16,463,416	\$8,674,482	\$11,517,584	\$1,735,776	\$63,260,952
WWU	\$56,611,625	\$49,789,666	\$30,126,022	\$21,924,986	\$2,887,748	\$161,340,047
CTC's	\$489,881,890	\$162,812,456	\$99,031,204	\$132,900,308	\$225,221,165	\$1,109,847,023

Source: Institutions' FY 2001 Annual Financial Statements and data provided by SBCTC.

## Budgeting Themes – Operating Budget

In addition to the small amount of specific earmarking of appropriated funds, the Legislature establishes incremental budget increases or decreases as part of the budget decision-making process. For example, the Legislature usually targets new funding for increases in student enrollments. The Legislature also frequently targets incremental increases or decreases in funding for specific purposes other than enrollment increases. For example, the Legislature may target an incremental increase in funding toward faculty salaries, or an incremental decrease in funding toward administrative reductions. However, these funding decisions are typically not earmarked or provisoed in the budget document, usually represent a very small percentage of total appropriated funds (which in turn are less than half of total operating funds available to institutions), and do not result in an ongoing requirement in subsequent budgets.<sup>2</sup>

As a result of these budget practices, the degree of control exercised by the Legislature over institution's expenditures of funds is relatively minor. There is no direction or requirement by the state about how much money higher education institutions should spend within their operating budgets for facility preservation purposes. Therefore, the amount of operating budget revenue that institutions actually spend for facility preservation purposes is largely a matter of individual institutional priorities.

In contrast, in the 1970s and early 1980s, state appropriations for higher education operating budgets were developed based on a detailed formula that drove out specific amounts of funding for various functions, including plant operations and maintenance. The funding amounts for the various functions were specifically earmarked in the appropriations acts, thus directing institutions to spend the amounts earmarked for the purposes for which they were appropriated. The current process for developing institutional budgets is far more general, does not identify specific amounts of funding for specific functions, and does not result in earmarked amounts in the appropriations acts. Also until the 1993-95 Biennium, tuition and fees revenue was part of the state appropriation. Since then, tuition and fees have been a non-appropriated funding source for the institutions, making this significant revenue source free from the potential control by the state.

Therefore, between the reduction in the Legislature's earmarking appropriated funds, and the shift of tuition and fees from appropriated to non-appropriated status, the degree of state control over how higher education institutions spend their operating budgets has decreased substantially over time.

## Budgeting Themes - Capital Budget

Higher education institutions fund major repairs, system replacements, and renovations of facilities from their capital budgets. Institutions also use capital dollars for purposes other than the preservation of facilities (e.g., new construction, land acquisition). In contrast to the operating budget, the degree of state control over capital budget revenues is substantial. With the exception of capital expenditures for non-state supported facilities (e.g., dormitories, student union facilities, parking structures, UW Hospital), almost all funding for higher education capital projects comes from state sources, is appropriated for specific projects, and must be spent on the project for which it is appropriated. Therefore, in contrast to the operating budget, the state provides the vast majority of capital funding and exercises a great deal of control over how capital funds are spent.

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<sup>2</sup> See Appendix 3 for a more detailed discussion of the state's process for developing operating budgets for higher education institutions.

## Potential Incentives of Operating and Capital Budgeting Processes

Institutions fund routine and preventive maintenance within their operating budgets, and major repairs and renovations within their capital budgets. Should insufficient funds be spent within the operating budget for routine and preventive maintenance, it would create pressure on the capital budget for major repairs and renovations. Since operating funds are largely from non-state sources (and are not earmarked for spending by the state), institutions may have an incentive to underfund facility maintenance in their operating budget. Because the capital budget is primarily state-funded, this liability becomes a problem for the state.

## HISTORICAL TRENDS FOR FACILITY PRESERVATION EXPENDITURES AMONG WASHINGTON'S HIGHER EDUCATION INSTITUTIONS

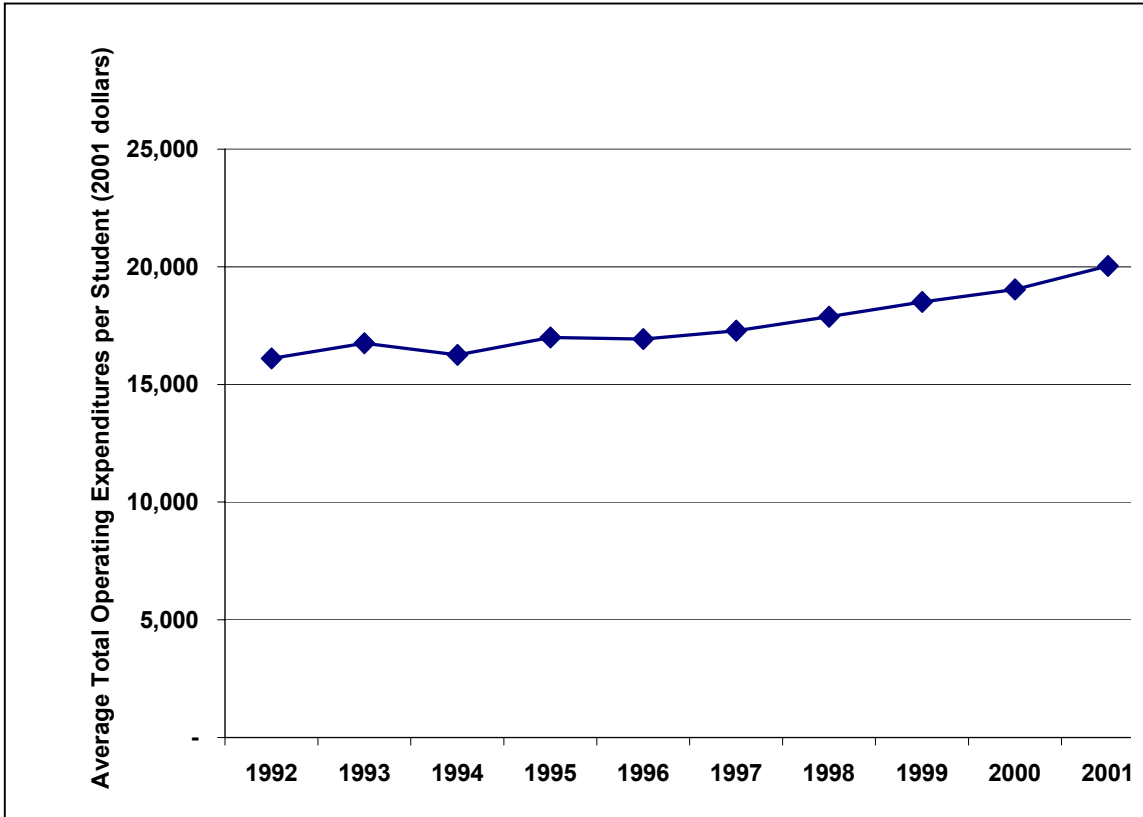
### Facility Preservation Expenditures

JLARC's analysis of historical trends for facility preservation includes both operating and capital budget expenditures for facility preservation purposes. Within the operating budget, JLARC included expenditures for facility maintenance, such as routine and preventive maintenance. JLARC excluded operating budget expenditures for custodial and grounds keeping services, utilities, solid waste disposal, and security which are typically included within "Facilities Operations and Maintenance" expenditures reported by institutions to the state's accounting system. These expenditures were excluded because they are not directly related to the preservation of facilities. Within the capital budget, JLARC included expenditures for repairs for facility preservation purposes. JLARC excluded expenditures for new construction, remodeling for new higher education programmatic priorities, or major renovations. We excluded major renovation expenditures from this analysis because it is common for the cost of major renovations to be substantially driven by program needs.

### Data For Detailed Comparisons Not Available in State Accounting System

The state's accounting structure requires institutions to report operating expenditures for plant operations and maintenance. This category includes expenditures for items not related to facility preservation (e.g., utilities, security, waste management, grounds keeping, and administration) as well as items more closely related to facility preservation (e.g., facility maintenance), and the subcategories are not separated in the data. Additionally, capital expenditure information is not available in categories that allow for tracking of facility preservation expenditures. Because of these limitations of state accounting systems, JLARC requested each higher education institution to provide detailed historical information relating to operating and capital expenditures specifically for facility preservation. The analysis that follows, therefore, is largely based on data reported by the higher education institutions to JLARC.

Figure 2-3  
Operating Expenditures per Student for Washington's Higher Education Institutions (adjusted for inflation) Have Increased from 1992-2001



Source: AFRS fiscal data; HECB student FTE data; Inflation data compiled by the Office of the Forecast Council.

### Historical Expenditure Trends

Figure 2-3, on the following page, shows that total operating expenditures of Washington's higher education institutions, after adjusting for growth in students and inflation, have increased between FY 1992 and FY 2001.

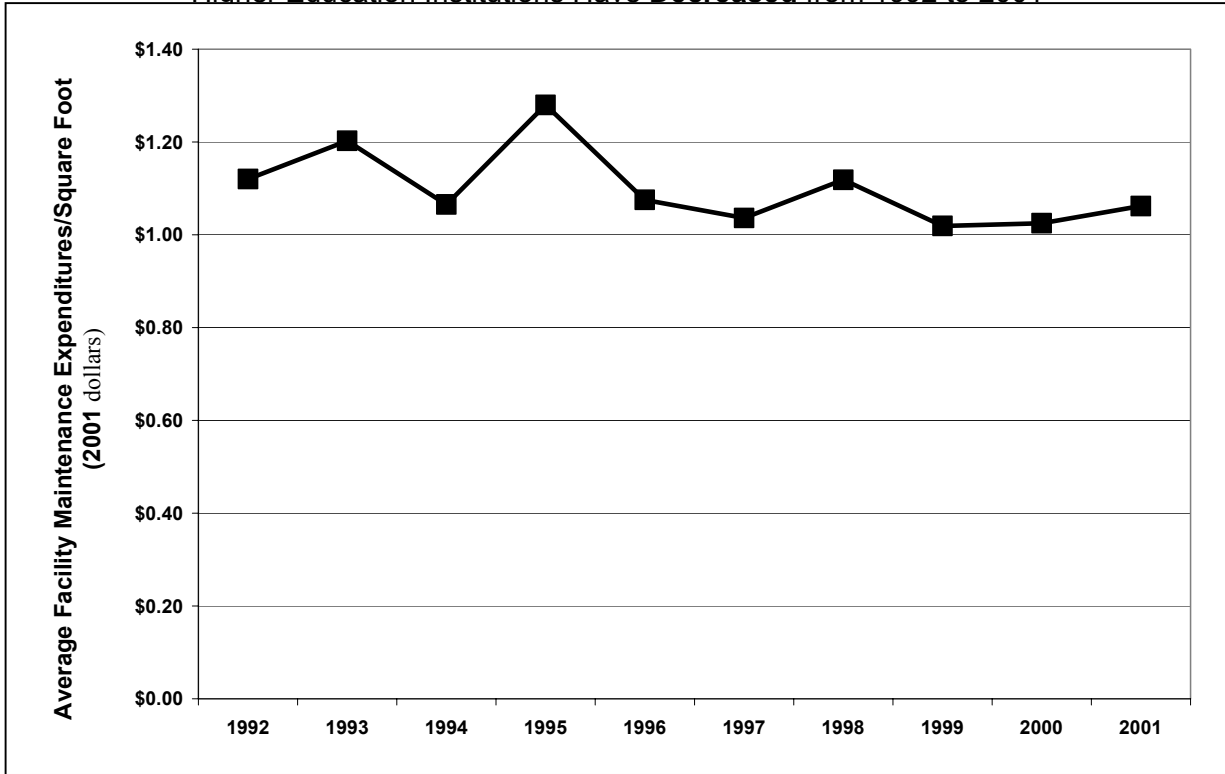
While total inflation-adjusted expenditures per student of Washington's higher education institutions have grown, inflation-adjusted expenditures per square foot for facility maintenance have declined somewhat over time, as illustrated by Figure 2-4 (page 9). Additionally, as total operating budget expenditures per student have increased and facilities maintenance expenditures have decreased, the proportion of institutional operating budgets spent for facilities maintenance has decreased between 1992 and 2001.

While inflation-adjusted higher education *operating budget* expenditures per square foot for facility preservation have declined over time, the opposite is true with respect to *capital budget* expenditures. Figure 2-5, on the following page, illustrates that the trend for capital expenditures for facility preservation purposes has been up among Washington's higher education institutions.

In light of the trend for lower inflation-adjusted *operating* budget facility preservation expenditures and higher inflation-adjusted *capital* preservation expenditures per gross square foot, the percentage of total facility preservation expenditures funded by the capital budget has grown among Washington's higher education institutions (see Figure 2-6, page 10).

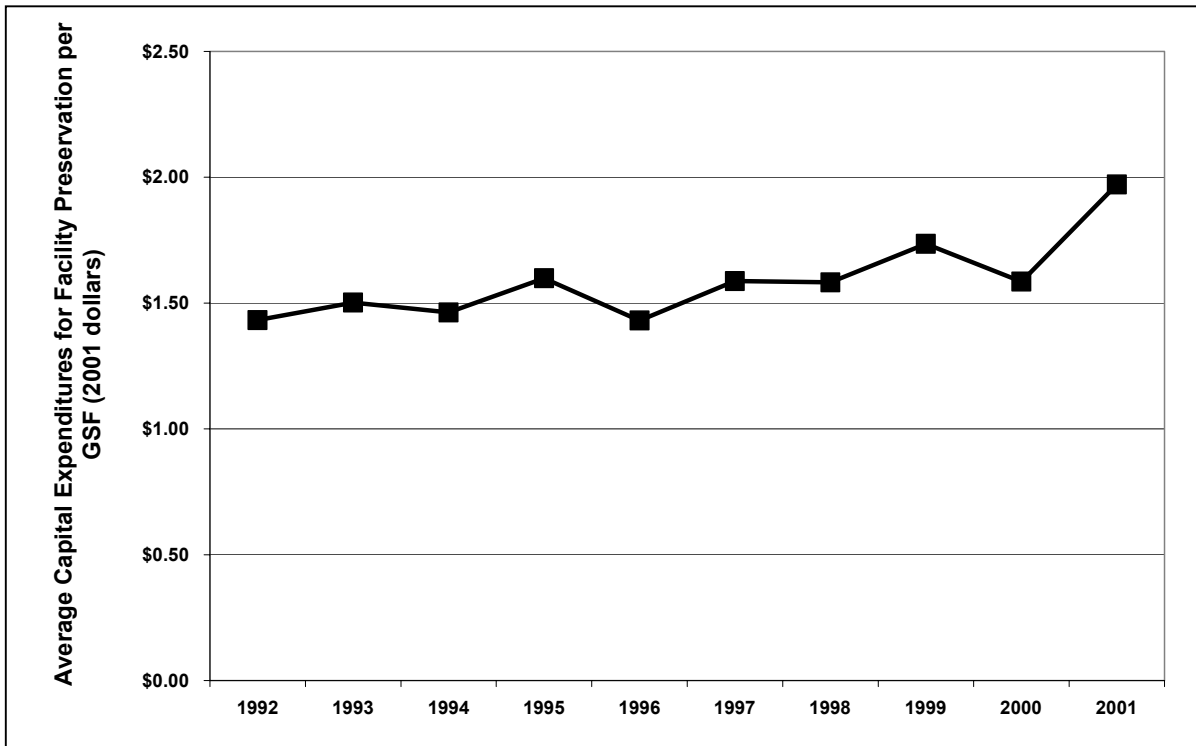
Capital Budget Higher Education Facilities Study

Figure 2-4  
Facility Maintenance Expenditures per GSF (adjusted for inflation) for Washington's Higher Education Institutions Have **Decreased** from 1992 to 2001



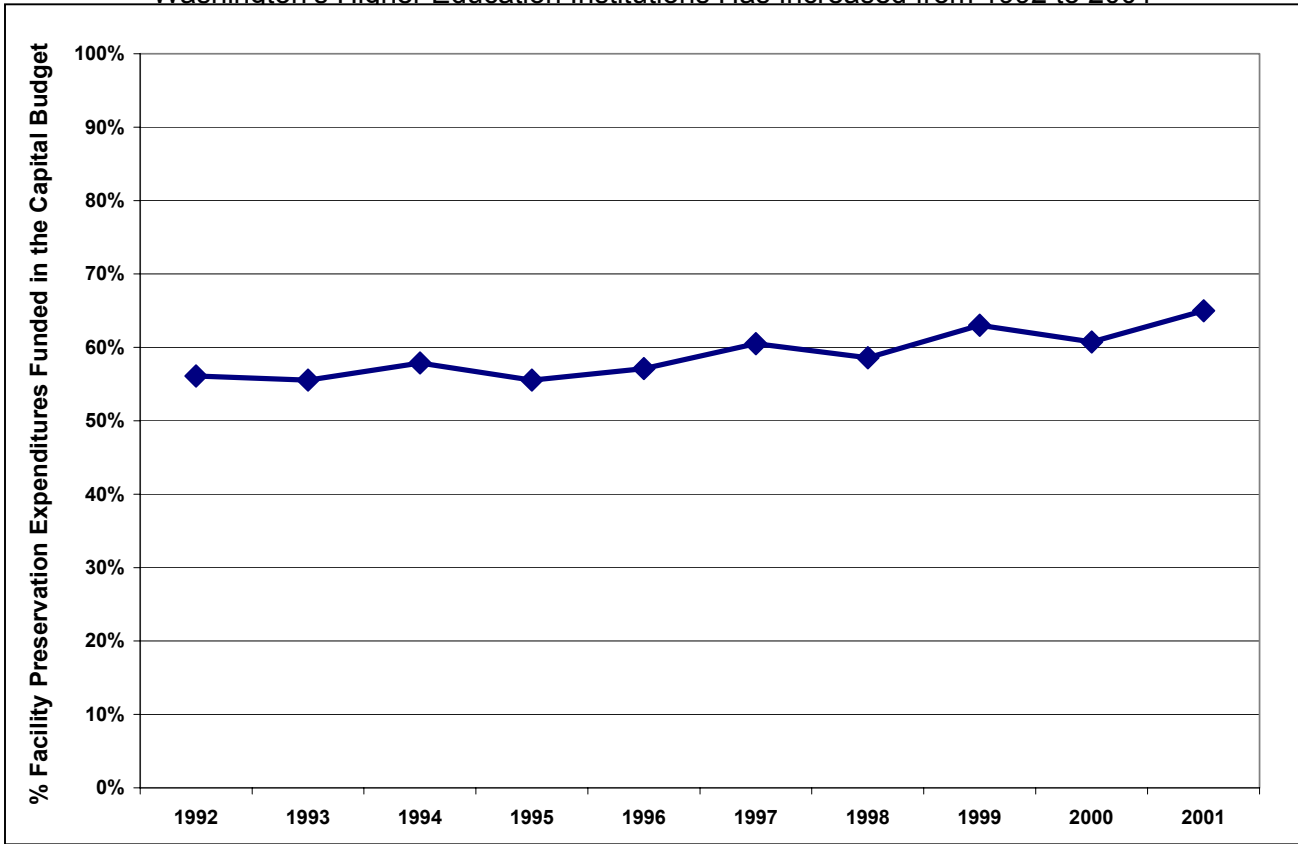
Source: Expenditure and square footage data provided by Higher Ed. Institutions; Inflation data compiled by the Office of the Forecast Council.

Figure 2-5  
Facility Preservation Capital Expenditures per GSF (adjusted for inflation) for Washington's Higher Education Institutions Have **Increased** from 1992 to 2001



Source: Data provided by Higher Ed. Institutions adjusted for inflation based on data maintained by the Office of the Forecast Council.

Figure 2-6  
The Percentage of Facility Preservation Expenditures Funded in the Capital Budget for Washington's Higher Education Institutions Has Increased from 1992 to 2001



Source: Data provided by Higher Education Institutions.

## COMPARISONS OF FACILITY PRESERVATION EXPENDITURES AMONG WASHINGTON'S HIGHER EDUCATION INSTITUTIONS AND WITH NATIONAL BENCHMARKS

The previous analysis illustrated trends for average operating and capital expenditures for facility preservation among Washington institutions. These trends of average expenditures mask wide variations in expenditures among individual higher education institutions. Figure 2-7 on the next page, illustrates how operating and capital expenditures for facilities maintenance compare among Washington's higher education institutions, and with the average of several benchmarks.<sup>3</sup>

### Comparisons of Expenditures Among Washington's Institutions

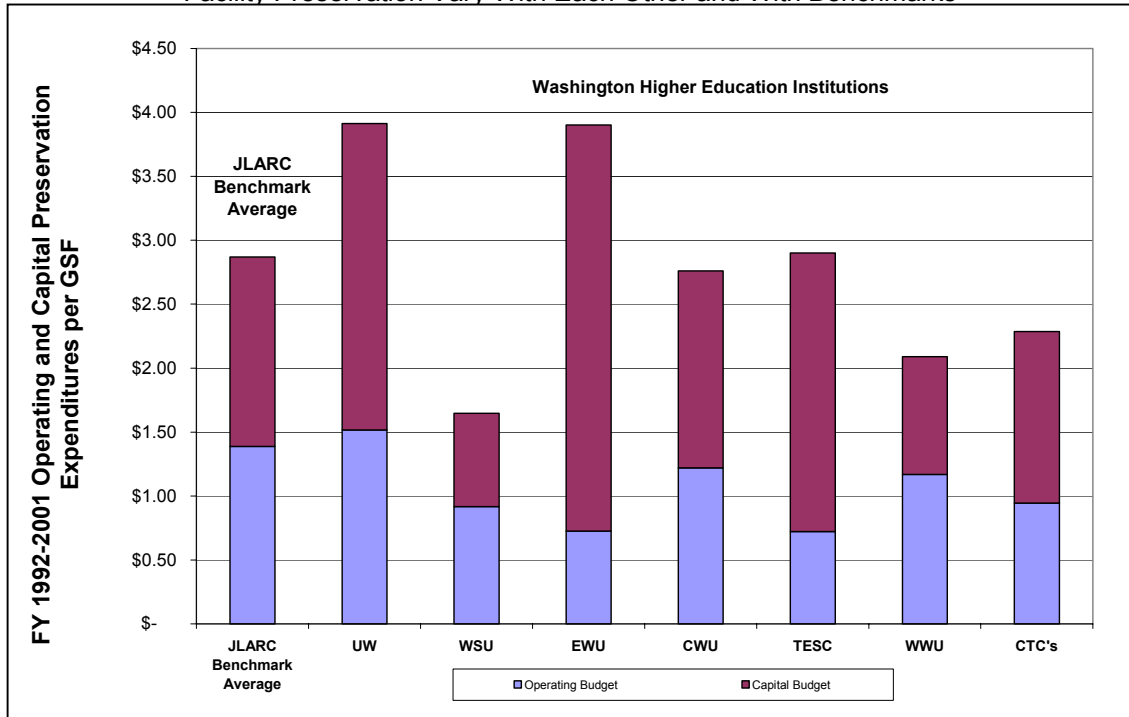
Figure 2-7, shows considerable variation in operating (lower, light portion of the bar) and capital (upper, dark portion of the bar) expenditures for facility preservation among Washington's higher

<sup>3</sup> There are four sources of benchmarks for both operating and capital expenditures that JLARC selected for use in this analysis, after evaluating several potential sources for such benchmarks. These include benchmarks from the Association of Higher Education Facilities Officers (APPA) and the Building Owners' and Managers' Association, among others. More information about these benchmarks, and the process used to select them, is described in Appendix 3.



Figure 2-7

Washington's Higher Education Institutions' Operating and Capital Budget Expenditures for Facility Preservation Vary With Each Other and With Benchmarks



Source: Data on the operating and capital budget facility preservation expenditures of Washington's institutions provided by the institutions.<sup>4</sup>

Figure 2-8

Washington Higher Education Institutions Average FY 1992-2001 Facility Preservation Expenditures Compared to Benchmarks (\$/GSF)

Institution	Operating Budget Facility Preservation Expenditures	Capital Budget Facility Preservation Expenditures	Total Facility Preservation Expenditures
UW	\$1.52	\$2.40	\$3.91
WSU	\$0.92	\$0.73	\$1.65
EWU	\$0.73	\$3.17	\$3.90
CWU	\$1.22	\$1.54	\$2.76
TESC	\$0.72	\$2.18	\$2.90
WWU	\$1.17	\$0.92	\$2.09
CTC's	\$0.95	\$1.34	\$2.29
JLARC Benchmark Average	\$1.39	\$1.48	\$2.87

<sup>4</sup> The numbers for Washington's institutions are the average annual expenditures for the 10-year period from FY 1992 to FY 2001, adjusted for inflation in 2001 dollars, based on data maintained by the Office of the Forecast Council. JLARC Benchmark Average is the average of several sources for operating and capital preservation expenditures, compiled by JLARC, as described in Appendix 3.

education institutions. For example, operating budget expenditures for facility preservation range from \$0.72 per gross square foot at The Evergreen State College to \$1.52 at the University of Washington. Capital budget expenditures for facility preservation range from \$0.73 per gross square foot at Washington State University to \$3.17 at Eastern Washington University.

## Comparisons of Expenditures Between Washington Institutions and National Benchmarks

After evaluating several potential sources for benchmarks for facility preservation spending, JLARC selected four operating expenditure, and four capital expenditure, benchmarks. The average facility preservation expenditures per gross square foot of the operating and capital benchmarks were compared to similar expenditures by Washington's higher education institutions.

Figure 2-7 shows the total *combined operating and capital* facility preservation expenditures at three institutions (UW, EWU, and TESC) exceed the combined average of JLARC's benchmarks. However, only the University of Washington is at or above the average of JLARC's benchmarks for *operating* expenditures for facility preservation. Several institutions (UW, EWU, CSW, TESC, and CTC's) are close to, or exceed, the average of JLARC's benchmarks for *capital* preservation expenditures.

In general, Washington's higher education institutions spend less money from their *operating budgets* for facility preservation than the benchmark average, and more money from their *capital budgets* than the benchmark average. The UW exceeded the average of JLARC's benchmarks for both operating and capital expenditures for facility preservation, while WSU was below both benchmarks.

## Operating Budget Expenditures Are Not Strongly Related to Resource Availability

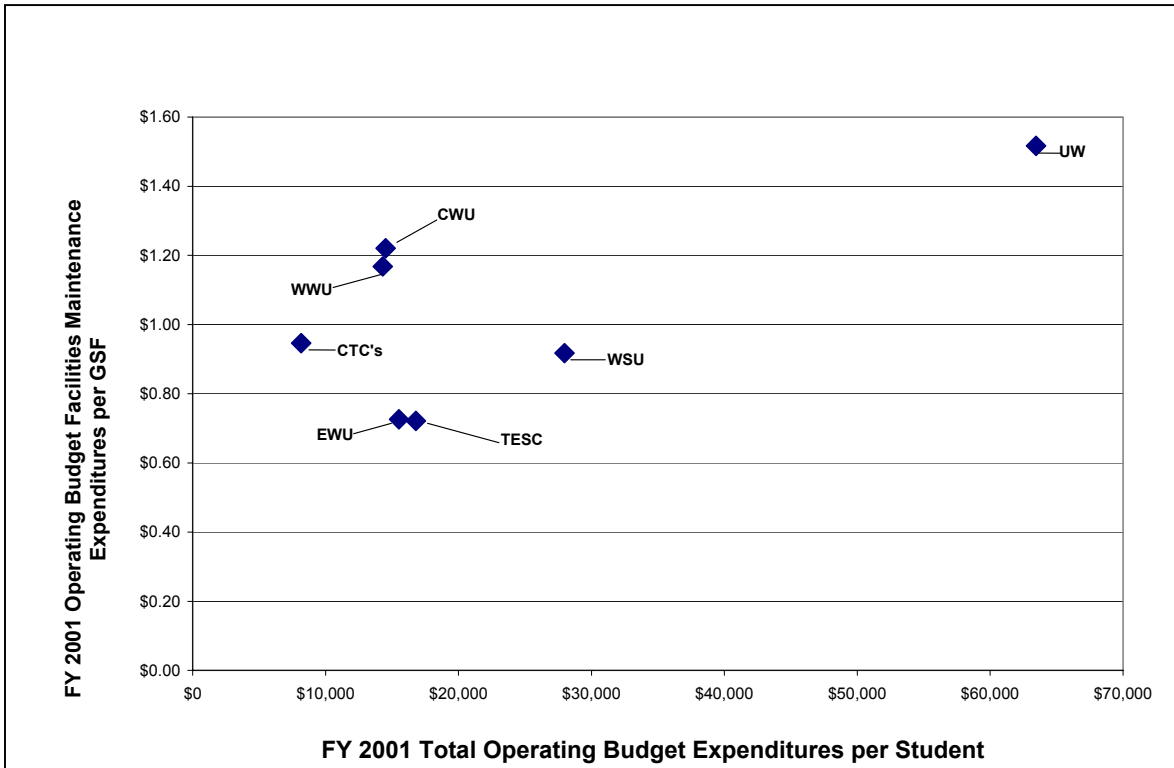
Figure 2-9, on the following page, illustrates that the variation in operating budget expenditures for facility preservation is not strongly related to differences in the availability of resources among the various institutions.

Total operating budget expenditures per student range from \$8,167 per student at the CTC's to \$63,442 per student at the UW,<sup>5</sup> a difference of almost than eight-fold from highest to lowest. Operating budget expenditures for facility preservation range from \$.72 at TESC to \$1.51 at UW, a difference of slightly more than two-fold from highest to lowest. It could be argued that UW has far more resources to spend on facility preservation, and therefore spends the most. However, WSU has over three times the amount of total operating expenditures per student compared to the CTC's, and yet the CTC's spend more for facility preservation per gross square foot. Also, CWU spends almost double the amount of operating funds as EWU per gross square foot for facility preservation, whereas both institutions have almost the same amount of total expenditures per student. Therefore, it appears that with the possible exception of the UW, the amount of available resources is not strongly related to the level of operating budget expenditures per gross square foot for facility preservation.

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<sup>5</sup> The \$63,442 per student calculation per student at UW includes all expenditures, including those of the University Hospital. If hospital expenditures are excluded, total UW operating expenditures per student in FY 2001 were \$51,523.

Figure 2-9  
Operating Budget Facility Preservation Expenditures Are Not Strongly  
Influenced By Total Operating Budget Expenditures per Student



Source: Facility maintenance expenditures per GSF provided by institutions. Total operating budget expenditures are from AFRS. Student FTE's from HECB data.



# CHAPTER 3 – COMPARABLE FRAMEWORK

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JLARC and its consultants have found that it is feasible to collect and assemble existing data produced by higher education institutions and state oversight agencies to produce more accurate and complete inventories of higher education buildings, gauge the relative condition of buildings, and estimate the magnitude of preservation backlogs across institutions on a comparable basis. In addition to producing a wealth of information now, the Comparable Framework has been designed to facilitate future updates.

Currently, little information is available to the Legislature, Governor, Office of Financial Management (OFM), and state Higher Education Coordinating Board (HECB) to gauge the condition of Washington’s public higher education buildings and the magnitude of preservation backlogs on a comparable basis across the state. Preservation information produced and maintained by individual institutions varies in its content and format, and statewide facility information systems maintained by OFM and HECB do not provide the type of information needed for statewide preservation budgeting and policy development. In directing this JLARC study, the Legislature expressed a need for more complete preservation information that is comparable across institutions.

JLARC’s study approach is designed to maximize the utility of existing institutional preservation information, rather than assuming that the existing information needed to be supplanted by a new statewide methodology or system. This study approach makes best use of the funding resources the Legislature provided to JLARC for the study.<sup>6</sup>

JLARC, with its consultants, developed a “**Comparable Framework**” for translating and cross-walking information produced and maintained by Washington’s public higher education institutions, OFM, HECB, and the SBCTC into a data framework that can be used to understand and budget for the preservation of higher education buildings.

## Comparable Framework Data Includes:

- Inventory Information: Number of campuses/sites; number of buildings; sizes of buildings; uses of buildings; ages of buildings; building construction types; and funding sources used for major capital projects.
- Condition Information: The condition of public higher education buildings, scored in a range from 1 (superior) to 5 (needs improvement – marginal functionality), and calibrated to a common standard in order to facilitate comparability across institutions.
- Cost Information: Estimates of the replacement value of buildings, and estimates of preservation backlogs (maintenance, repair, and system replacement projects to safely preserve buildings for their current use that have not been accomplished).

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<sup>6</sup> JLARC was provided \$500,000 in the 2001-03 Capital Budget for this study. This compares to the \$1.5 million requested by the HECB in 2001-03 to conduct a one-time uniform condition assessment of higher education buildings.

Key steps JLARC followed in developing the Comparable Framework include:

- Gathering and analyzing available data from OFM, HECB, and SBCTC.
- Developing methods to translate and calibrate institutions' existing information to a comparable standard. Translation and calibration techniques unique to each institution have been developed and have largely been automated to make future updates possible.
- Verifying institution data on a sample basis through field surveys. Sixty-six buildings were examined at campuses throughout the state.
- Organizing all data from OFM, HECB, SBCTC, and institutions in a relational database to allow analysis on a comparable basis across institutions and facilitate updates.

## **INSTITUTIONS HAVE MADE SIGNIFICANT CONTRIBUTIONS TO THE COMPARABLE FRAMEWORK**

The Comparable Framework was developed in close consultation with higher education institutions, OFM, HECB, and SBCTC through a series of workshops designed to define the major elements of the framework and develop procedures for collecting and translating data.<sup>7</sup> In addition to participating in the workshops and contributing their data, institutions completed a comprehensive survey about the content and format of their preservation information, participated in and helped facilitate the field surveys, and answered many questions from JLARC and its consultants on an ad-hoc basis. Also, to supplement their existing preservation information, both Central Washington University and The Evergreen State College independently applied the condition assessment methodology used in JLARC's field surveys to their entire stock of buildings. This large effort significantly expanded the data available from these two institutions for this study, and will lay the groundwork for future updates.

## **LIMITATIONS OF THE COMPARABLE FRAMEWORK**

- The Comparable Framework is focused on building preservation. It is not designed or intended to cover program-driven capital projects or costs, which are often significant elements of institutional capital plans and budget requests.
- The Comparable Framework relies on institutions' own data. It was not possible within the time and resources available to JLARC to thoroughly verify each piece of data. However, JLARC's field surveys and statistical analyses confirm that the data is sufficiently reliable for initial statewide comparisons.
- The cost information included in the Comparable Framework is intended to provide a relative measure of building values and preservation backlogs. It cannot be used to estimate individual project costs, but can be used to inform institution and statewide budgeting and policy development.
- Because institutions currently maintain little information about campus infrastructure systems (e.g., roads, utilities, and site improvements) that can be assembled on a statewide basis, the Comparable Framework does not currently contain preservation information in this area. OFM and institutions alike have expressed interest in filling this gap in any future updates.

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<sup>7</sup> The membership of the Technical Advisory Group participating in these workshops is listed in Appendix 4.

- At this time, the comparable framework does not quantify health and safety related preservation backlogs. Most institutions have not developed data specifically focused on the health and safety impacts of backlogs. Institutions indicate that, for the most part, health and safety problems are immediately addressed due to liability concerns.

## NEXT STEPS

This Interim Report contains initial summaries of Comparable Framework data. Institutions have been afforded an opportunity to review and verify the data used to prepare these summaries. Further review will take place prior to the release of the full study report in December. The December report will also contain information about and evaluations of major building renovation projects being proposed for the 2003-05 Capital Budget, as well as detailed recommendations for updating Comparable Framework information in the future.

## INITIAL SUMMARIES OF COMPARABLE FRAMEWORK DATA

The remaining pages of this chapter contain initial summaries of the data that has been assembled into the Comparable Framework to date. The summaries are intended to provide a “big picture” view of Washington’s public higher education buildings across all institutions, as well as examples of the types of analysis possible using the Comparable Framework database.

## KEY HIGHLIGHTS FROM THE SUMMARIES

### Number and Overall Size of Higher Education Buildings

- The overall inventory of publicly owned higher education buildings covers 52 million gross square feet<sup>8</sup> within 2,463 buildings at 133 sites. (See Summary 1, pg. 18.)

### Capital Funding Sources

- Institutions rely on State Capital Budget funding support for over three-fourths of their buildings. (See Summary 2, pg. 19.)

### Age and Uses of Buildings

- The average age of state capital supported buildings is 36 years. (See Summary 5, pg. 22.)
- Teaching and studying is the predominant use of over half of all state capital supported buildings. (See Summary 6, pg. 23.)

### Building Replacement Values

- The estimated replacement value of all state capital supported buildings is \$11.5 billion. (See Summary 8, page 25.)

### Building Conditions and Preservation Backlogs

- About 53 percent of state capital supported buildings are in superior or adequate condition, 37 percent in fair condition, and 10 percent needing improvement. (See Summaries 9, 10, 11, pgs. 26-28.)
- The estimated preservation backlogs for all buildings is \$1.3 billion. (See Summary 13, pg. 30.)
- The estimated preservation backlog for buildings in the worst condition is \$430 million. (See Summary # 14, pg. 31.)

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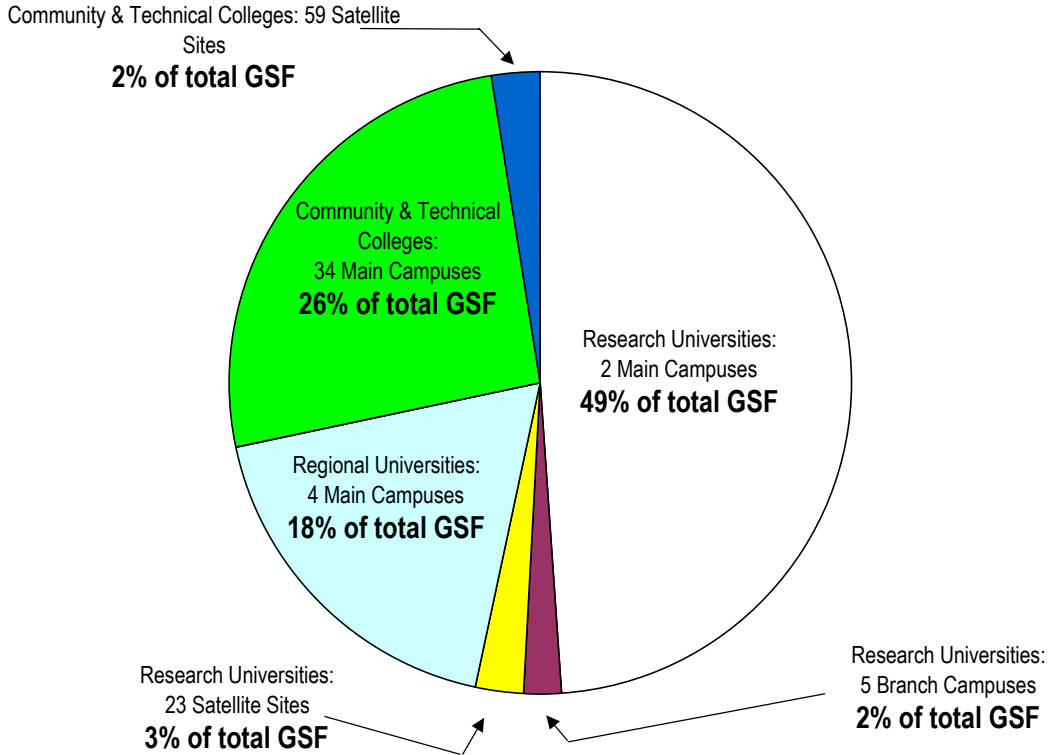
<sup>8</sup>This is nine million square feet greater than totals in previous published data.

## DISTRIBUTION OF ALL PUBLICLY OWNED BUILDINGS ACROSS WASHINGTON'S PUBLIC HIGHER EDUCATION INSTITUTIONS

**52 million gross square feet (GSF): 2,463 buildings at 133 sites**

- \* *Just over one-half of all owned space is controlled by Research Universities.*
- \* *Just over one-quarter of all owned space is controlled by Community and Technical Colleges.*
- \* *About one-fifth of all owned space is controlled by Regional Universities.*
- \* *About 94% of all owned space is located at the 40 main campuses (2 research, 4 regional, 34 comm./tech. colleges).*

### Research Universities Control Half of All Higher Education Space



BY SITE TYPE				
	GSF	% of Total GSF	# Sites	# Buildings
Research Universities - Main Campuses	25,589,573	49.0%	2	709
Research Universities - Branch Campuses *	973,443	1.9%	5	36
Research Universities - Satellite Sites	1,340,533	2.6%	23	447
Regional Universities - Main Campuses	9,451,781	18.1%	4	326
Regional Universities - Satellite Sites	70,151	0.1%	6	13
Comm./Tech. Colleges - Main Campuses	13,509,473	25.9%	34	810
Comm./Tech. Colleges - Satellite Sites	1,271,363	2.4%	59	122
<b>TOTALS</b>	<b>52,206,317</b>	<b>100.0%</b>	<b>133</b>	<b>2,463</b>

BY INSTITUTION TYPE				
	GSF	% of Total	# Sites	# Buildings
Research Universities *	27,903,549	53.4%	30	1,192
Regional Universities	9,521,932	18.2%	10	339
Comm./Tech. Colleges	14,780,836	28.3%	93	932
<b>TOTALS</b>	<b>52,206,317</b>	<b>28.3%</b>	<b>133</b>	<b>2,463</b>

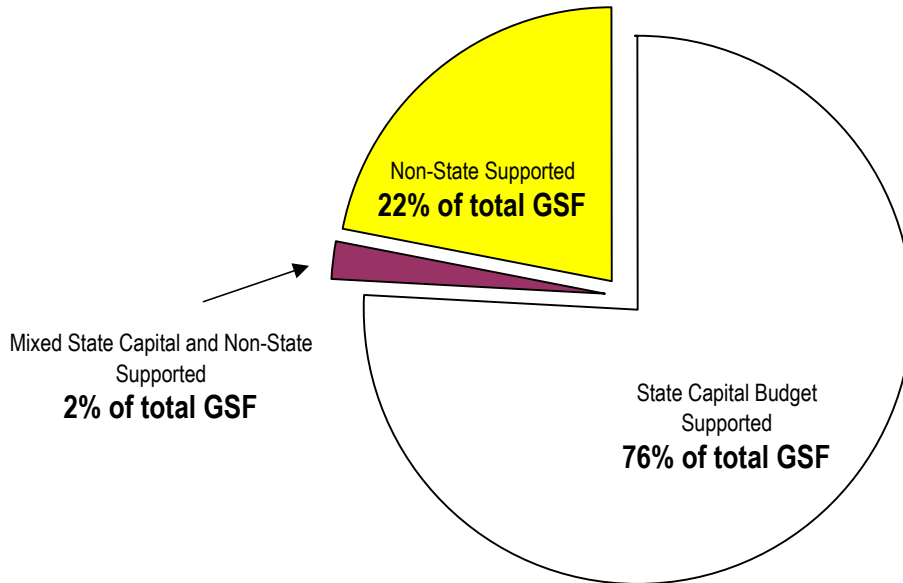
\* Includes the SIRT building adjacent to the WSU Branch Campus in Spokane.



**FUNDING SOURCES USED FOR MAJOR HIGHER EDUCATION CAPITAL PROJECTS**

- \* *Institutions rely on State Capital Budget funding support for over three-quarters of their buildings (by gross square feet).*
- \* *For remaining buildings, institutions rely on capital funds from non-state sources (e.g., dormitory and student services fees).*

**Over three-fourths of Higher Education Buildings Receive Support from the State Capital Budget**

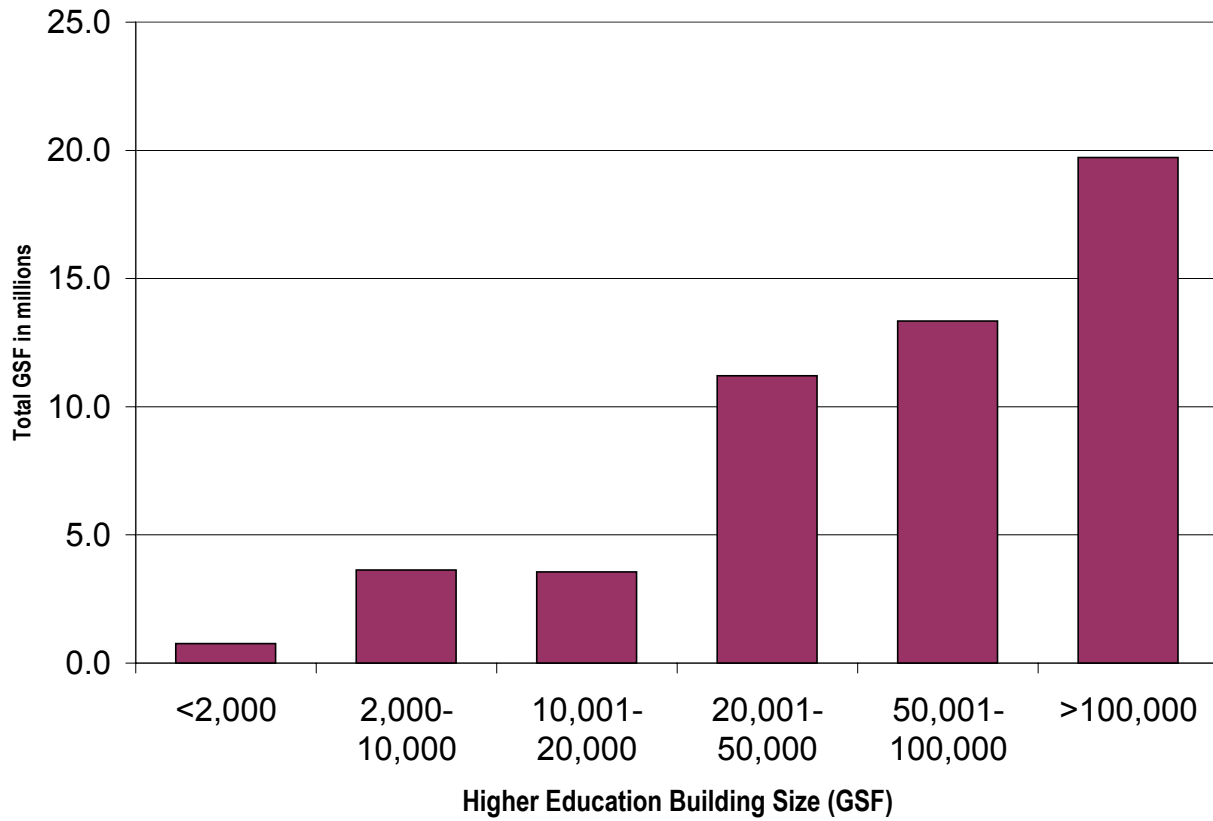


INSTITUTION	STATE CAPITAL BUDGET SUPPORTED FACILITIES		MIXED SUPPORTED FACILITIES		NON-STATE SUPPORTED FACILITIES	
	# of Facilities	GSF	# of Facilities	GSF	# of Facilities	GSF
University of Washington	268	11,058,515	1	32,098	71	5,314,695
Washington State University	646	7,960,244	25	652,016	181	2,826,659
Eastern Washington University	56	1,625,368	3	198,368	13	596,132
Central Washington University	53	1,631,998	2	126,903	36	1,087,476
The Evergreen State College	32	1,106,230	-	-	40	272,583
Spokane Intercollegiate Research & Technology Institute	1	59,322	-	-	-	-
Western Washington University	64	1,769,668	1	15,396	38	1,091,810
Community & Technical Colleges	922	14,336,127	6	188,352	4	256,357
<b>TOTALS</b>	<b>2,042</b>	<b>39,547,472</b>	<b>38</b>	<b>1,213,133</b>	<b>383</b>	<b>11,445,712</b>

**HIGHER EDUCATION BUILDING SIZES**

- \* The average building size across all institutions is 21,196 gross square feet (GSF).
- \* Most buildings are less than 20,000 GSF, yet together these smaller buildings comprise only 15% of all higher education space.
- \* Though there are fewer large buildings, these buildings contain the vast majority (85%) of higher education space.

**Most Public Higher Education Space is in Large Buildings**

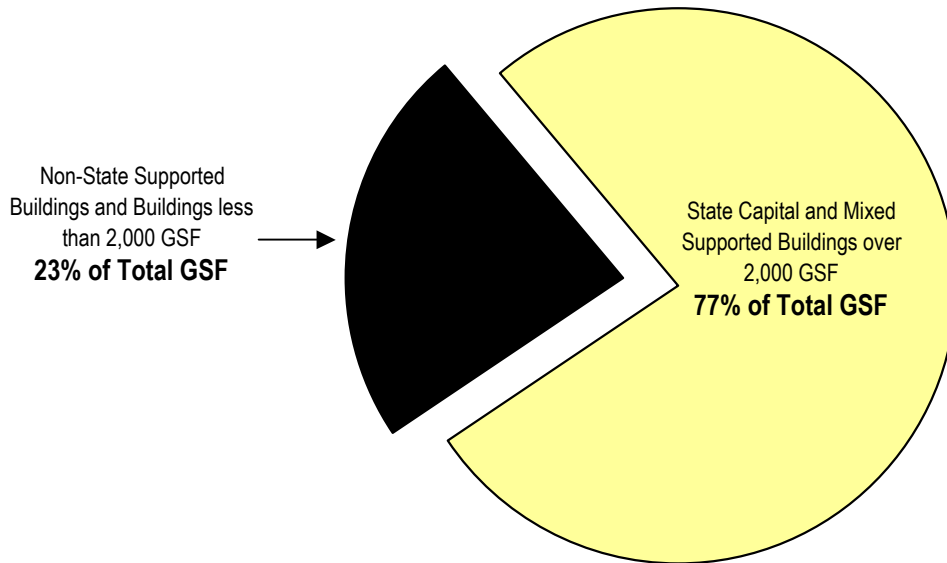


BUILDING SIZE (in GSF)	TOTAL GSF	% of Total GSF	# OF BUILDINGS	AVERAGE GSF PER BUILDING
<2,000	755,770	1.4%	845	894
2,000-10,000	3,626,016	6.9%	716	5,064
10,001-20,000	3,561,566	6.8%	248	14,361
20,001-50,000	11,202,296	21.5%	347	32,283
50,001-100,000	13,339,551	25.6%	190	70,208
>100,000	19,721,118	37.8%	117	168,557
<b>TOTAL</b>	<b>52,206,317</b>	<b>100.0%</b>	<b>2,463</b>	<b>21,196</b>

**JLARC STUDY FOCUSED ON STATE AND MIXED SUPPORTED BUILDINGS OVER 2,000 GSF**

- \* JLARC focused its detailed data collection and translation activities on buildings over 2,000 GSF that rely entirely or partly on state capital budget support.
- \* These 1,343 buildings cover 40.1 million GSF, or roughly 77% of the entire inventory.

**JLARC Study Focused on 77% of Higher Education Space**

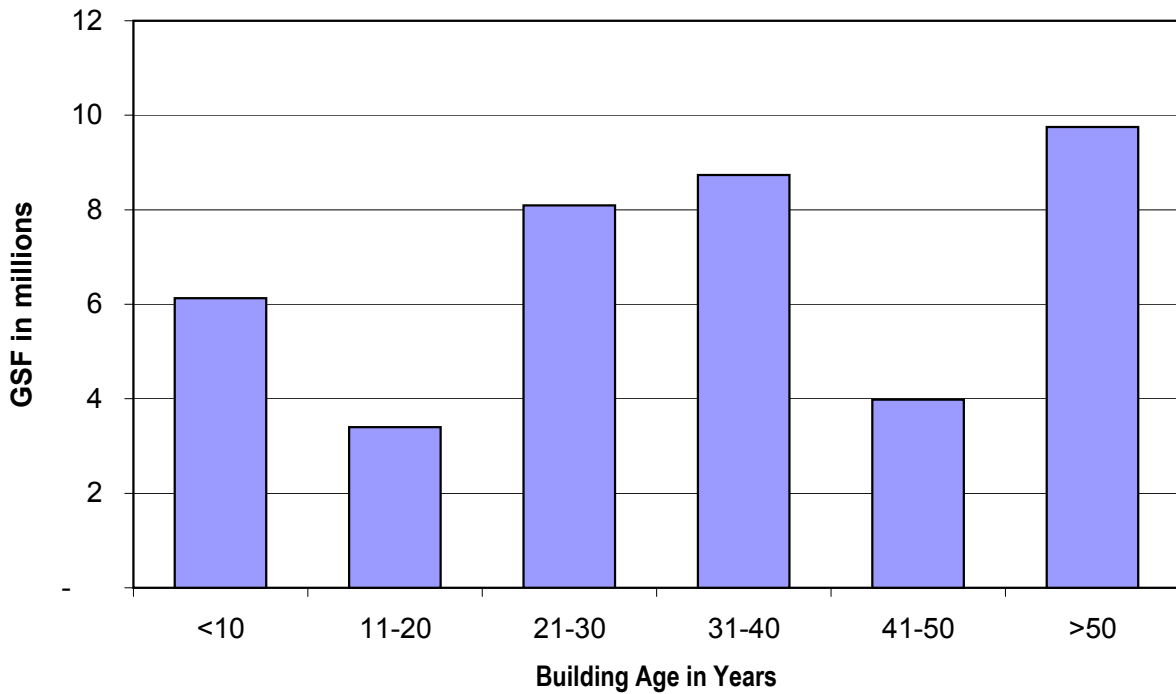


INSTITUTION	TOTAL OWNED BUILDINGS		FOCUS OF JLARC'S DATA COLLECTION & TRANSLATION		
	# of Buildings	GSF	# of Buildings	GSF	% of Total GSF
UW	340	16,405,308	198	11,030,795	67%
WSU	852	11,438,919	320	8,336,317	73%
EWU	72	2,419,868	43	1,807,503	75%
CWU	91	2,846,377	46	1,752,327	62%
TESC	72	1,378,813	20	1,097,288	80%
SIRTI	1	59,322	1	59,322	100%
WWU	103	2,876,874	41	1,759,742	61%
CCTCs	932	14,780,836	674	14,253,591	96%
<b>TOTAL</b>	<b>2,463</b>	<b>52,206,317</b>	<b>1,343</b>	<b>40,096,885</b>	<b>77%</b>

**AGES OF PUBLIC HIGHER EDUCATION BUILDINGS**  
(State and Mixed Supported Buildings Over 2,000 GSF)

- \* Over one-half of all buildings are over 30 years old.
- \* The average age of all buildings is 36 years (weighted by GSF).
- \* On average, WWU, UW, and EWU have the oldest buildings.
- \* Most institutions were not able to report the year their buildings were last renovated.

**Most Buildings are Over 30 Years Old**



AGE OF BUILDINGS BY AGE CLASS				
AGE IN YEARS	# OF BUILDINGS	% OF BUILDINGS	GSF	% OF GSF
<10	177	13%	6,130,926	15%
11-20	178	13%	3,398,555	8%
21-30	229	17%	8,095,682	20%
31-40	307	23%	8,735,457	22%
41-50	177	13%	3,983,891	10%
>50	275	20%	9,752,374	24%
<b>TOTAL</b>	<b>1,343</b>	<b>100%</b>	<b>40,096,885</b>	<b>100%</b>

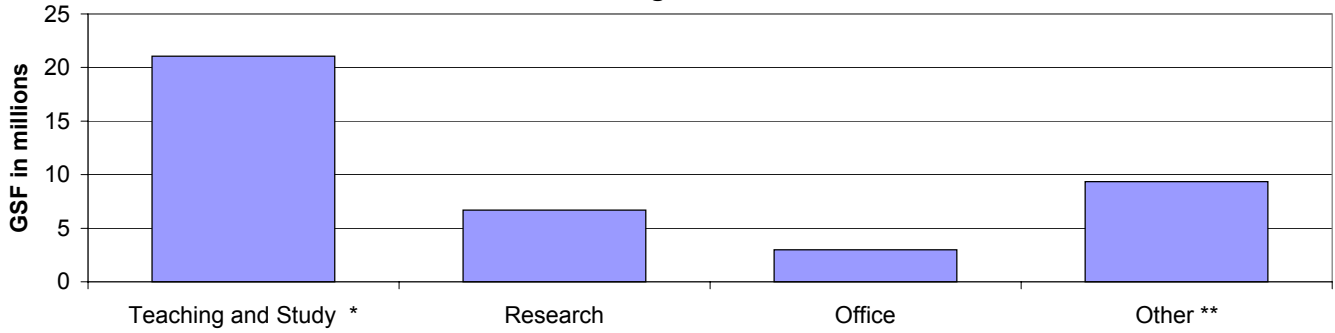
AVERAGE AGE OF BUILDINGS BY INSTITUTION	
INSTITUTION	AVERAGE AGE (weighted by GSF)
UW	43
WSU	37
EWU	42
CWU	34
TESC	29
SIRTI	7
WWU	47
CCTCs	29
<b>ALL INSTITUTIONS</b>	<b>36</b>

## USE OF PUBLIC HIGHER EDUCATION BUILDINGS

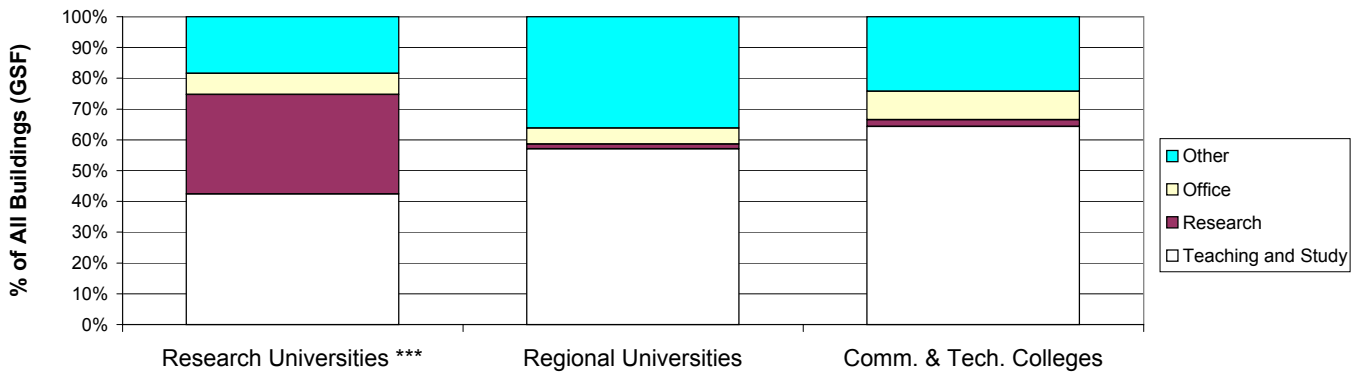
(State and Mixed Supported Buildings Over 2,000 GSF)

- \* Buildings were grouped into four major use categories designed to reflect the building's predominant function and major repair and replacement cost drivers.
- \* Buildings used for teaching and studying represent over one-half of higher education space across all institutions.
- \* UW and WSU have proportionally more research space, and less teaching and study space, than do regional universities and community & technical colleges.

### Predominant Building Uses - All Institutions



### Predominant Building Uses By Institution Type



INSTITUTION	AMOUNT OF SPACE BY PREDOMINANT BUILDING USE CATEGORY (GSF)									
	Teaching and Study*		Research		Office		Other **		Total	
	GSF	% of Total Institution Space	GSF	% of Total Institution Space	GSF	% of Total Institution Space	GSF	% of Total Institution Space	GSF	% of Total Institution Space
UW	3,814,321	35%	5,188,115	47%	1,099,578	10%	928,781	8%	11,030,795	100%
WSU	4,418,050	53%	1,029,440	12%	237,451	3%	2,651,376	32%	8,336,317	100%
EWU	897,664	50%	5,008	0%	88,408	5%	816,423	45%	1,807,503	100%
CWU	1,020,662	58%	90,509	5%	205,691	12%	435,465	25%	1,752,327	100%
TESC	406,539	37%	-	0%	-	0%	690,749	63%	1,097,288	100%
SIRTI	-	0%	59,322	100%	-	0%	-	0%	59,322	100%
WWU	1,339,571	76%	-	0%	39,953	2%	380,218	22%	1,759,742	100%
CCTCs	9,174,171	64%	303,471	2%	1,326,270	9%	3,449,679	24%	14,253,591	100%
ALL INSTITUTIONS	21,070,978	53%	6,675,865	17%	2,997,351	7%	9,352,691	23%	40,096,885	100%

\* Includes Teaching Lab Buildings, General Classroom Buildings, and Study Buildings (e.g., libraries).

\*\* Includes Operational Support Buildings, Athletic Buildings, Multipurpose Buildings, Student Services Buildings, Performing Arts Buildings, Residential Buildings, Greenhouses, Stadiums, and Unclassified Buildings.

\*\*\* Includes Spokane Intercollegiate Research and Technology Institute (SIRTI).

## HIGHER EDUCATION BUILDING CONSTRUCTION TYPES

(State and Mixed Supported Buildings Over 2,000 GSF)

\* Buildings were classified into 4 "Construction Type" classes according to the structural systems that influence overall construction cost:

"Heavy" = cast in place concrete

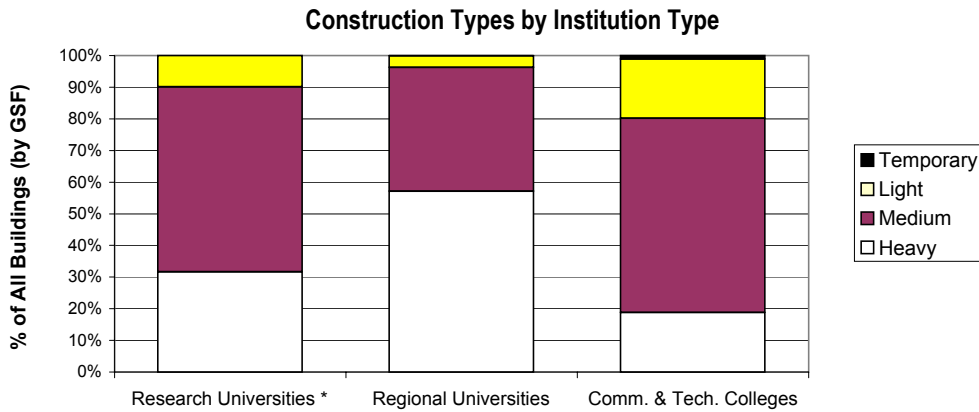
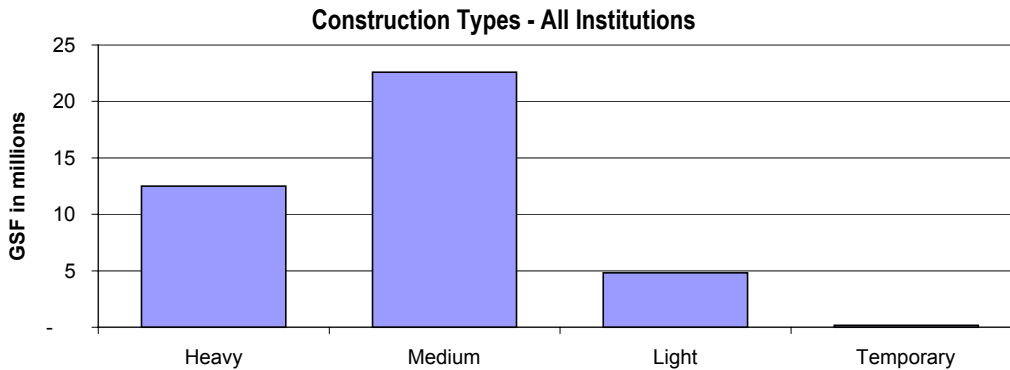
"Medium" = masonry, protected steel, tilt-up, or heavy timber

"Light" = stick frame or prefabricated steel

"Temporary" = portables, modular buildings

\* The vast majority (88%) of all buildings are of "Heavy" or "Medium" construction.

\* Community and technical colleges have proportionally more buildings of "Light" and "Temporary" construction than do other institutions.



\*Includes Spokane Intercollegiate Research and Technology Institute (SIRTI).

INSTITUTION	AMOUNT OF SPACE BY CONSTRUCTION TYPE (GSF)				
	Heavy	Medium	Light	Temporary	Total
UW	5,563,262	4,589,140	878,393	-	11,030,795
WSU	587,413	6,707,400	1,041,504	-	8,336,317
EWU	1,076,674	683,489	47,340	-	1,807,503
CWU	992,219	657,836	96,728	5,544	1,752,327
TESC	1,030,819	28,357	38,112	-	1,097,288
SIRTI	-	59,322	-	-	59,322
WWU	567,400	1,140,338	52,004	-	1,759,742
CCTCs	2,686,816	8,735,388	2,673,452	157,935	14,253,591
TOTAL	12,504,603	22,601,270	4,827,533	163,479	40,096,885

**CURRENT REPLACEMENT VALUE (CRV)**

(State and Mixed Supported Buildings Over 2,000 GSF)

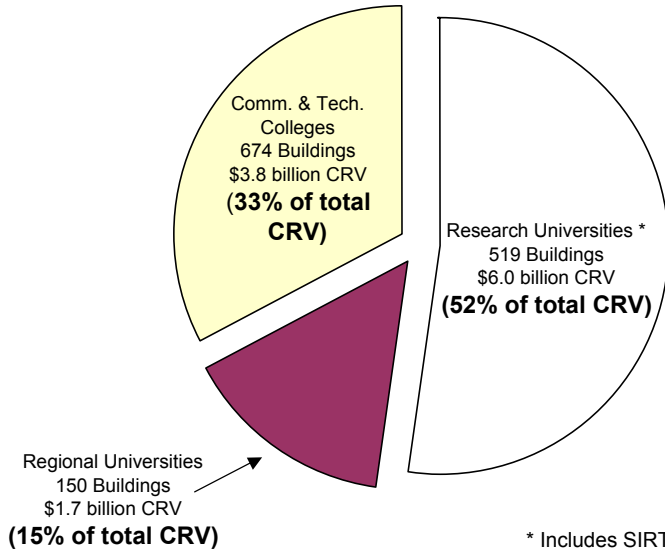
*Current replacement value (CRV) is the estimated cost to replace buildings at current prices, with \* equivalent function and utility, using modern materials in compliance with current codes and regulations.*

*CRVs were calculated by JLARC for each higher education building based on: size, use, \* construction type, quality of finishings & equipment, and geographic location. CRV calculations were based on actual building cost data available in both local and national cost databases.*

Current Replacement Value (CRV) is calculated as follows:  
 CRV = Building Size x Building Use Factor x Construction Type Factor x Quality of Finishings & Equipment Factor x Geographic Location Factor

*JLARC's estimated replacement value of all higher education buildings is \$11.5 billion, with \* roughly 1/2 of this amount at the research universities, 1/3 at the community colleges, and 1/6 at the regional universities.*

**Over One-Half of the Current Replacement Value of Public Higher Education Buildings is at the Research Universities**



STATE & MIXED SUPPORTED BUILDINGS >=2000 GSF				
INSTITUTION	# of Facilities	GSF	CRV	Average CRV/GSF
UW	198	11,030,795	\$ 3,654,061,058	\$ 331
WSU	320	8,336,317	\$ 2,334,529,813	\$ 280
EWU	43	1,807,503	\$ 470,783,181	\$ 260
CWU	46	1,752,327	\$ 459,981,937	\$ 262
TESC	20	1,097,288	\$ 307,176,335	\$ 280
SIRTI	1	59,322	\$ 21,012,860	\$ 354
WWU	41	1,759,742	\$ 479,342,563	\$ 272
CCTCs	674	14,253,591	\$ 3,764,349,818	\$ 264
TOTAL	1,343	40,096,885	\$ 11,491,237,563	\$ 287

**OVERALL CONDITION OF HIGHER EDUCATION BUILDINGS**

(State and Mixed Supported Buildings Over 2,000 GSF)

*JLARC developed methods to cross-walk and translate building condition information created and maintained by each institution into a "common denominator" scoring system. Scores were field-tested to ensure accuracy and comparability across institutions.*

*The "common denominator" scoring system uses 5 condition classes that describe the overall condition and functionality of major building systems (e.g. foundations, building structures, roofs, interior construction and finishes, HVAC systems, electrical systems, plumbing, etc.).*

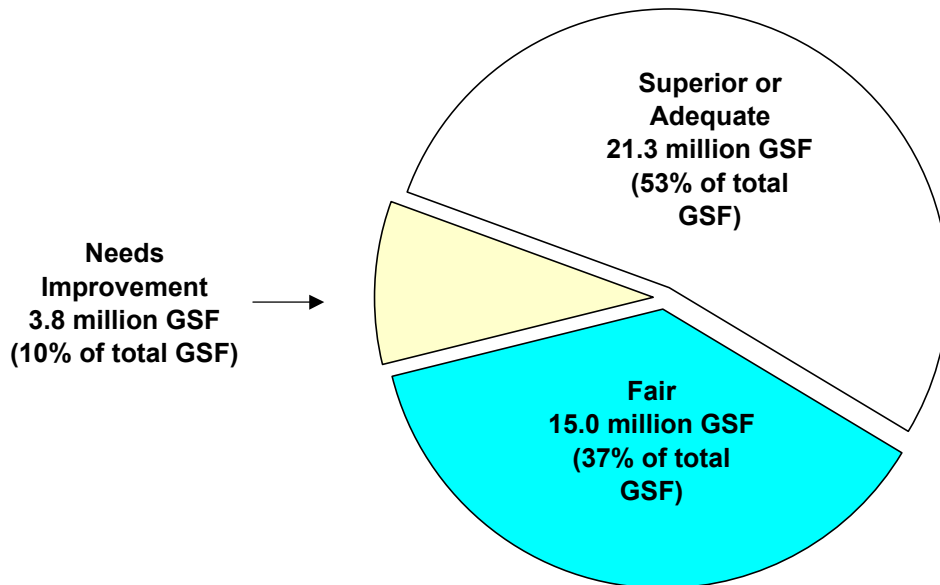
Condition Score	Condition Class	Description
1	Superior	A building with major systems that are in extremely good condition and functioning well.
2	Adequate	A building with major systems in good condition, functioning adequately, and within their expected life cycles.
3	Fair	A building with some older major systems that, though still functional, are approaching the end of their expected life cycles.
4	Needs Improvement: Limited Functionality	A building with some major systems that are in poor condition, exceed expected life cycles, and require immediate attention to prevent or mitigate impacts on function.
5	Needs Improvement: Marginal Functionality	A building with some major systems that are failing and significantly restrict continued use of the building.

**53% of higher education space is in superior or adequate condition, with condition scores of 1 or 2.**

**37% of higher education space is in fair condition, with a condition score of 3.**

**10% of higher education space needs improvement, with condition scores of 4 or 5.**

**The Majority of Higher Education Space is in Superior or Adequate Condition**

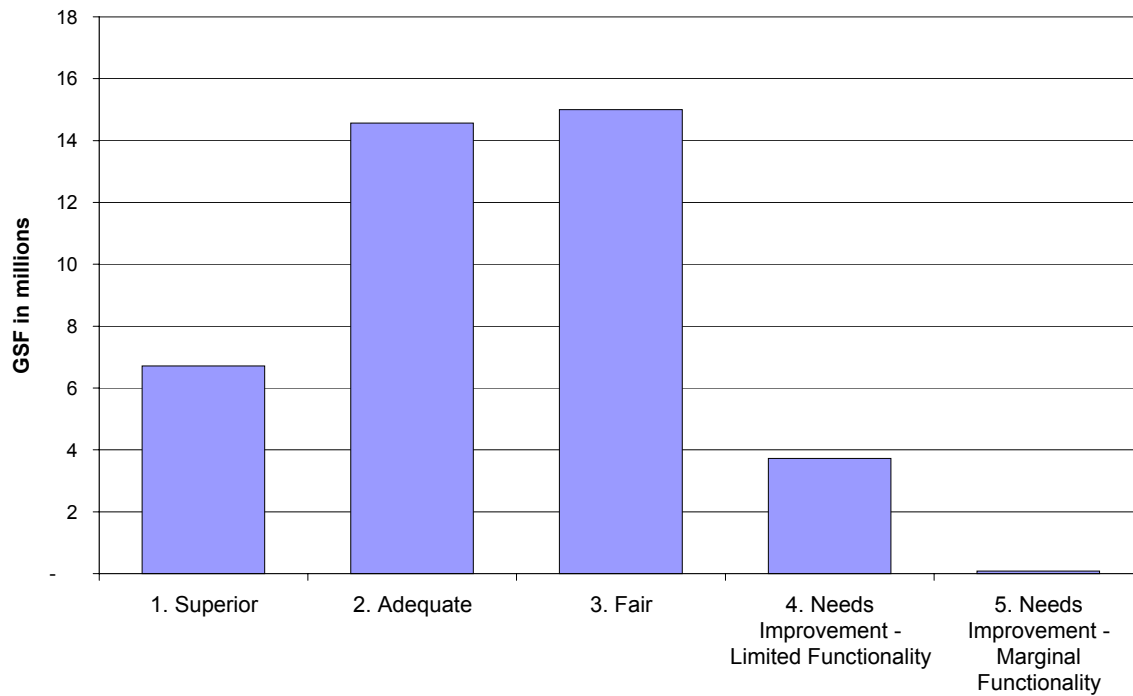




**OVERALL CONDITION OF PUBLIC HIGHER EDUCATION BUILDINGS (continued)**  
 (State and Mixed Supported Buildings Over 2,000 GSF)

- \* *The average condition score of all higher education buildings, weighted by GSF, is 2.4 (roughly half way between "adequate" and "fair").*
- \* *About 21.3 million GSF (53%) of higher education space falls in condition classes 1 or 2, and is in superior or adequate condition.*
- \* *About 15 million GSF (37%) of higher education space falls in condition class 3, and is in fair condition.*
- \* *About 3.8 million GSF (10%) of higher education space falls in condition classes 4 or 5, needing improvement.*

**About 10% of Higher Education Buildings Need Improvement**

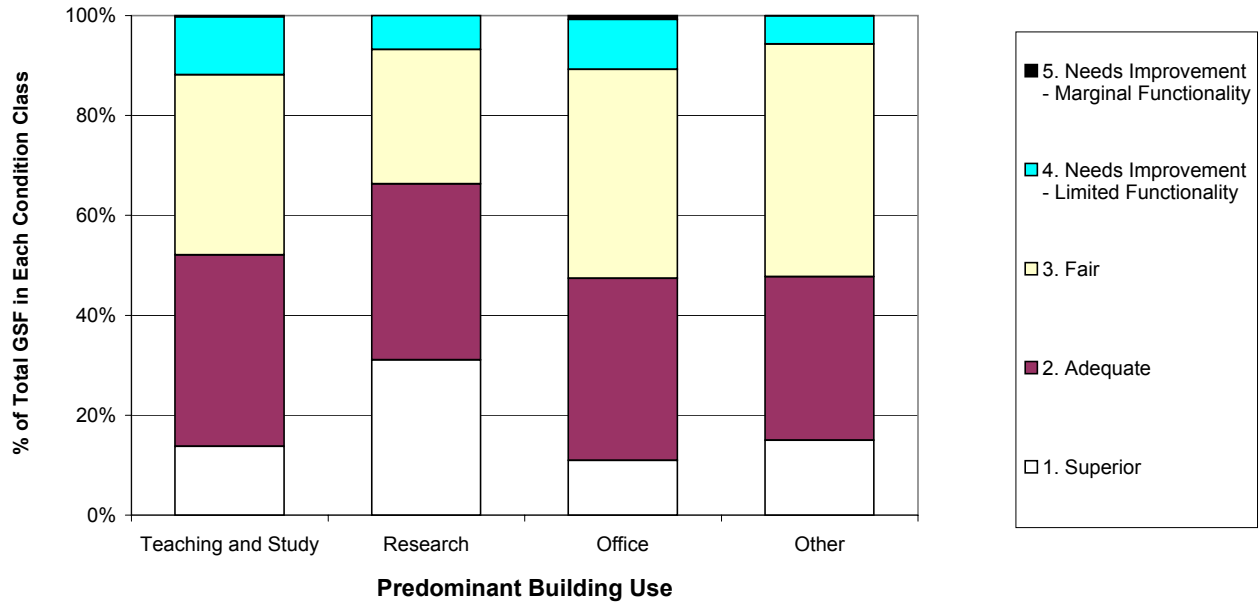


AVERAGE CONDITION SCORE - ALL INSTITUTIONS	AMOUNT OF SPACE IN EACH CONDITION CLASS - ALL INSTITUTIONS										
	1. SUPERIOR		2. ADEQUATE		3. FAIR		4. NEEDS IMPROVEMENT - LIMITED FUNCTIONALITY		5. NEEDS IMPROVEMENT - MARGINAL FUNCTIONALITY		TOTAL
	GSF	% of Total (GSF)	GSF	% of Total (GSF)	GSF	% of Total (GSF)	GSF	% of Total (GSF)	GSF	% of Total (GSF)	GSF
2.40	6,713,491	16.7%	14,570,492	36.3%	15,004,206	37.4%	3,723,678	9.3%	85,018	0.2%	40,096,885

## CONDITION OF PUBLIC HIGHER EDUCATION BUILDINGS BY BUILDING USE (State and Mixed Supported Buildings Over 2,000 GSF)

- \* One-half of teaching and study buildings are in superior or adequate condition.
- \* Two-thirds of research buildings are in superior or adequate condition.
- \* Of all space in condition classes 4 & 5, 66% is in teaching and study buildings, and 12% in research buildings.

### Research Buildings Are in the Best Overall Condition



PREDOMINANT BUILDING USE	Average Condition Score	AMOUNT OF SPACE IN EACH CONDITION CLASS										
		1. SUPERIOR		2. ADEQUATE		3. FAIR		4. NEEDS IMPROVEMENT - LIMITED FUNCTIONALITY		5. NEEDS IMPROVEMENT - MARGINAL FUNCTIONALITY		TOTAL
		GSF	% of Total (GSF)	GSF	% of Total (GSF)	GSF	% of Total (GSF)	GSF	% of Total (GSF)	GSF	% of Total (GSF)	GSF
Teaching and Study	2.46	2,906,006	13.8%	8,068,076	38.3%	7,599,092	36.1%	2,444,930	11.6%	52,874	0.3%	21,070,978
Research	2.09	2,074,353	31.1%	2,352,803	35.2%	1,795,321	26.9%	453,388	6.8%	-	0.0%	6,675,865
Office	2.53	328,933	11.0%	1,091,910	36.4%	1,252,966	41.8%	300,322	10.0%	23,220	0.8%	2,997,351
Other	2.43	1,404,199	15.0%	3,057,703	32.7%	4,356,827	46.6%	525,038	5.6%	8,924	0.1%	9,352,691
<b>TOTAL</b>	<b>2.40</b>	<b>6,713,491</b>	<b>16.7%</b>	<b>14,570,492</b>	<b>36.3%</b>	<b>15,004,206</b>	<b>37.4%</b>	<b>3,723,678</b>	<b>9.3%</b>	<b>85,018</b>	<b>0.2%</b>	<b>40,096,885</b>

**PRESERVATION BACKLOGS IN PUBLIC HIGHER EDUCATION BUILDINGS**

(State and Mixed Supported Buildings Over 2,000 GSF)

- \* **Preservation backlogs are estimated costs of building maintenance, repair, and system replacement projects to safely preserve buildings and their systems for current use that have not been accomplished.**
- \* **Preservation backlogs include : deferred maintenance projects, cyclical repair and replacement projects on building systems that will have exceeded their useful life at the beginning of the 2003-05 biennium, and mandatory code upgrades**
- \* **Preservation backlogs do not include : program upgrades or renewal, non-mandatory code upgrades (e.g. ADA, energy code, major seismic upgrades), and building renovations.**
- \* **To produce comparable preservation backlog estimates for all of Washington's public higher education institutions, JLARC modified a backlog estimating tool used by National Aeronautics and Space Administration (NASA.) This tool is designed to produce backlog estimates at the institutional level. It cannot be used to calculate costs for individual preservation projects. However, it provides a relative measure of estimated preservation backlogs across institutions that can be used for overall budgeting, monitoring, and accountability purposes.**
- \* **The backlog estimating tool assigns a "preservation backlog" factor called the "Facility Cost Index" (FCI) to each building based on its condition score. This factor is then multiplied by the building's current replacement value (CRV) , producing a preservation backlog estimate for that building. These amounts are totaled for all buildings to generate an overall backlog estimate for each higher education institution.**

JLARC Preservation Backlog Estimates are Calculated For Each Building as Follows:

Preservation Backlog = Current Replacement Value (CRV) x Midpoint FCI from the Following Table

Condition Score	Condition Class	Typical FCI Range, as % of CRV	Midpoint FCI used to Calculate Estimates of Preservation Backlogs
1	Superior	0-2%	1%
2	Adequate	3-7%	5%
3	Fair	8-24%	16%
4	Needs Improvement : Limited Functionality	25-51%	38%
5	Needs Improvement: Marginal Functionality	>52%	69%

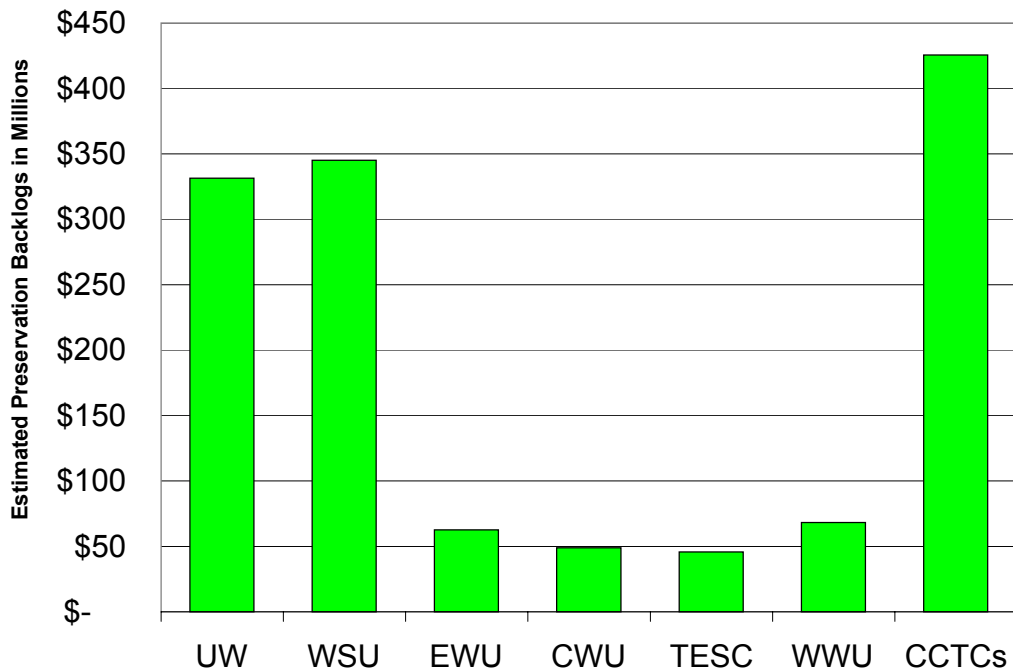
- \* **Using this methodology, even buildings in superior and adequate condition (Classes 1 & 2) contribute to overall backlog estimates for institutions.**

**PRESERVATION BACKLOGS IN PUBLIC HIGHER EDUCATION BUILDINGS**  
**(continued)**  
 (State and Mixed Supported Buildings Over 2,000 GSF)

\* **Estimated preservation backlogs for all buildings in all condition classes at all institutions total \$1.3 billion . \***

\* **The Community & Technical Colleges have the largest estimated preservation backlog (\$426 million), followed by WSU (\$345 million) and UW (\$331 million).**

**Community & Technical Colleges, WSU, and UW Have the Largest Estimated Preservation Backlogs**



INSTITUTION	ESTIMATED PRESERVATION BACKLOG *
UW	\$ 331,302,347
WSU	\$ 344,961,454
EWU	\$ 62,658,426
CWU	\$ 48,956,524
TESC	\$ 45,692,391
SIRTI	\$ 1,050,643
WWU	\$ 68,286,674
CCTCs	\$ 425,539,392
<b>TOTAL</b>	<b>\$ 1,328,447,852</b>

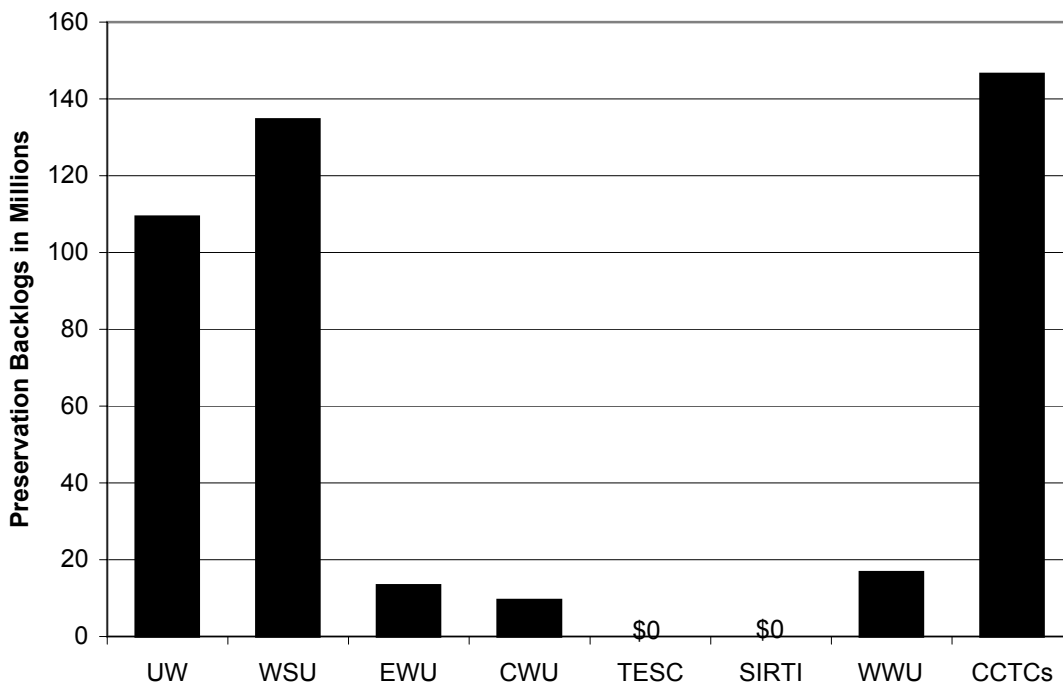
\* Using Midpoint FCI's

**PRESERVATION BACKLOGS IN PUBLIC HIGHER EDUCATION  
BUILDINGS (continued)**

(State and Mixed Supported Buildings Over 2,000 GSF)

- \* The buildings in the worst condition often draw the most attention during the budgeting process.
- \* About 10% of buildings fall in Condition Classes 4 and 5, potentially impacting the functionality of the buildings.
- \* Estimated preservation backlogs for these buildings total \$430 million.\*

**Estimated Preservation Backlog of Buildings in Condition Classes 4 & 5**



INSTITUTION	Estimated Preservation Backlog of Buildings in Condition Classes 4 & 5 *	
UW	\$	109,333,673
WSU	\$	134,669,414
EWU	\$	13,332,786
CWU	\$	9,474,974
TESC	\$	-
SIRTI	\$	-
WWU	\$	16,762,955
CCTCs	\$	146,533,667
<b>TOTAL</b>	<b>\$</b>	<b>430,107,469</b>

\* Using Midpoint FCIs.

**MAJOR ELEMENTS OF THE COMPARABLE FRAMEWORK**

<b>Element</b>	<b>Description</b>	<b>Notes</b>
<b>Institution Name &amp; ID#</b>	Standard name and ID# used in state accounting systems.	
<b>Site / Campus Name &amp; ID#</b>	Unique site/campus name and ID# assigned by institution.	
<b>Building Name &amp; ID#</b>	Unique building name and ID# assigned by institution.	
<b>Building Size: Gross Square Feet (GSF)</b>	The total floor area of the building within the outside faces of the exterior walls.	
<b>Building Size: Assignable Square Feet (ASF)</b>	The sum of all areas on all floors of a building assigned to, or available for assignment to, an occupant or use, excluding spaces defined as building service, circulation, mechanical and structural areas.	
<b>Source of Funding for Major Capital Projects</b>	The source of funding used for major capital projects, in one of three categories: state-supported, non-state supported, or mixed state and non-state.	Institutions have classified each of their buildings into one of the categories, based on their funding practices.
<b>Year of Original Construction</b>	The year construction of the building was completed.	In some cases, institutions were able to report only the year the building was acquired.
<b>Year of Last Major Renovation</b>	The year the last major renovation was completed. Major renovation is defined as work on major building systems exceeding 60% of the building replacement value.	Many institutions were not able to report this information to JLARC.
<b>Predominant Facility Use</b>	The predominant use of the building, classified into one of 4 categories: Teaching & Study, Research, Office, and Other. For buildings with more than one dominant use, classification is based on the facility's major cost drivers.	The 4 categories contain 14 subcategories based on those used in the HECB's space inventory and utilization system.
<b>Construction Type</b>	The building's predominant structural system defining its construction cost, classified into one of 4 categories.	The 4 categories include: heavy construction, medium construction, light construction, and temporary construction.
<b>Current Replacement Value (CRV)</b>	The estimated cost to replace each building at current prices, with equivalent utility and function, using modern materials in compliance with current codes and regulations.	CRVs have been calculated by JLARC for each building based on: size, use, construction type, quality of finishings & equipment, and geographic location.
<b>Relative Condition Score</b>	The relative condition of each building, categorized into one of 5 categories.	1. Superior; 2. Adequate 3. Fair; 4. Needs Improvement/Limited Functionality; 5. Needs Improvement/Marginal Functionality
<b>Preservation Backlog (also known as Backlog of Maintenance and Repair or BMAR)</b>	The estimated cost of building maintenance, repair, and system replacement projects to safely preserve facilities and their systems for current use that have not been accomplished. Includes deferred maintenance projects, cyclical repair and replacement projects on facility systems that will have exceeded their expected useful life cycle at the beginning of the 2003-05 biennium, and mandatory code upgrades. Does not include: program upgrades or renewal, non-mandatory code upgrades (e.g. ADA, energy code, major seismic upgrades), and building renovations.	Preservation backlogs have been calculated by JLARC for each building based on the building's relative condition score (RCS) and current replacement value (CRV). BMARs cannot be used to estimate detailed costs for individual preservation projects, but can be used as a gauge for monitoring/accountability purposes and to inform institution and systemwide budgeting and policy development.

Data Collected and Translated Only for State and Mixed Supported Buildings Over 2,000 GSF

## CHAPTER 4 – INITIAL STUDY CONCLUSIONS

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This mandated study has examined the feasibility of assembling existing data produced by higher education institutions to compare the condition of facilities and estimate levels of maintenance and repair backlogs on a statewide basis. Additionally, the study has evaluated whether the state's operating and capital budget practices create incentives for cost-effective facility stewardship. Below are the initial study conclusions for this interim report. More detailed findings and recommendations will be included in JLARC's December 2002 Report.

- Facility inventory and condition data, independently produced and maintained by higher education institutions, can be translated and calibrated to a comparable standard, as well as assembled into a statewide database that can be used for facility preservation analysis and budgeting.
- The “Comparable Framework” created in this JLARC study provides a method for updating higher education facility inventory, condition, and preservation backlog information in the future.
- Operating and capital facility preservation expenditure data routinely reported by higher education institutions to the state is not sufficient for accountability or monitoring purposes, including comparison of expenditures among institutions or with external benchmarks. However, reporting such information in the future should not be particularly burdensome for institutions.
- The gradual reduction of operating budget expenditures and increase in capital expenditures for facility preservation among Washington's higher education institutions suggests that an unintended incentive for institutions to underfund operating budget maintenance may be a concern that should be addressed by the Legislature.
- Ongoing collection of facility inventory, condition, preservation backlog, and expenditure data would improve statewide visibility and accountability with respect to higher education facility preservation.





# APPENDIX 1 – SCOPE AND OBJECTIVES

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## HIGHER EDUCATION FACILITY PRESERVATION STUDY: MAINTENANCE, REPAIR, AND RENEWAL MANAGEMENT AND BUDGETING

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### SCOPE AND OBJECTIVES

OCTOBER 31, 2001

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STATE OF WASHINGTON  
JOINT LEGISLATIVE AUDIT AND  
REVIEW COMMITTEE

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## BACKGROUND

Washington's public higher education facilities cover over 43 million square feet of space, constituting approximately two-thirds of all state facilities. These state assets, representing a significant investment of public funds, are located at over 200 sites and managed by 40 separate institutions. Ongoing investment in a variety of maintenance, repair, and renewal activities is necessary to ensure that these assets are preserved, that facility-related health and safety requirements and education and research needs are met, and that facility life-cycle costs are minimized.

Little information is available to the Legislature, Governor, and state Higher Education Coordinating Board to gauge the overall condition of higher education facilities, the adequacy of maintenance and repair management activities and expenditures, and the magnitude and severity of preservation backlogs. The 2001-03 state capital budget provides funding and direction to the Joint Legislative Audit and Review Committee (JLARC) to conduct a study of higher education facility conditions, maintenance, repair, and renewal. A final report is due to the Legislature by September 15, 2002.

## PROPOSED STUDY SCOPE

The JLARC Higher Education Facility Preservation Study will examine the condition, maintenance, repair, and renewal of state higher education facilities, including those within the six baccalaureate institutions and the community and technical college system. The study will produce information about higher education facility preservation that can be applied during the 2003-05 legislative budgeting process, as well as explore a framework for ongoing preservation reporting, management, and budgeting.

## PROPOSED STUDY OBJECTIVES

1. Describe and assess the current and historic management and budgeting for higher education facility preservation, maintenance, repair, and renewal projects and activities.
2. Describe and assess the age, type, and condition of state higher education facilities on a comparable, statewide basis.
3. Describe and assess the magnitude of preservation backlogs on a comparable, statewide basis.
4. Identify, and assess the severity of, any health and safety, program delivery, and life-cycle cost issues and risks associated with facility conditions and preservation backlogs.
5. Recommend improvements to higher education facility preservation reporting, management, and budgeting to ensure both prudent stewardship of these facilities and the ongoing availability of complete, reliable, and comparable facility preservation information across Washington's public higher education institutions.

## PROPOSED ADVISORY AND TECHNICAL GROUPS

- **Legislative Advisory Group** made up of interested legislators from JLARC, fiscal committees, and relevant policy committees, as well as committee and caucus staff. The first meeting is scheduled from 10:00 a.m. – 12:00 noon, November 14, 2001, at the SeaTac Holiday Inn.
- **Technical Review Panel** made up of staff from the Office of Financial Management (OFM), the Higher Education Coordinating Board (HECB), the State Board for Community and Technical Colleges (SBCTC), and individual baccalaureate institutions. The first meeting is scheduled from 10:00 a.m. – 1:00 p.m., November 27, 2001, at the SeaTac Holiday Inn.

## OVERVIEW OF PROPOSED STUDY APPROACH

- The study approach recognizes that the Legislature, Governor, and HECB have expressed a need for more complete preservation information that is reliable and comparable across institutions. It also recognizes that individual institutions have generally developed their own management and budgeting approaches to facility preservation, while requesting state funding to address their facility preservation priorities.
- Rather than assuming that institutions' existing condition assessment and preservation management approaches need to be modified or supplanted by a uniform system, JLARC will attempt to construct, in consultation with the technical review panel and with assistance from facility preservation consultant(s), methods to translate and cross-walk existing preservation information produced and maintained by each of the institutions into a **comparable framework**.
- JLARC will engage appropriate facilities preservation consultant(s) to work in collaboration with JLARC and higher education agency staff to translate existing preservation information into this comparable framework. Consultant(s) will also assist JLARC in verifying preservation information maintained by individual institutions on a sample basis.
- This proposed comparable framework will be designed to include the key information identified in proposed study objectives 2, 3, and 4, and will be available for the 2003-05 legislative budgeting process. If, as the study progresses, we find that translation is not possible for some institutions or will leave too many missing gaps, then at that time we will more explicitly address potential changes to institutions' underlying methodologies and systems.
- In addition to the framework, JLARC will prepare several workpapers exploring relevant aspects of facility preservation management and budgeting. Examples will include: existing condition assessment, preservation management, and budgeting methodologies used by the SBCTC and individual institutions; the current and historic policy and budget context surrounding higher education facility preservation; and preservation approaches in other states. These workpapers will be generated for technical review by legislative staff, OFM, HECB, SBCTC, and the higher education institutions as they are developed.

## JLARC STAFF CONTACT FOR THE STUDY

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## APPENDIX 2- AGENCY RESPONSES

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Agency responses will be included in the final report



# APPENDIX 3 - DATA AND METHODOLOGY

## BUDGET AND EXPENDITURE ANALYSIS

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JLARC's Budget and Expenditure Analysis assessed the following areas:

- Revenue sources available for facility preservation;
- Whether the state budgeting process creates incentives and/or disincentives for cost-effective facility stewardship;
- Historical trends in operating and capital budget expenditures;
- Comparisons of facility preservation expenditures among Washington's higher education institutions; and
- Comparisons of facility preservation expenditures with national benchmarks.

This Technical Appendix discusses the data and methodology used in this analysis in more detail than is provided in the text of the report. Additionally, it provides additional description of Washington's operating budgeting processes for higher education and historical trends in that process that are discussed in Chapter 2.

### THE STATE'S BUDGETING PROCESS FOR HIGHER EDUCATION

The analysis found that there is a potential unintended incentive for higher education institutions to underfund facility preservation in their operating budgets. This finding is based on the differences in funding sources and policies between the operating and capital budget as described in Chapter 2. JLARC's understanding of budget policies is based on interviews with legislative fiscal staff, OFM budget staff, and review of documents related to the budget process, including appropriations acts, legislative budget notes, and the Higher Education Coordinating Board's (HECB) Higher Education Cost Study. The documents we reviewed also included a historical analysis of the higher education budget process, prepared by Jack Daray, former higher education Fiscal Analyst with the House Office of Program Research, as a consultant to JLARC.

#### Additional Description Regarding Earmarking of Appropriated Operating Budget Funds

In the 1970s and early 1980s, a detailed formula was used to develop operating budgets for higher education institutions. The formula identified budget "drivers" including plant operations and maintenance costs, and provided specific formula entitlements for these costs. Most of the higher education budget calculation was based on the formula calculations, and the appropriations acts referenced specific percentages of "formula entitlements."

Current budget development for institutional operating budgets is not nearly so detailed. Currently authorized expenditure levels form the core of the appropriation for subsequent biennia. Incremental additions to the current expenditure level related to student enrollment growth are based on the amount of additional enrollment the Legislature decides to fund, and the per student cost of that incremental enrollment. The per student cost of incremental enrollment is referenced to the Annual Cost Disclosure Report which is an annual update to the Education Cost Study that is conducted every four years by the HECB.

The Education Cost Study and its annual updates identify the average cost of educating students at the various levels of institution (i.e., Research Universities, Comprehensive Universities, Community and Technical Colleges). This average cost is then used to help determine the amount of additional funding needed for the incremental enrollment authorized. The average cost identified by these HECB Education Cost Studies includes the costs of operating and maintaining facilities. Therefore, when the Legislature funds incremental enrollment increases, there is an implied (but not earmarked or targeted) incremental funding increase for facilities maintenance.

The Legislature may target certain other incremental budget increases or decreases for specific purposes. For example, the Legislature may target a specific funding increase for faculty salaries, or it may target a funding decrease to “administration.” However, these incremental legislative “targets” are usually not earmarked or provisoed in the budget document, and therefore, do not carry the force of law. In subsequent budgets, these targeted amounts become part of the currently authorized expenditure level, which is also not targeted or earmarked by the Legislature. Additionally, the amount of funds targeted in any biennial budget is a small percentage of total appropriated funds, which are less than half of total operating funds available to institutions.

The current budget development process does not identify specific funding amounts generated for specific purposes (e.g., plant operations and maintenance) as did previous budget processes. Nor does the Legislature otherwise earmark or proviso operating funds to any great degree. Therefore, institutions have significantly more flexibility over their appropriated operating budgets now than they had been previously.

## **HISTORICAL TRENDS IN OPERATING AND CAPITAL BUDGET EXPENDITURES, AND COMPARISONS OF FACILITY PRESERVATION EXPENDITURES AMONG WASHINGTON’S HIGHER EDUCATION INSTITUTIONS**

### **Available Expenditure Data And Its Limitations**

JLARC used several sets of data in its analysis of historical trends in operating and capital budget expenditures. We first obtained operating and capital expenditure data that is maintained by the Legislative Efficiency and Accountability Program Committee (LEAP), which maintains a database of expenditure data that is periodically recast for historical comparability.

Additionally, we obtained historical operating and capital expenditure data from the state's Agency Financial Reporting System (AFRS) accounting system to supplement the LEAP data.

Neither LEAP nor AFRS data were sufficiently detailed for the purposes of this study. The state's accounting system requires higher education institutions to report expenditure detail by functional area (program). There is a program called Plant Operations and Maintenance (Program 090) in the operating budget, and there is also a program (Program 900) for capital expenditures. However, neither of these programs collects data that is detailed enough to segregate expenditures for facility preservation from other facility operations, maintenance, and capital expenditures.

For example, operating budget expenditures within Plant Operations and Maintenance (Program 090) include several categories of expenditures (e.g., custodial, grounds keeping, utilities, security, waste disposal) that have little or nothing to do with facility maintenance and preservation. Capital budget expenditures are not segregated into categories (e.g., new construction, renovation, repairs) that allow for the identification of expenditures for facility preservation. Additionally, the state does not maintain reliable data on the amount of or value of facilities in order to provide a context (e.g., expenditures per square foot) for expenditure data. These shortcomings in the expenditure and facilities data collected by the state make it difficult for the state to compare expenditures for facility preservation among Washington's higher education institutions, or to compare such expenditures with external benchmarks.

## Expenditure Data Requested From Institutions

In light of these shortcomings, JLARC requested Washington's 4-year institutions and the State Board for Community and Technical Colleges to provide more detailed historical expenditure information. Institutions were requested to segregate operating budget expenditures within Program 090 into four categories, which are the same four categories that the HECB uses when collecting data for its Education Cost Study. These categories are:

- Utilities and Fixed Costs
- Building Maintenance
- Custodial and Grounds
- Physical Plant Administration

Institutions were also requested to segregate capital expenditures into five categories. These categories are:

- Minor Works – Facility Preservation
- Minor Works – Other
- Renovation and Replacement
- Other Facility Preservation
- Other Capital Expenditures

The purpose of this categorization was to have the institutions identify how much of their 1992-2001 capital expenditures were for facility preservation versus other purposes. We asked the institutions to do this because AFRS expenditure data does not categorize expenditures into functional purposes, and project appropriation data does not always allow for such a categorization.

In our comparisons of the amount of capital expenditures for facility preservation among Washington’s higher education institutions and for our comparisons of these expenditures with benchmarks, *we did not count major renovation expenditures as preservation*, even though some portion of renovation expenditures are for the preservation of facilities. We excluded major renovation expenditures from this analysis because it is common for the cost of major renovations to be substantially driven by program needs.

### Square Footage Data Requested From Institutions

We also requested that institutions provide separate expenditure and square footage data for state-supported facilities and non state-supported facilities, rather than all facilities. We requested this segregation because we learned that the AFRS data for Program 090 (Plant Operations and Maintenance) only includes expenditures for state-supported facilities. Because we wanted the institution-provided data (in which we requested more detail than reported in AFRS) to reconcile with AFRS, we needed to ask institutions to separately provide expenditure data for state-supported and non state-supported facilities (note: while all institutions were able to provide the detailed expenditure information we requested for state-supported facilities, some were unable to provide separate expenditure data for non state-supported facilities).

### Other Data Used

In addition, JLARC used enrollment data from HECB and inflation data from the Office of the Forecast Council for the expenditure trend analysis and the comparisons of expenditures among Washington’s higher education institutions. The following table summarizes the data used in the analysis.

<b>Source</b>	<b>Data Provided</b>
AFRS Accounting Data	Historical Total Operating Expenditures
Expenditure Data Provided by Institutions	Historical Detailed Facility Maintenance Operating Expenditures Historical Capital Expenditures by Category (e.g., preservation versus new construction)
Square Footage Data Provided by Institutions	Combined with expenditure data, allows for comparisons of expenditures per gross square foot of space
Enrollment Data from HECB	Combined with expenditure data, allows for comparisons of expenditures per student
Inflation Data (Implicit Price Deflator) from Office of the Forecast Council	Implicit price deflator data was used to adjust historical expenditure data into 2001 dollars.



## COMPARISONS OF FACILITY PRESERVATION EXPENDITURES AMONG WASHINGTON INSTITUTIONS AND WITH NATIONAL BENCHMARKS

### Selection of Benchmarks

JLARC conducted an extensive search for benchmarks to compare to the facility preservation expenditures of Washington's higher education institutions. Our goal was to identify relevant, comparable, and credible benchmarks for higher education facility preservation expenditures to compare with expenditures at Washington's higher education institutions. A source is relevant if it provides a comparison with other higher education facilities, rather than other types of facilities. A source is comparable if the types of expenditures within the benchmark are similar to the expenditure data we have for Washington's higher education institutions. A source is credible if there is documentation of how the benchmark is derived, and the derivation is judged to be methodologically sound. We attempted to identify benchmarks for both operating and capital expenditures for facility preservation purposes.

In order to identify candidates for benchmarks, we conducted a literature review, and talked to higher education facilities experts in Washington and elsewhere. Through these efforts, we identified several potential sources for benchmarks to compare with Washington's higher education institutions.

For each source of benchmark data we considered, we attempted to answer the following questions:

- What is the benchmark (e.g., expenditures per square foot, square foot per employee, etc.)?
- What types of expenditures are included in the benchmark (e.g., expenditures strictly for facility preservation purposes, or are other types of expenditures included)?
- How was the benchmark derived (e.g., survey of actual expenditures vs. rule of thumb vs. analytical model)?

For some of the potential benchmarks we considered, the answers to these questions were readily available. For others, the answers were not readily available and we tried to ascertain the answers by talking to people who were knowledgeable about the benchmark.

For each potential benchmark we considered, we made a judgment concerning whether to include it in our analysis based on several factors. For example, if we were unable to ascertain exactly what types of costs were included in the benchmark, we excluded it because we could not determine how comparable it would be to the expenditure data we collected from Washington's institutions. Alternatively, if we knew what costs were included in the benchmark, but we weren't sure how the benchmark was derived (e.g., based on a survey of actual costs, a predictive model, or a rule of thumb), we were less confident of its credibility than if we knew the basis for how it was derived.

Among the potential sources of benchmark data we considered and rejected are:

- National higher education expenditure data from the National Center for Education Statistics (NCES). This data was judged to lack comparability in that it only includes a very broad measure of plant operations and maintenance expenditures that includes several categories of expenditures (e.g., custodial, grounds keeping, etc.) that are not closely related to facility preservation. We wanted to conduct a more narrow comparison of facility preservation expenditures for the benchmark analysis.
- A widely known benchmark originally published by the National Research Council. This benchmark is a rule of thumb that 2 to 4 percent of the current replacement value of facilities should be spent each year for facility preservation. We rejected this potential benchmark for several reasons, including: (1) there is no actual calculation supporting the benchmark, it is based on what a committee of experts concluded should be spent for facility preservation; (2) its comparability is suspect in that it is not completely clear exactly what types of costs should be included within the benchmark; and (3) the benchmark lacks precision (i.e., the amount of expenditures could vary by 100 percent and still be within the benchmark).

Based on JLARC's review of potential benchmarks against the criteria listed above, we did not find what we would consider to be a perfect source for benchmark comparisons (i.e., no single source of benchmark data was considered to be perfectly relevant, comparable, and credible). Therefore, we selected several benchmarks for both operating and capital expenditures that we considered to be among the most relevant, comparable, and credible. We then averaged the benchmarks to develop a JLARC benchmark average for both operating and capital preservation expenditures. The average of the benchmarks is used to compare to expenditures of Washington's higher education institutions.

## Capital Budget Higher Education Facilities Study

Information on the benchmarks that are used is presented in the following table:

Benchmark	Type of Benchmark	Amount	Assumptions/Comments
<b>Operating Budget Benchmarks Average</b>		<b>\$1.39/gsf</b>	Average of JLARC's benchmarks for operating budget expenditures for facility maintenance.
Association of Higher Education Facilities Officers (APPA) FY 2001 Comprehensive Cost and Staffing Survey (CCAS)	APPA members provide actual cost data in a biennial survey	\$1.25/gsf	Average expenditures for facility maintenance purposes as reported by participating APPA members. Relevance and comparability judged to be high. Credibility judged to be fair, because a survey of actual expenditures identifies what is actually spent rather than what should be spent.
Building Owners and Managers Association (BOMA) Experience Exchange Report 2000 (EER)	BOMA members provide actual cost data in an annual survey	\$1.24/gsf	Average expenditures for facility maintenance of governmental facilities. The total amount of expenditures for facility maintenance and repairs was \$2.21 per gsf. JLARC allocated this amount between operating and capital budget expenditures based on percentages from an analysis by Whitestone Research, a facilities management consulting firm. Comparability, relevance, and credibility are all judged to be fair.
APPA Facilities Management Evaluation Program (FMEP) Audit of WWU	Rule of thumb	\$1.50/gsf	This is a rule of thumb cited by APPA experts in the 2001 FMEP audit of WWU. Relevance and comparability judged to be high. Credibility is judged to be fair.
APPA Strategic Assessment Model (SAM)	Survey	\$1.57/gsf	Based on a survey of over 300 higher education institutions. Comparability and relevance judged to be high. Credibility judged to be fair.
<b>Capital Budget Benchmarks Average</b>		<b>\$1.48/gsf</b>	Average of JLARC's benchmarks for capital budget facility preservation expenditures.
APPA Strategic Assessment Model SAM	Based on a survey of higher education institutions	\$1.70/gsf	Relevance and comparability judged to be high, credibility judged to be fair. (Note: the benchmark is actually enumerated as .89 percent of current replacement value (CRV). We translated this amount into \$/gsf by multiplying .89 percent times the \$191 average replacement value of Washington's higher education facilities as calculated by the Comparable Framework Analysis.
BOMA 2002 EER	BOMA members provide actual cost data in an annual survey	\$0.97/gsf	The total amount of expenditures for facility maintenance and repairs was \$2.21 per gsf. JLARC allocated this amount between operating and capital budget expenditures based on percentages from an analysis by Whitestone Research. Comparability, relevance, and credibility are all judged to be fair.
King County Major Maintenance Reserve Fund	Based on an analytical life cycle cost model developed by King County for the purposes of setting aside funds for major cyclical repairs of county facilities	\$1.57/gsf	Comparability and credibility judged to be high. Relevance judged to be fair.
JLARC Office Building Life Cycle Cost Analysis	Based on an analytical life cycle cost model developed by JLARC for a 1995 Capital Planning and Budgeting Study	\$1.69/gsf	Comparability and credibility judged to be high. Relevance judged to be fair.

Capital Budget Higher Education Facilities Study

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In the comparisons of the operating and capital expenditures of Washington’s higher education institutions with each other and with the benchmarks, the following cost elements were included in the comparison:

Operating Budget Facility Maintenance Expenditures Elements

Entity	Expenditures Used in Comparison
Washington’s Higher Education Institutions	Subprogram 092 (Building Maintenance) Expenditures / GSF
APPA FY 2000 CCAS	Maintenance Expenditures / GSF
BOMA 2000 EER	Total Facility Maintenance and Repair Costs (which include both operating and capital expenditures) of \$2.21/GSF were allocated between operating and capital based on the percentages cited in a report by Whitestone Research, a facilities management consulting firm.
APPA’s WWU FMEP Facilities Audit	Building and System Maintenance Costs
APPA SAM	Used 48 percent of “Annual Facility Operating Budget” of \$3.27/GSF. We did not use the entire \$3.27 of “Facility Operating Costs” because it includes custodial and grounds costs while our comparison does not. The 48 percent of Facility Operating Costs was selected because in Washington’s institutions, maintenance costs average to be 48 percent of the total of maintenance costs plus custodial and grounds costs.

Capital Budget Preservation Elements

Entity	Expenditures Used in Comparison
Washington’s Higher Education Institutions	Minor Works – Preservation and Other Preservation Expenditures
APPA SAM	Annual Capital Renewal and Renovation/Modernization Expenditures/CRV of .89 was multiplied by \$191/gsf, which was the average CRV for Washington’s higher education institutions as identified in the Comparable Framework Analysis
BOMA 2000 EER	Total Facility Maintenance and Repair Costs (which include both operating and capital expenditures) of \$2.21/GSF were allocated between operating and capital based on the percentages cited in the Whitestone Report referenced above.
King County Major Maintenance Reserve Fund	Annual costs for major cyclical repairs and replacements of building systems
JLARC Life Cycle Cost Analysis	Annual costs for major cyclical repairs and replacements of building systems

# APPENDIX 4 – MEMBERSHIP OF TECHNICAL REVIEW PANEL

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## **Members of the Technical Review Panel** Higher Education Facilities Preservation Study

### ***University of Washington***

Eric Hausman  
Bruce Abe

### ***Washington State University***

Deborah Carlson  
Ev Davis

### ***Eastern Washington University***

Mike Irish

### ***Central Washington University***

Bill Vertrees  
Mickey Parker

### ***The Evergreen State College***

Michel George

### ***Western Washington University***

Bill Managan

### ***Community & Technical Colleges***

Tom Henderson (State Board)  
Al Spence (Pierce College)

### ***Office of Financial Management***

Marziah Kiehn-Sanford

### ***Higher Education Coordinating Board***

Jim Reed

