

TOPIC: FIVE UNIVERSITY OF COLORADO HEALTH SCIENCES CENTER PROJECTS FUNDED BY STATE CERTIFICATES OF PARTICIPATION (COPs): EDUCATION FACILITY II, EDUCATION BRIDGE, LIBRARY AT FITZSIMONS, ACADEMIC OFFICE FACILITIES, AND FACILITY SUPPORT BUILDING

PREPARED BY: GAIL HOFFMAN AND JOAN JOHNSON

I. SUMMARY

The University of Colorado Health Sciences Center wants to expedite the relocation of programs from the 9th Avenue and Colorado Boulevard campus to the campus at the former Fitzsimons Army Base in order to:

- Realize the economic benefits of the transition to Fitzsimons sooner;
- Reduce overall facility costs while the construction market is highly competitive and the rate of inflation for construction costs is low;
- Take advantage of lower interest rates;
- Avoid continuing operating, maintenance, and remodeling costs at 9th Avenue and Colorado Boulevard;
- Replace private leased space with state-operated space at Fitzsimons; and
- Achieve greater programmatic efficiencies and decrease operating and duplication costs.

Because state capital construction funds are extremely limited, the General Assembly passed and Governor Bill Owens signed HB 03-1256 which authorizes the state to make lease-purchase payments for the new academic buildings to be built at Fitzsimons.

Under that legislation, the state of Colorado, acting through the Board of Regents, is authorized to execute lease-purchase agreements for up to \$202,876,102 (plus “reasonable and necessary” administrative, monitoring, and closing costs and interests) for up to 25 years to finance construction of the academic facilities. Annual aggregate rentals under all the lease-purchase agreements shall not exceed \$15,100,000 annually. The Colorado Educational and Cultural Facilities Authority, for-profit or nonprofit corporations, commercial banks, or trustees will purchase Certificates of Participation (COPs); the state will pay off the certificates through lease-purchase annual payments appropriated by the Legislature. Over the 25-year period, Colorado could pay up to \$377,500,000 for the academic facilities.

CCHE staff is asking the Commission to approve five additional projects financed through state-backed COPs to enable UCHSC to get the designs completed and the projects built within the three-year period that the Internal Revenue Service requires for spending of proceeds from sale of tax-exempt certificates and revenue bonds. Brief summaries of the five projects follow:

➤ **Education Facility II and Education Bridge:** \$46,464,164; 130,357 gross square feet – gsf (\$251.86 – new construction cost per square foot). Enough space would be provided in Education Facility II to enable all the remaining educational space at the 9th and Colorado campus to move to Fitzsimons. Multidisciplinary space for all five schools – Medicine, Pharmacy, Nursing, Dentistry, and Graduate School – will be provided in the free-standing building in classrooms of various sizes, lecture halls, computer stations, multi-purpose learning laboratories, small group learning rooms, and student community space. The Education Bridge, one of the five projects, would link the north and south sections of Education Facility II with a pedestrian bridge across 17th Place on the eastern edge of the education zone east of the old Fitzsimons Hospital. The Education Bridge (4,800 gsf) would be wide enough to include student community space on the pedestrian bridge, space that could double as a reception area for a large 600-seat lecture room that will be located nearby. Cost of the Education Bridge, at \$475/gsf, would be \$2,280,000. Anticipated completion date for both Education Facility II and the Education Bridge: April 2006. ([Attachment A](#))

➤ **Academic Office Facilities:** \$71,318,745; 250,000 gsf (\$214.20 – new construction cost per square foot). This project would provide academic offices for the academic programs relocating to Fitzsimons in two separate locations. Academic Office – East would be the two upper floors (100,000 gsf) of Education Facility II. It would house faculty and staff and various program administrative office functions, primarily for the School of Nursing.

The other site would be a separate academic office building across 17th Place from the planned Research Complex II called Academic Office – West (150,000 gsf). The School of Medicine would be the primary tenant. The office facilities would include academic faculty and staff offices, conference rooms, and office support space. The facilities would provide offices for all five schools, not just Nursing and Medicine, and would be designed to be as generic as possible so that academic units can grow, combine, or reorganize without major renovations of office facilities. Anticipated completion date: June 2006. ([Attachment B](#))

➤ **Library at Fitzsimons:** \$34,998,669; 116,000 gsf (\$215 – new construction cost per square foot). In addition to administrative, circulation, and general space, the library will have a learning resource center, reference services, systems databases, material storage, education and health “informatics”, information access and study space, a drug information center, the History of Medicine collection, and specialized building support space in a building intended to not only provide enough space to relocate Denison Library from 9th and Colorado, but become a model for the use of digital

resources in creating a library for the future. It will be located immediately to the north of Building 500, the old Fitzsimons Hospital. Anticipated completion date: June 2006. ([Attachment C](#))

- **Facility Support Building:** \$15,707,167; 60,000 gsf (\$203.36 – new construction cost per square foot). This building, located near the Central Utility Plant closest to I-225, was initially scheduled to house facilities operations and office functions including campus maintenance shops, mail services, materials management, engineering and building services, fire and life safety, grounds maintenance, parking and transportation services, and related maintenance and outdoor storage areas. In this initial plan, 7,862 gsf was designated for the following auxillary programs: Construction Services Auxillary, Parking and Transportation Services (Parking and Motor Pool), and Printing Services. The UCHSC has decided **NOT** to house auxillary functions in this building.

One possible option for the use of this space is for a portion of the campus police program. Advantages would include access to an exterior vehicular storage area and shared use of interior locker room space, storage areas, and other common areas and building amenities. Other options may emerge as the design phase for the building gets underway. The UCHSC has committed to keeping CCHE staff informed of the final decisions for the uses in this building. Anticipated completion date: February 2006. ([Attachment D](#))

II. BACKGROUND

Beginning in 1999, the Urban Land Institute performed a CCHE-requested study that recommended accelerating the move of the UCHSC from the 9th Avenue and Colorado Boulevard campus to Fitzsimons. In response to extremely limited state capital construction dollars for higher education, the University of Colorado pushed for passage of HB 03-1256 to accelerate the move of academic buildings to Fitzsimons.

In June, 2003, the Commission approved the first of the COP-financed projects, a revised Education IB. Due to concerns by both CCHE staff and UCHSC officials about the differing sizes of Education IB as compared to Education II, the Commission delegated to CCHE staff approval of any program plan amendments made to Education IB to make the buildings more equally sized. At the same time, UCHSC officials began to examine other assumptions made when the program plans for the various facilities had been written and decided to make revisions in some of the other plans as well.

On July 1, 2003, UCHSC presented to CCHE staff a paper outlining shifts in program locations within these academic projects: Education IB, Education Facility II, and Academic Office Facilities. Environmental Health and Safety II, which UCHSC had decided it was not going to build as a separate facility despite its inclusion in HB 03-

1256, was added back as a 6,000-square-foot storage and treatment facility for wastes generated from academic functions.

The result of the changes in program locations was that 556,357 gsf of space would still be built for all five facilities at a cost of \$168,488,745. The major change is that 30,629 gsf would be added to a sixth project, Education IB, to give it 103,338 gsf compared to 130,357 for Education Facility II and the Education Bridge. Those changes were incorporated into the attached program plan reviews. Staff has reviewed the changes suggested for Education IB and is favorable toward them, but needs to finish the paperwork to enable official approval.

Of the seven projects outlined in the legislation to finance academic facilities at Fitzsimons, the only project still needing review is for Environmental Health and Safety II. UCHSC expects to present the program plan for that project to CCHE in Fall 2003.

One of the projects listed above has been pending before CCHE for some time. The Library at Fitzsimons program plan was submitted to CCHE in 2001 and in 2002, but was neither approved nor disapproved due to funding restrictions.

The decision to hasten the relocation of all programs from the 9th and Colorado campus to Fitzsimons and the need to have as many educational and research oriented facilities as possible ready for occupancy at about the same time to help make the relocation go more smoothly – as well as passage of HB 03-1256 - prompted submittal of three program plans to CCHE in late April 2003: Education Facility II and Education Bridge, Academic Office Facilities, and Facility Support Building. Delaying for another year would stretch out the schedule beyond the 2006-2007 target dates for completion. Work began on the program plans in January 2003 and the Board of Regents approved them on April 24, 2003.

III. STAFF ANALYSIS

The program plans for Education IB, Education II, and Academic Office Facilities have one commendable aspect: they are all intended to be multidisciplinary with generic spaces that can be used by all five schools at the UCHSC. Integration of educational facilities could lead to more efficient use of space and collaborative and cooperative learning and teaching. In any case, the UCHSC intends to schedule spaces centrally, rather than have certain spaces designated for the exclusive use of any one school. Academic Office Facilities at two sites—one in the education zone and one in the research zone—will make it possible for faculty and staff to have their offices closest to where they do most of their work.

Other observations:

Variance from HB 03-1256

The bill lists the following as seven separate projects: Education IB, Education Facility II, Library at Fitzsimons, Academic Office Complex, Environmental Health and Safety II, Facility Support, and Education Bridge. To some, separate listings equate to separate stand-alone buildings (with the exception of Education Bridge, which will link the north and south sections of Education Facility II). The UCHSC is instead proposing stacking one project, Academic Office Facility – East, as the upper two stories of the Education Facility II building. Academic Office Facility – West will be a separate building in the research zone. There is precedence for approval of one UCHSC project in two locations: the Education Facility. Education IA was enclosed within Research Complex I while Education IB was made a separate building in the education zone.

From a planning standpoint, the addition of academic offices on the top floors of Education Facility II makes a great deal of sense. It conserves land; locates faculty and program offices near classrooms and lecture halls; and eliminates the need for additional elevators to handle class-changing traffic in a separate, five-story education building.

Space Inefficiencies

All five projects (four if Education Facility II and the Education Bridge are considered as one project) fail to meet CCHE guidelines for building efficiency. The building efficiency ratio is the assignable square feet (asf) divided by the gross square feet. Assignable space excludes atriums, hallways, restrooms, janitor’s closets, and other spaces not attributable to a particular program. Gross square feet includes all the spaces. The table below compares the proposed building efficiencies with CCHE guidelines:

<i>Project Name</i>	<i>Proposed ASF/GSF Ratio</i>	<i>CCHE Guidelines</i>
Education Facility II and Education Bridge	65.3%	68%
Academic Office Facilities	66.3%	68%
Library at Fitzsimons	66.3%	75%
Facility Support	70%	68 % for office; 90% for physical plant

UCHSC planning staff attributes some of the variance to UCHSC not including as assignable space interior corridors serving a program occupant but not the public. Also, some programs require segregated corridors, such as the Gross Anatomy Lab and the Center for Studies in Clinical Excellence in Education IB. Some programs require a large number of smaller rooms rather than lecture halls (such as the Small Group Learning Rooms in Education II) that then lead to the need for more circulation space for access. Where Fitzsimons building sites are wider than they are long, more space may have to be taken up with more corridors.

Another difficulty is how to account for the data rooms that our new technology requires. The number and size of these data rooms keeps expanding, increasing the amount of unassigned space. UCHSC staff also believe that CCHE guidelines do not properly recognize the need for adequately sized lobbies, which are not only entryways, but serve as transfer places for numerous students and faculty at limited times between classes, advertising and directory areas for campus events, and sometimes as socializing areas before events.

Given all the reasons stated above for the low inefficiencies, CCHE is willing to concede that attaining the CCHE guidelines may not be possible in all instances. However, staff believes UCHSC should re-examine the building efficiency during the design stage for the Library at Fitzsimons, which is considerably beneath the CCHE guideline of 75 percent. The UCHSC should give CCHE staff a report on the final design and building efficiency numbers for the Library.

Operations and Maintenance Costs

Big buildings, such as these projects, have large operations and maintenance costs. Although on paper the COP owners will “own” the buildings, they will be passive owners with no responsibility for upkeep. UCHSC will be responsible for operation and maintenance of the buildings for at least 15 years after they are completed. New buildings do not become eligible for controlled maintenance funding for 15 years after construction completion, according to State Buildings and Real Estate policy.

For informational purposes, the chart below outlines the operations and maintenance costs for the 15-year period for each of the facilities, as detailed in the life-cycle analyses included in each program plan:

<i>Project</i>	<i>Major Repair and Replacement</i>	<i>Operation and Maintenance Cost Totals for First 15 Years (Rounded)</i>
Education Facility II and Education Bridge	\$5,943,104 (at year 15)	\$26,887,000
Academic Office Facilities	\$8,217,997 (at year 15)	\$42,693,000
Library at Fitzsimons	\$6,172,002 (at year 15)	\$18,152,000
Facility Support Building	\$1,826,464 (at year 15)	\$10,045,000

Building Connections

Using its cash resources, the UCHSC has paid for three pedestrian bridges that link the north and south sections of Research Complex I. It also proposes using cash funds to build pedestrian bridges between Research Complex II and Academic Office Facility –

West and between Research Complex I and II, as well as an underground tunnel to connect the facilities for research animals in the basements of both Research Complex I and II. (See the program plan review for Research Complex II.) Cash funds are more readily available for research buildings that are funded from research grants, and all these physical connections involve at least one cash-funded research building.

Covered, pedestrian bridges between buildings are very expensive to construct due to the structural supports needed in high winds. For Education Facility II, a building paid for over time with state lease-purchase payments, the UCHSC is proposing the state pay for the Education Bridge that would link the north and south sections of Education Facility II. In fact, the Education Bridge is specifically listed in HB 03-1256.

UCHSC contends the Education Bridge's purpose is not just to provide a convenient, covered passageway between building sections of Education II and Academic Office Facility - East, but to create much-needed gathering spaces for students and faculty alike. Those spaces are education related, student community spaces: small conference/study rooms, group study tables, individual carrels, and soft seating. Some of these rooms may have vending machines, lockers, mail boxes, and bulletin boards. To accommodate these community spaces, the Education Bridge would be about 35 feet wide, 6 feet for the passage way and 29 feet for community spaces. The wider bridge results in higher structural costs. Cost of the Education Bridge is estimated at \$475/gsf. Staff does not discount the need for gathering places that can provide fruitful chances for interaction among people from different disciplines, particularly since UCHSC at Fitzsimons doesn't have a student center and is not planning one for at least ten years.

Standard Requirements

For purposes of CCHE review, staff considers these COP-financed projects state-funded projects because the Certificates of Participation will be paid off through lease-purchase agreements for which the General Assembly must appropriate General Fund money every year. As such, staff believes the projects should be subject to the same procedures as any other state-funded project.

IV. STAFF RECOMMENDATIONS

- 1. That the Commission approve Academic Office Facilities and the Facility Support Building without conditions.**
- 2. That the Commission approve the program plan for Education Facility II and Education Bridge with the following condition:**
 - **If costs escalate beyond what is planned, the UCHSC will reduce the square footage in Education Facility II devoted to student community spaces, student group learning, educational support services, and the 600-seat**

lecture hall before it reduces the square footage for classrooms and smaller lecture halls. Alternatively, the UCHSC could opt to pay for the increase in costs from their cash funds.

3. That the Commission approve the program plan for the Library at Fitzsimons with this condition:

- **UCHSC re-evaluate the relative inefficiency of the library (66.3 percent vs. CCHE recommended building efficiency for libraries of 75 percent) during the design phase and report the final decision to CCHE staff.**

Appendix A

STATUTORY AUTHORITY

(23-1-106 (1), C.R.S.). It is declared to be the policy of the general assembly not to authorize or to acquire sites or initiate any program or activity requiring capital construction for state-supported institutions of higher education unless approved by the commission.

(23-1-106 (3), C.R.S.) The commission shall review and approve master planning and program planning for all capital construction projects of institutions of higher education on state-owned or state-controlled land, regardless of source of funds, and no capital construction shall commence except in accordance with an approved master plan, program plan, and physical plan.

STATE COP PROGRAM PLAN EVALUATION FY 2003-04
Colorado Commission on Higher Education

Project: Education Facility II and Education Bridge at Fitzsimons	Institution: University of Colorado Health Sciences Center - Fitzsimons
Original Submittal Date: April 2003	Revision Date: July 1, 2003
Total Project Cost: \$46,464,164 Anticipated Completion Date: April 2006 Construction Cost: \$32,832,445 Purpose Code: F-5	Total Square Footage New Construction: 130,357 gross square feet (gsf) Remodel: Cost per Square Foot New Construction: \$251.86 Remodel: <i>Comments: Square-footage costs include constructing a pedestrian bridge between the north and south parts of Education II. The cost of construction of the 4,800-gsf bridge is \$475/sf.</i>

Phased Funding:*

	2003-04	2004-05	2005-06	2006-07	2007- 08	Total
CCFE (State COP)	3,821,586	\$19,566,762	\$23,075,816			\$46,464,164
CF						
CFE						
FF						
Total	3,821,586	\$19,566,762	\$23,075,816			\$46,464,164

*Passage of HB 03-1256 authorized an appropriation for a total of \$202,876,109 to build academic buildings at Fitzsimons, including this one. Once CCHE approves the program plan, UCHSC expects to spend the money in the phases outlined above.

EVALUATION**Project Description:**

Education II and the Education Bridge will provide enough space so that all the remaining educational space at the 9th and Colorado campus of the University of Colorado Health Sciences Center (UCHSC) can move to the Fitzsimons campus. Education II will contain classrooms of various sizes, lecture halls, computer stations, multi-purpose learning laboratories, small group learning rooms, and simulated learning laboratories in three stories of two five-story buildings.

(Academic offices would occupy the upper floors; see the program plan review for that project for more details.) The building will provide all remaining educational space that cannot be accommodated in Education IA and Education IB and will have multi-disciplinary spaces for all five schools: Medicine, Pharmacy, Nursing, Dentistry, and Graduate School. It will be built east of Education I in the education zone to the east of Building 500, also known as the old Fitzsimons Hospital. The project also will include a bridge linking the north and south sections of the facility. The bridge will not only serve as a passageway, but as a student community space that will provide appropriate spaces for students to meet, study, and eat. The project will be funded from state-backed Certificates of Participation (COPs). The COPs will be paid off over a 25 years period from annual state appropriations, as authorized under HB 03-1256.

Project Justification:

The relocation of UCHSC from the 9th and Colorado campus to the old Fitzsimons Army Medical Center gives UCHSC the chance to plan to meet educational curricula for the 21st century. Creation of the new campus and new facilities that will allow for interdisciplinary educational opportunities will give students more exposure to the various health professions. A larger campus will allow UCHSC to increase enrollment in order to train medical professionals to meet the needs of an increasing and aging population. The facilities at the 9th and Colorado campus have long been inadequate in the following ways:

- The number of classrooms, lecture halls, and small group meeting rooms is inadequate for proper scheduling at times when both students and faculty are available;
- Despite renovations over the years, the educational spaces are not suitable for teaching current curricula;
- Special learning labs for Nursing and Physical Therapy resemble 60-year-old basements rather than simulated 21st century hospital and clinic settings;
- Technological infrastructure is not present to support increases in distance education;
- Students in various disciplines generally spend their instructional time in discipline-specific buildings, limiting the opportunities for interdisciplinary education; and
- Growth of research and education requirements have consumed spaces originally used as student gathering spaces, hampering students' ability to learn outside the classroom in small group gatherings.

CCHE Recommendations:

The program plan for Education Facility II and the Education Bridge should be approved, with the following condition:

- If costs escalate beyond what is planned, UCHSC will reduce the square footage devoted to student community spaces, student group learning, educational support services, and the 600-

seat lecture hall before it reduces the square footage for classrooms and smaller lecture halls. Alternatively, the UCHSC could opt to pay for the increase in costs from their cash funds.

CCHE Comments:

Necessity of Education Bridge: UCHSC is planned around various zones for education, research, clinic, facility support etc. The research zone is to the west of Building 500 (the old Fitzsimons Hospital) and the education zone, where Education IB and Education II will be constructed, is to the east of Building 500. At present, 17th Place bisects the education and research zones, necessitating the design of the buildings as long and narrow ones. To provide enough space, both Research I and II and Education II are to be constructed with separate buildings on the north and south side of 17th Place. If 17th Place were ever vacated, it would become a pedestrian way. Therefore, above-ground linking structures are proposed so that vehicles and pedestrians can have an unobstructed east-west path. The only drawback to this strategy is the exceptionally high cost of \$475/gsf of the Education Bridge due to the need to have a structure strong enough to withstand high winds. The Education Bridge will be more than a simple covered passageway. It will have some of the student gathering and student services areas (small conference/study rooms, group study tables, individual carrels, lounge areas, food vending areas, lockers, mail boxes, and bulletin boards), that an auxiliary-funded student center might have. The intent of those spaces is to encourage informal interactive student learning spaces as students and faculty cross from one building to another, not just as places for relaxation. Education Bridge also will be equipped with easily removable furniture so that it can double as a reception area for special events that will take place in the 600-seat auditorium planned near the Education Bridge. Although all USCHSC schools (Medicine, Pharmacy, Dentistry, Nursing, and Graduate School) will use Education II, discipline-specific courses will be taught in the same areas. Faculty will have offices in discipline-specific areas in Academic Office Facility – East, which will occupy the upper floors of the same buildings as Education II. Even though Education II will be multidisciplinary, the chances for interaction among disciplines would be greatly improved with construction of the Education Bridge. UCHSC learned from construction of the three pedestrian bridges in Research Complex 1 that the chances of interaction are minimal if the pedestrian bridges are simple passageways, as they are now in Research Complex 1. Therefore, the Education Bridge is 35 feet wide, about 6 feet for the passage way and about 29 feet for adjacent student community space.

Interdisciplinary Space: The program plan advocates what CCHE has been endorsing for some time: the use of interdisciplinary space as much as possible.

Lack of Definition on Program Occupants: Exactly what programs will occupy Education II is left to a future space allocation process, which is to take place after anticipated CCHE action. The plan states simply that programs not accommodated in Education 1A and Education IB will be housed in Education II. Education IA and IB are to handle “transitional” needs for first- and second-year medical students and doctoral students studying the biomedical sciences. A diagram included in another program plan indicates the following major programs may occupy Education II and Academic Office Facility – East:

- School of Nursing
- School of Medicine: Family Medicine, Pediatrics, and Rehabilitation Medicine (Physical Therapy)
- Academic Affairs: Education Support Services

UCHSC does not consider the lack of definition of program occupants at this stage of planning a huge detriment because Education II and Academic Office Facility – East will have generically designed offices and classrooms suitable for many disciplines. UCHSC used a similar approach with Research Complex 2 with good results, reserving project contingency funds for any program space modifications not anticipated in the program planning stage. In the program plan for Education II and Education Bridge, as in the other program plans for the COP-financed projects, specialized programming needs are spelled out. UCHSC planning officials expect that the generic spaces will work for about 95 percent of the spaces, with only perhaps 5 percent needing modification later.

Student Group Learning Rooms and Student Community Spaces: The Small Group Learning Rooms will be rooms with doors capable of seating about 15 people. Some or all will have accordion doors to divide the rooms for even smaller groups. These are rooms for small-group discussions following a lecture or presentation. Additional uses for Small Group Learning Rooms include small seminars unrelated to larger preceding lectures and for after-hours student study, either individually or in small groups. They are distinguished from student lounge areas because they will have doors and will be designed for focused discussions and study with tables and chairs, not lounge furniture.

Student community spaces will be places intended for informal interaction. They include small conference/study rooms, group study tables, individual carrels, and soft seating. Clusters of these rooms will have “nourishment centers” (vending machines) and lockers, mail boxes, and bulletin boards to give students the feel of having a home base.

The 1998 UCHSC master plan included an auxiliary-funded student center, a place where student community spaces are typically located. The student center has been removed from the supplements to the master plan and is not anticipated for the next 10 years due to priorities and budgetary realities of moving an entire campus to a new campus in a relatively short period of time. UCHSC contends the student community spaces in Education II are not student center spaces because they are informal and formal spaces for learning in groups or individually, either scheduled or unscheduled. Campuses nationally are recognizing the need for such spaces, which the 9th and Colorado campus no longer has. Should costs escalate more than anticipated, however, CCHE staff recommends that UCHSC reduce the square footage of both Small Group Learning Rooms and Student Community spaces (as well as the space allocated for the 600-seat lecture hall – see below) before it reduces the square footage of space for classrooms and smaller lecture halls.

600-seat Lecture Hall: Education Facility II will have a 600-seat lecture hall located near the Education Bridge so that the Education Bridge can be used for receptions after special events in the lecture hall. The lecture hall is to take the place of the auditorium in Denison Library at the

9th and Colorado campus. Currently the Denison Library auditorium is used about 22 hours a week, with about half of its usage attributed to educational purposes. UCHSC planners expect the use of the lecture hall in Education Facility II will be greater than at 9th and Colorado because it will be one of the few interior gathering places on campus capable of assembling more than 200 attendees. (The Center for Humanities and Bioethics will have another large lecture room.) The current bioethics course has 385 students and is an example of an interdisciplinary course that UCHSC expects to see increase once the move to Fitzsimons is implemented. A room so large cannot have fixed tables for note taking due to the unworkable distances that would be created between the speaker platform and the far seats. The lecture hall would have movable tablet arms that can be raised when needed and lowered when not. The tablet arms would not increase the square footage needed. Although the lecture hall would undoubtedly have an educational purpose, the current educational usage of the auditorium in the Denison Library is not a good omen, with the scheduled use for educational purposes averaging about 11 hours in a survey conducted over a six-week period in the winter of 2002-2003. Therefore, the square footage of this lecture hall also should be reduced if square footage reductions are needed to meet the currently set construction budget.

July 1, 2003, Update: UCHSC gave CCHE staff a document entitled *Update of Shifts in Program Locations Within Education Projects: Education Facility II - Education Facility IB – Academic Office Complex* on July 1, 2003. The document did not increase the overall costs or square footage for the three projects, as well as for Environmental Health and Safety II, with the total gross square footage still at 489,695 gsf and the total cost for the four projects at \$152,170,273. It did, however, make the following changes to Education II, which were incorporated into this review:

- Makes Education Facility II and Education Facility IB more equal in size, with Education Facility at 130,357 gsf (down from 160,986 gsf); Education Facility IB at 103,338 gsf (up from 72,709 gsf).
- Removed 30,629 gsf from Education II for placement in Education IB; the square footage was for special skills learning labs for nursing, physical therapy, and pharmacy, along with a shared learning lab;
- Removed money to finish unshelled space in Education IB from the project cost for Education II and placed it where it belongs, in Education IB. This was \$500,000 to finish shelled space for a 75-seat lecture hall and a 20-station computer lab.
- Confirmed that Education II would have educational space on the lower floors of two adjacent structures linked by the Education Bridge, with academic offices on the upper floors. At one time, planners were considering building a separate Education II, with Academic Office Facility – East across 17th Place to the south.

Program and Facility Requirements:

Education Facility II and the Education Bridge would have the following spaces, based on utilization rates and national and state space guidelines:

- Lecture Halls: one 600-seat hall; two 200-seat halls; two 150-seat halls; and seven 75-seat halls (55,809 gsf; 36,275 assignable square feet - asf)
- Classrooms: nine 60-seat rooms; and two 30-seat rooms (24,553 gsf; 15,960 asf)
- Small Group Learning Rooms: 23 15-seat rooms (9,908 gsf; 6,440 asf)
- Computer Labs: two 20-station labs; two 10-station labs (3,385 gsf; 2,200 asf)
- Education Support Services: (14,385 gsf, 9,350 asf)
- Student Community: In Education II (22,688 gsf, 14,747 asf); in Education II Bridge 3,850 gsf, 3,500 asf)

The combined total of 130,357 gsf and 85,112 asf in Education Facility II and the Education Bridge compares to the existing educational space on the UCHSC 9th and Colorado campus of 53,439 gsf and 34,736 asf, as detailed in the 1998 facility master plan. The space planned for Education II and the Education Bridge alone represents a nearly 41 percent increase in educational space over what is available at 9th and Colorado. Educational space at Fitzsimons also will be provided in Education IB, the Lazzara Center for Oral-Facial Health and, to a lesser extent, in the Center for Humanities and Bioethics. The additional educational space will make it possible for UCHSC to increase enrollment among the medical specialties, as its enrollment projections forecast.

Of the spaces planned for Education II and the Education Bridge, the following percentages would apply:

- 68 percent, education (lecture halls, classrooms, and small group learning rooms);
- 18 percent to student community spaces;
- 11.4 percent to Education Support Services providing media, evaluation testing, classroom equipment, and distance learning support services; and
- 2.6 percent, computer labs.

Approximately 1,025 seats will be in large lecture halls with seating for 600, 200, 150, and 75 students each. Another 1,030 seats will be in classrooms for 160, 60, and 30 students. The rationale for the almost equal allocation of seats between classrooms and lecture halls is due to the interdisciplinary nature of many of the courses UCHSC students take in their first two years, such as anatomy and biology. Because Education II is designed to be multidisciplinary, it makes

sense for nursing, medical, pharmacy, and dentistry students to take such required, introductory courses together. This is why so much space (about 42 percent) will be devoted to lecture halls.

As currently planned, Education Facility II would have a variety of spaces on each floor: lecture halls, classrooms, Small Group Learning Rooms, and student community spaces. This would be done to accommodate the need for small-group discussions following formal lectures and encourage interaction among students and faculty. The lecture halls, classrooms, student community spaces, and small group learning rooms would be “stacked” - meaning they would be placed in the same location on each floor – to increase building efficiency.

Building Functional Uses:

Education Facility II and the Education Bridge would be used for educational purposes.

Building Efficiency Factor/Space Utilization:

The building efficiency of the building would be 65.3 percent (85,112 asf/130,357gsf). This compares to CCHE space guidelines of 68 percent for classrooms. However, since only 68 percent of the buildings would be devoted to lecture halls, classrooms and small group learning areas, the 68 percent efficiency guideline is not as applicable to the entire three floors that will be used for educational purposes. Space utilization of classrooms is typically light in the afternoons after 3 p.m. and on Friday afternoons, according to data in the appendix of the program plan regarding utilization of existing spaces at the 9th and Colorado campus. Space utilization of Education Facility II and the Education Bridge may be much better. The program plan states the building will be open seven days a week on a 24-hour-a-day basis to students and faculty members through a controlled key/card access. The main entrance will be open during daily business hours for visitors.

Appropriateness of Funding:

Education Facility II and the Education Bridge are to be funded by the issuance of state Certificates of Deposit (COPs), as provided for in HB 03-1256.

Investors will buy the certificates and the state will pay for the certificates through lease payments to the certificate holders once the buildings are finished. The University of Colorado has three years to design, build, and complete the COP-financed facilities. When the COP for a particular building has been or is about to be paid off through appropriations from the General Fund for lease payments, ownership of the building will go to the University of Colorado System. This is an appropriate use of funds given the extremely limited availability of state capital construction funds in these poor economic times and the intent of the state to expedite the transfer of UCHSC to the Fitzsimons campus.

Other projects that will be paid for through the issuance of state COP's are Education IB, the Fitzsimons Library, the Academic Administrative/Office Facility, the Environmental Health and Safety Facility II, and the Facility Support Building.

Facility Alternatives:

Alternatives to construction of Education II and the Education Bridge include:

- Expansion of instructional facilities at the 9th and Colorado campus: This approach would have the main drawbacks of splitting instructional activities between 9th and Colorado and Fitzsimons (Education 1A and 1B) and causing disruption of current programs while renovation and expansion work moves forward. It would also run counter to the UCHSC Master Plan updates that, in response to the Urban Land Institute study, call for the relocation of all educational spaces to Fitzsimons.
- Lease an off-campus facility near Fitzsimons: An off-campus location would make UCHSC's instructional activities remote from the research and clinical programs. It would also create unnecessary ongoing leasing payments when UCHSC already owns an appropriate site at Fitzsimons. This assumes that sufficient and appropriate space could be found near Fitzsimons.
- Construct a new facility on a different site within the Fitzsimons campus: The buildings logically should be in the education zone. Another possibility explored was to build a single Education Facility II, with the Academic Offices-East a separate building to the south of Education Facility II. (The decision to have the academic offices on the fourth and fifth stories of two separate buildings linked by the Education Bridge was made because of the circulation problems caused by having education spaces on five floors, with resulting jams on stairs and the consequent need for more, and expensive, elevators.)

All three alternatives were rejected because they would not necessarily provide sufficient, appropriate space for educational purposes and would run counter to the goal of relocating educational programs to the Fitzsimons campus as quickly as possible in order to make the 9th and Colorado campus available for redevelopment and reduce the long-term costs of maintaining two campuses.

Consistency with Institutional Master Plan:

The 1998 UCHSC master plan described two educational facilities that would be used as multidisciplinary and multi professional facilities. The most recent 2002 supplements to the master plan, which CCHE approved in February 2003, describes Education II. The Education Bridge was included in the supplement as among the projects being proposed for COP funding, but it was not described separately in the supplement narrative.

Consistency with Institutional 5-Year Capital Improvement Plan Schedule:

Education Facility II and Education Bridge are included in the latest five-year plan.

Governing Board Approval:

The Board of Regents of the University of Colorado approved this program plan on April 24, 2003. (The Board of Regents did not approve the revision presented to CCHE staff on July 1, 2003, because of CCHE staff's judgment that the changes in Education II, Education IB, and Academic Office Facilities would not increase the overall costs and square footage for the three projects and therefore would not need Board of Regents action.)

STATE COP PROGRAM PLAN EVALUATION FY 2003-04
Colorado Commission on Higher Education

Project: Academic Office Facilities at Fitzsimons	Institution: University of Colorado Health Sciences Center
Original Submittal Date: April 2003	Revision Date: July 1, 2003
Total Project Cost: \$71,318,745 Anticipated Project Completion: June 2006 Construction Cost: \$53,550,781 Purpose Code: F-5	Total Square Footage New Construction: 250,000 gross square feet (gsf) Remodel: Cost per Square Foot New Construction: \$214.20 Remodel:

Phased Funding:*

	2003-04	2004-05	2005-06	2006-07	2007- 08	Total
CCFE (state COP)	\$5,356,834	\$30,125,531	\$35,836,380			\$71,318,745
CF						
CFE						
FF						
Total	\$5,356,834	\$30,125,531	\$35,836,380			\$71,318,745

**Although HB 03-1256 appropriated \$202,876,109 in a single lump sum for seven UCHSC academic projects, including this one, the chart above shows the phased spending UCHSC tentatively plans for the Academic Office Facilities project.*

EVALUATION**Project Description:**

The University of Colorado Health Sciences Center (UCHSC) plans for Academic Office Facilities at Fitzsimons involve the construction of 250,000 gross square feet (gsf) necessary to support the academic programs relocating to Fitzsimons. The project would involve three buildings sited in two different zones on campus.

The Academic Office-West of 150,000 gsf would be in the research zone south of the new Research Complex II facility, with the School of Medicine as the primary tenant. The Office-East facility of 100,000 gsf would occupy the upper two stories of both the northern and southern buildings of the Education II facility in the education zone. The School of Nursing would be the primary tenant.

The new academic office facilities would include academic faculty and staff offices, conference rooms, and office support space to house the various faculty and staff of five schools of the UCHSC (Medicine, Nursing, Pharmacy, Dentistry and Graduate School). The facilities also will house program administrative office functions now occupying space in Building 500 and Building 401. The space would be designed to be generic as possible so that the faculty and program administrative functions could be located anywhere within it.

The project would be paid for through state lease-purchase agreements with investors purchasing state-backed Certificates of Participation (COPs). The funding mechanism was authorized in HB 03-1256, which included a large \$202,876,109 lump sum appropriation for this and six other projects: Education Facility IB, Education Facility II, the Education Bridge, the Library at Fitzsimons, Environmental Health and Safety II, and the Facility Support Building.

Project Justification:

The quantity of academic and research faculty office and conference room space at the 9th and Colorado campus is inadequate to meet current and projected program demand. This is reflected in the amount of off-site space leased for offices. Currently, UCHSC has identified up to 157,000 net rentable square feet of leased space that could move to Fitzsimons. Of that, UCHSC rents about 120,000 net rentable space for offices. (UCHSC actually leases a total of 326,000 net rentable square feet; the remaining net rental square feet is for parking, campus support, research laboratory, and clinical treatment space for the Addiction Research Treatment Service program.) Program and faculty office facilities at 9th and Colorado are scattered among different facilities. Program integration and faculty collaboration will be improved through having the program and faculty offices together. Without the completed office space at Fitzsimons, campus academic and administrative programs will be split between Ninth Avenue and Colorado Boulevard and the Fitzsimons campus sites, resulting in a divided academic community.

CCHE Recommendations:

The program plan for Academic Office Facilities – East and West (\$71,318,745 Capital Construction Funds Exempt – State Certificates of Participation; 250,000 gsf) should be approved.

CCHE Comments:

Program Plan Update: UCHSC gave CCHE staff a document entitled *Update of Shifts in Program Locations Within Education Projects: Education Facility II - Education Facility IB – Academic Office Complex* on July 1, 2003. The document did not increase the overall costs or square footage for the three projects, as well as for Environmental Health and Safety II. The total gross square footage remains at 489,695 gsf and the total cost for the four projects at \$152,170,273. The document made the following changes to the originally submitted program plan for Academic Office Facilities, which are incorporated into this review:

- Removed 6,000 gsf from the gross square footage for Academic Office Facilities, decreasing the size of the facilities from 256,000 gsf to 250,000 gsf. This 6,000 square feet had been taken from the Environmental Health and Safety II program plan, which UCHSC had

decided not to build, preferring to move the gross square footage to additional office space. Since then, however, UCHSC has reconsidered its need for the 6,000-gsf Environmental Health and Safety II, a holding and processing facility for wastes generated from instructional labs and other academic pursuits that will cost an estimated \$1.8 million. A program plan for Environmental Health and Safety II will be submitted to CCHE in fall 2003.

- Decreased the cost of Academic Office Facilities by \$1,806,291 from \$73,125,036 in the original program plan to \$71,318,745.
- Construct 100,000 gsf for Academic Office Facilities – East in the education zone on top of the lower floors of Education Facility II, which would be built on two adjacent sites along the east side of the education commons. No changes would be made to Academic Office Facilities – West, which would remain at 150,000 gsf as a separate building in the research zone south of Research Complex 2. Although Academic Office Facilities – East will be combined with Education Facility II as a single building connected by the Education Bridge, project costs will be accounted for separately for both Education Facility II and the portion of Academic Office Facilities constructed above it. Costs involved in building a multi-storied structure will be included in project costs for both Academic Office Facilities – East and Education II.

Program Relocation: Once the Academic Office Facilities project is completed, some programs in Building 500 and Building 401 will move to the new facilities. After the moves, the 16,000 asf of vacated space in Building 401 may house other School of Medicine functions related to programs in the adjacent buildings designated as 400-series buildings. Those programs could include the Center for Health Policy and Research and Preventive Medicine faculty offices. To free up more space in Building 500 (the old Fitzsimons Army Hospital) for academic and educational support programs, some central administrative programs may be relocated to Building 401. These administrative programs include those with ties to the Research Complex 1 and 2 facilities, such as the Office of Laboratory Animal Resources and Technology Transfer.

Other Office Spaces: The UCHSC Master Plan projected UCHSC will need about 744,689 gsf in academic office space in about five years, compared to the 2003 academic office space of 706,504 gsf. Besides the 250,000 gsf in Academic Office Facilities, another 436,000 gsf is being provided in Building 500 and other existing Fitzsimons facilities such as Buildings 400, 401, 402, 406, 407, and 618. An additional 50,000 gsf of program office space will be available in the new Nighthorse Campbell Native Health building, and the Center for Bioethics and Humanities. The initial UCHSC priority is to relocate all current programs located at the 9th and Colorado campus to Fitzsimons. As space is available within Building 500, the series 400 buildings, and Academic Office Facilities, functions in these leased facilities may be relocated to the Fitzsimons facilities.

Uncertainties About Office Layout: Various office layouts are discussed in the program plan having building efficiencies ranging from 56 percent to 74 percent, with the lower efficiencies resulting from almost every office located on the perimeter and having a window. The number of offices ranged from 125 to 82 offices for the northern sections and 58 to 82 offices for the southern sections, depending on layout. No one layout has yet been decided, and will be

determined at the design stage. However, the program plan assumes a building efficiency of 65 percent.

Space Allocation Process: Thirty-five academic units were identified as potential occupants of the two Academic Office Facilities, with about two-thirds potentially occupying Academic Office-West Facility and one-third Academic Office-East Facility. The formal space allocation process to assign space within the new office facilities will not be initiated until 2004. This means that occupants of the Academic Office Facilities aren't known at this time. This may not be an issue if the office space is designed to be generic and not specific for individuals or programs.

Expansion Opportunities: Expansion for both Academic Office –West and Academic Office – East buildings would be vertical. The buildings must be designed to structurally handle the increased loads at a future time.

Program and Facility Requirements:

The amount of space needed for Academic Office-West (in the research zone) and Academic Office-East (in the education zone) was based on the types and numbers of spaces likely to be occupying both: office, departmental support, conference room, and building service space.

Locating the academic office facilities in more than one zone (education and research) makes it possible for the offices to be closest to where faculty and staff spend much of their time. The intent is to plan the facilities so that academic units can grow, combine, or reorganize without major renovation of the office facilities.

Rooms will be equipped with Internet and campus network access, computer ports for laptop computer connection, and data jacks.

Building Functional Uses:

Building functional uses would be offices and office support, with some dry (meaning no laboratory facilities are needed) research areas.

Building Efficiency Factor/Space Utilization:

Building efficiency in Academic Office-East would be 66.3 percent (66,385 asf/100,000 gsf); in Academic Office-West, 66.7 percent (100,060 asf/150,000 gsf). The efficiencies are slightly below CCHE guidelines of 68 percent for offices.

Appropriateness of Funding:

With the General Assembly's passage of and the governor's approval of HB 03-1256, the UCHSC has the ability to have access to state-backed Certificates of Participation (COP), which will be sold to investors. The state will pay back the certificates through lease payments made to the owners. When the COP are paid off, the Academic Office Facilities and other UCHSC buildings financed with COP will become the property of the state of Colorado. However,

UCHSC will be responsible for operating and maintaining the buildings while they are occupied and while the lease payments are being made. This mechanism is about the only way the state of Colorado can pay for construction of the UCHSC-Fitzsimons academic buildings in a time of extremely tight state funding. This is an appropriate source of funding for Academic Office Facilities.

Facility Alternatives:

Once the decision was made at all levels to expedite the relocation of the UCHSC from the 9th and Colorado campus to Fitzsimons, expanding the current office facilities at the 9th and Colorado campus made no sense. Leasing off-campus facilities near Fitzsimons would remove offices from the educational and research buildings with which they are most connected. The only other feasible alternative was to build the office facilities at different sites on the Fitzsimons campus. But building them in both the research and education zones was determined to be the most functional and convenient to the center of the campus.

Consistency with Institutional Master Plan:

Academic office facilities are described in the UCHSC Facilities Master Plan of 1998. Academic Office Facilities at the currently proposed budget and square footage is also in the 2002 Supplement to the plan, which CCHE approved in February 2003.

Consistency with Institutional 5-Year Capital Improvement Plan Schedule:

The Academic Office Facilities is included in the latest five-year plan.

Governing Board Approval:

The Board of Regents of the University of Colorado approved this program plan on April 24, 2003. (The Board of Regents did not approve the revision presented to CCHE staff on July 1, 2003, because of CCHE staff's judgment that the changes in Education II, Education IB, and Academic Office Facilities would not increase the overall costs and square footage for the three projects, and therefore would not need Board of Regent approval.)

STATE COP PROGRAM PLAN EVALUATION FY 2003-04
Colorado Commission on Higher Education

Project: UCHSC Fitzsimons Library	Institution: University of Colorado Health Sciences Center - Fitzsimons
Original Submittal Date: June 2001	Revision Date: June 2002 (budget documents only)
Total Project Cost: \$34,998,669	Total Square Footage:
Anticipated Completion Date: June 2006	New Square Footage: 116,000 gross square feet (gsf)
New Construction Cost: \$25,016,757	Renovated Square Footage: 0
Renovated Construction Cost:	Cost per Square Foot:
Purpose Code: B-2	New Construction: \$215
	Remodel: \$0
	<i>Comment:</i>

Phased Funding:*

	2003-04	2004-05	2005-06	2006-07	2007- 08	Total
CCFE		\$25,000,000	\$4,998,669			\$29,998,669
CF						
CFE	\$3,000,000	\$2,000,000				\$5,000,000
FF						
Total	\$3,000,000	\$27,000,000	\$4,998,669			\$34,998,669

* *The chart does not reflect phased funding so much as phased spending for the Library at Fitzsimons, since HB 03-1256 authorized the use of lease-purchase agreements to finance construction of academic facilities, including the library, in one lump sum of \$202,876,109.*

EVALUATION**Project Description:**

The University of Colorado Health Sciences Center (UCHSC) proposes to build a four-story, 116,000-gsf library consisting of 76,972 assignable square feet (asf) for the Fitzsimons campus. The UCHSC Fitzsimons Library, located immediately to the north of the Administration

Building (Building 500, the old Fitzsimons Veterans Hospital), will replace the increasingly cramped 48,000-asf Denison Library on the 9th and Colorado campus. As the only health sciences library in the state of Colorado, the current UCHSC Denison Library is the library of record for biomedical materials unavailable elsewhere in the region. Today, nearly 325,000 users rely annually on the Denison Memorial Library for vital, up-to-the-minute information on patient care and research, personalized assistance in tapping knowledge sources, and a diverse collection recording the scholarly record of the health sciences. The new library is expected to serve even more students, faculty, researchers, and citizens.

The master plan emphasizes that for UCHSC to maintain and enhance its ongoing commitment to provide educational programs that respond to health workforce needs, the library must be continuously responsive, dynamic, evaluation-conscious and future-oriented. The success of this goal depends in large part on effective use of the appropriate evolving information technologies and other learning methods. The new library will be the focal point to access information from emerging technologies.

Project Justification:

Space allocated for the current Denison Library program is inadequate to support changes in curricula, teaching, technology, and research. Although the Denison Library space has been renovated in the past few years, the renovations merely allowed UCHSC to compete in education, research, and clinical care. The current Denison Library's area of 48,000 assignable square feet (asf) is cramped, learning tools are out of date, study areas do not accommodate collaborative learning, staff now works in awkward and inappropriate spaces, and the number of reader seats has been reduced to accommodate the growing collection of periodicals and books.

To support the campus mission, the library collects and provides access to materials related to dentistry, medicine, nursing, pharmacy, and selected allied health disciplines, basic life sciences, and other health sciences disciplines represented on the campus. As the only comprehensive health sciences library in the state of Colorado and the Rocky Mountain region, the Library will continue to provide unique collections and programs to be drawn upon by all higher education institutions in the state.

The Library is needed at the UCHSC Fitzsimons campus to:

- Meet the needs of students, faculty, and research at Fitzsimons;
- Encourage interdisciplinary work, scholarship, and practice;
- Support greater integration among education, research, and clinical activities;
- Provide current, high quality knowledge for the UCHSC community and for health professionals and consumers in the region;
- Support and develop partners through alliances and affiliations;
- Strengthen core support services;
- Provide leadership in the application of new technologies to the health care information field; and
- Develop a flexible, adaptable environment for Library users.

CCHE Recommendations:

The program plan for the Library at Fitzsimons (\$34,998,669 State Capital Construction Funds Exempt – State Certificates of Participation - COP; 116,000 gross square feet) should be approved for financing through state COP made possible from passage of HB 03-1256 with this condition:

- UCHSC re-evaluate the relative inefficiency of the library (66.3 percent vs. CCHE recommended building efficiency for libraries of 75 percent) during the design phase and report the final decision to CCHE staff..

A campus development of this magnitude will need a library facility. The program plan is thorough, and includes a full development of objectives to be met over the long term to accommodate future needs for expansion. The planned footage would double the size of the existing facility, but student, faculty, and affiliate use supports the decision to expand. The plan includes an extensive information technology component, so by the time the facility is built, it will overcome all the existing deficiencies at the 9th Avenue library.

CCHE Staff Comments:

Background: CCHE neither approved nor disapproved this program plan for fiscal year (FY) 01-02n and FY 02-03 due to limited state funding. In conformance with CCHE policy, UCHSC submitted an executive summary to CCHE confirming that the space, capital costs, education and enrollment assumptions remain valid and that new code requirements, if any, have been taken into account.

Other CU Libraries: The University of Colorado System has a number of libraries. All the CU campuses make independent decisions about library funding because a collective library system master plan does not exist. (CCHE asked CU to do such a master plan for all its libraries in 2001, when CU was seeking state money to renovate Norlin Library for University of Colorado at Boulder and to build the new library at Fitzsimons, but no money was available to perform the study.) CU ranked 32 among all U.S. public institutions in the 2000 *Chronicle of Higher Education* rankings of U.S. and Canadian research libraries. These are details about other libraries of the CU system or located on its lands:

- Norlin Library, CU-Boulder: The state's largest academic library, Norlin has specialized libraries for music, business, law, engineering, math and science, and education.
- CU Law Library, CU-Boulder: This is the largest law collection in Colorado, providing specialized legal information needs of the Law School students and faculty, the larger university community, Colorado's judiciary and members of the bar, and Colorado citizens. Limited space for the law collection is causing American Bar Association concern.
- Auraria Library, Auraria Higher Education Center, Denver: This library focuses on developing collections to meet the needs of the very large, diverse undergraduate population

and unique University of Colorado at Denver graduate programs of the Graduate School of Public Affairs and the College of Architecture and Planning.

- Kraemer Family Library, CU-Colorado Springs: Collection strengths include psychology, business, education, and electrical engineering. The library's focus is meeting the curriculum needs of undergraduate and graduate programs.
- Denison Memorial Library, UCHSC 9th and Colorado campus, Denver: The library functions as a gateway to the world's biomedical information, assisting UCHSC in accomplishing its missions and goals in education, research, patient care, and community service.
- Preservation and Access Service Center for Colorado Academic Libraries (PASCAL), UCHSC Fitzsimons campus: Not so much a library as a holding facility for seldom-demanded print materials, PASCAL is located immediately to the east of Education Facility II. It is not exclusively a CU facility, being available for storage of printed materials from other academic libraries in the state.

Print vs. Digital: During the design stage, UCHSC planners will decide whether some or all of the printed collections should go to PASCAL for storage to create more space for computers having access to on-line resources. The program plan, however, indicates storage at PASCAL may be an option for only the less frequently used printed materials due to the configuration of the shelves at PASCAL. It is cumbersome and costly to pull and re-shelve volumes on two-thirds of the printed material because they are not within convenient reach and the aisles are not designed to accommodate more than one vehicle. Operating costs would make this an inefficient option. One way the new Library at Fitzsimons would be designed to accommodate for greater use of on-line information resources is by locating medical journals on the third floor. The stacks for the bound medical journals could be cleared away for reader stations having access to digital resources or for other uses as the library progresses more toward digital resources. The program plan emphasizes the use of electronic journals by the time the facility opens. Print books and special collections will be located on the top floor along with administrative offices.

Transition from 9th and Colorado: With the accelerated move from the 9th and Colorado campus, plans to have at least part of the Denison Memorial Library open for a time after the new Library at Fitzsimons opens have been abandoned because of the assumption that all academic programs will be relocated to Fitzsimons by 2008.

Program and Facility Requirements:

The new library will be a four-level facility sited immediately to the north of the Administration Building (Building 500). In addition to administrative space (2,155 asf), circulation space (2,320 asf), and general space (8,320 asf), the new facility will contain space for the learning resource center (2,860 asf), reference services (2,550 asf), resources services (1,210 asf), systems-databases (3,775 asf), material storage (23,607 asf), education and health informatics (2,945 asf), information access and study space (19,530 asf), the drug information center (2,330 asf), the History of Medicine collection (2,950 asf), and specialized building support space (2,420 asf).

Specific highlights include: 1) open, quiet study areas for comfortable reader seating; 2) small group study rooms for collaborative learning; 3) stacks (meeting accessibility guidelines) that will accommodate print materials more efficiently; 4) an open, circulating collection of books and bound journals, special collections and archives, reference collections and current journals; 5) wireless and Personal Data Assistant (PDA) technology that will allow computer laptops and other portable devices to be used throughout the facility; 6) adequate, well-designed and user-accessible staff space, and, 7) cutting-edge graphic and virtual reality technology.

Building Functional Uses:

Library facility and offices.

Building Efficiency/Space Utilization Factor:

The building efficiency will be about 66.3 percent (76,972 asf/116,000), compared to CCHE library space guidelines of 75 percent. The low building efficiency proposed should be re-evaluated during the design phase. The library is expected to be open far more than 40 hours per week.

Appropriateness of Funding:

In a time of limited state dollars for capital projects, the COP financing made possible for the Library at Fitzsimons and six other academic facilities at Fitzsimons (Education Facility IB, Education Facility II, Education Bridge, Academic Office Facilities, Environmental Health and Safety II, and Facility Support Building) through HB 03-1256 may be the only way the accelerated transfer to the Fitzsimons campus from 9th and Colorado can be accomplished. To date, UCHSC has received \$30,000 in gifts for the library. This money may be used to purchase some furniture or equipment not covered in the project budget. The library is still raising funds on the assumption that the money raised will be used to supplement, but not replace, the \$34,998,669 million budgeted for construction.

Facility Alternatives:

These two alternatives were examined in the program plan, with the arguments against following:

Serve the new Fitzsimons campus from the present library location at 9th and Colorado Boulevard: Although many traditional publications can be tapped remotely from any physical location via electronic media, publishers remain highly conservative about abandoning print, and pricing often makes digital information prohibitively expensive. At the same time, print remains the most convenient and appealing format for many purposes, meaning that it will not disappear by the time the new library is operating.

Programs that move to Fitzsimons would be greatly handicapped if there were no library personnel present to facilitate users' access to complicated technology or current information required to make sound decisions. Students are the largest group of walk-in users of the library,

and their needs for personal assistance, access to computers, and study space cannot be met by the limited space and features of Dension Library at 9th and Colorado or the Education I or other non-library facilities at Fitzsimons.

Moreover, the current library would require substantial renovation and associated costs to accommodate growth and emerging technological information needs.

Relocate the library's entire print collection to PASCAL: PASCAL provides the cheapest and most efficient storage option for research materials in limited demand. The design of its shelf configuration, however, is based on the premise that items will not be requested frequently. It is cumbersome and costly to have to pull and re-shelve volumes on two-thirds of the shelves because they are not within convenient reach and the aisles are not designed to accommodate multiple users. Consequently, it would be slow and expensive to retrieve and re-shelve popular materials from such a facility. Operating costs make this an inefficient option. The developing Fitzsimons campus would still be without a library. The remaining existing library would require substantial capital expenditures to accommodate growth and emerging technological information needs after the relocation of its print collection.

Consistency with the Institutional Master Plan:

This project is consistent with the original and annual Master Plan updates. The 2002 Supplements to the 1998 master plan included the Library at Fitzsimons, with the same gross square footage and project cost, as among the projects likely to be financed through state COP. The Commission approved the 2002 Supplements in February 2003.

Consistency with Institutional 5-Year Capital Improvements Program Schedule:

This project is included in the latest five-year capital plan.

Governing Board Approval:

The Board of Regents approved this project in June 2001.

STATE COP PROGRAM PLAN EVALUATION FY 2003-04
Colorado Commission on Higher Education

Project: Facility Support Building at Fitzsimons	Institution: University of Colorado Health Sciences Center - Fitzsimons
Original Submittal Date: April 18, 2003	Revision Date:
Total Project Cost: \$15,707,167 Anticipated Completion Date: June 2006 Construction Cost: \$12,201,805 Purpose Code: F-5	Total Square Footage New Construction: 60,000 gross square feet (gsf) Remodel: Cost per Square Foot: New Construction: \$203.36 Remodel: <i>Comments: Fairly high square-footage for what is essentially an office and shop building.</i>

Phased Funding:*

	2003-04	2004-05	2005-06	2006-07	2007- 08	Total
CCFE (State COP)	\$1,216,236	\$8,767,055	\$5,723,876			\$15,707,167
CF						
CFE						
FF						
Total	\$1,216,236	\$8,767,055	\$5,723,876			\$15,707,167

* HB 03-1256 actually appropriated \$202,876,109 for academic facilities at Fitzsimons in one lump sum. Once CCHE approves this program plan, one of the seven projects funded in HB 03-1256, UCHSC plans to spend the money for Facility Support Building in phases as outlined above.

EVALUATION**Project Description:**

The University of Colorado Health Sciences Center at Fitzsimons intends to build a facility housing various functions to support the Fitzsimons campus. The initial program plan for this building was for facility operations such as a machine shop, sheet metal, welding, electrical, plumbing, heating, ventilation and air conditioning/refrigeration, lock shop, signage, carpentry, paint shop, motor pool and parking maintenance shop; central campus mail services; exterior yard storage for vehicles, equipment, and supplies; and related program offices such as Facilities Operations, Facilities Projects, Institutional Planning, and Printing Services Design Center. The program office and support space will be planned and designed to be as generic as possible to

ensure flexibility in use. The building will be located directly east of the Central Utility Plant on the eastern edge of the Fitzsimons campus.

Since the program plan was presented to CCHE, the UCHSC has decided **NOT** to house auxiliary functions in this building. One possible option for the use of 7,862 gsf is to locate a portion of the campus police program in this building. Advantages would include access to an exterior vehicular storage area and shared use of interior locker room space, storage areas, and other common areas and building amenities. Other options may emerge as the design phase of the building gets underway. The UCHSC has committed to keeping CCHE staff informed of the final decisions for the uses in this building. Completion of the building is planned for February 2006.

Project Justification:

The project is needed to replace existing offices and functions currently housed on the 9th Avenue and Colorado Boulevard and Fitzsimons campuses. According to the program plan, all the functions are currently housed in scattered locations at both University of Colorado Health Sciences Center campuses: about 29,300 assignable square feet (asf) at Fitzsimons and about 29,053 asf at the 9th Avenue and Colorado Boulevard campus, for a total of 58,353 asf. The 60,000 gsf that will be provided in the new Facility Support Building at Fitzsimons will provide 42,000 asf of space in a single, more efficient building. The building will be built large enough to accommodate facility support space needs at Fitzsimons through 2007. The support facilities are needed to support a Health Sciences Center student population that was at 2,330 students in FY 00-01 and 2,410 in FY 01-02, and projected at 2,510 in FY 02-03, 2,582 in FY 03-04, and 2,671 in FY 04-05.

CCHE Recommendations:

The program plan for Facility Support Building (\$15,707,167 Capital Construction Funds Exempt – state-backed Certificates of Participation; 60,000 gross square feet) should be approved.

CCHE Comments:

Alternatives: The University of Colorado Hospital had once intended to build a maintenance facility/warehouse at the Fitzsimons campus. But the great availability of shop space near the nearby Stapleton Airport made hospital officials decide to locate the facility support functions off site in leased spaces. An argument could be made that many of the shop functions and the storage yard in Facility Support Building could be provided less inexpensively in nearby leased spaces as well, thus freeing more space at Fitzsimons for the core functions of research, education, and community service. An argument also could be made that many of the offices planned for Facility Support Building could be provided just as well in Academic Office Facilities. However, Facility Support Building is one of the seven projects that will be funded from lease-purchase agreements provided for in HB 03-1256. If the Health Sciences Center reconsiders the need for Facility Support Building, it should get HB 03-1256 amended to exclude Facility Support Building and reduce the \$202,876,109 total by an appropriate amount. The \$202.8 million probably would not be reduced by the total \$15,707,167 for this project because

of the need to build office space elsewhere. (The program plan discusses the idea of sending “Shops on Wheels,” mobile trucks equipped with supplies and tools, from Facility Support Building to buildings needing attention. This approach seemingly would reduce the need for shop space, but some of the items needing attention will have to be returned to the shops to be worked on.)

Proximity to Interstate 225: The first view of the University of Colorado Health Sciences Center Fitzsimons campus southbound travelers will have is of the Central Utility Plant and Facility Support Building. Therefore, the storage yard needs to be landscaped so that it is hidden from travelers of the interstate. The Facility Support Building should be an attractive building, despite the utilitarian functions housed within in.

Outsourcing of Custodial Staff: The program plan projects that the nearly 93 employees of the functions that will be eventually housed in the Facility Support Building already based at Fitzsimons will increase to nearly 196 in 2007, reflecting the increased number of buildings that are expected to be built at Fitzsimons. The total number of Facility Operations, Facility Projects, Institutional Planning, and Printing Services employees at both 9th and Colorado and Fitzsimons, however, will drop from about 295 to about 243 in 2007, with most of the reduction in staff coming from custodial services being performed under contract by a private firm. Whether this is possible given the Colorado Supreme Court ruling on privatization of state services that essentially prohibited the use of private firms for functions that were originally performed by state employees is debatable. (The total number of employees at 9th and Colorado will drop from nearly 292 to nearly 40 by 2007, according to the staffing projections in the program plan, reflecting the reduced number of occupied buildings at 9th and Colorado.) If outsourcing for custodial services at Fitzsimons is not possible, then the University of Colorado Health Sciences Center will need to provide lockers for custodians. Currently, only supply space is being provided for custodial services.

Storage Area Option: When this program plan was being prepared, the University of Colorado Hospital was going to build a maintenance shop/warehouse adjacent to the Facility Support Building. In the intervening months, hospital officials have decided to locate the maintenance shop/warehouse off site. The program plan stated that 10,000 square feet for storage of records would come from the hospital warehouse. The change may require the Health Sciences Center to either include an additional 10,000 square feet for storage in the Facility Support Building or join with the University of Colorado Hospital in securing sufficient storage space. CCHE staff recommends the second option due to the expense of adding new square footage.

Space Reuse: The program plan states that all related facilities operations and projects programs will be relocated from Building 500 (the old Army hospital) to office space within Facility Support Building. The vacated space in Building 500 will be used for academic program offices relocating to Fitzsimons from the 9th and Colorado campus.

Program and Facility Requirements:

Several functions that will locate to the Facility Support Building need to be next to each other. In the flexible shop area, the lock shop should be next to the building signage shop. The carpenter shop should be next to the paint shop. And the lock shop, carpenter shop, paint shop,

mail services area, central tool supply, materials archive and cash room for parking all should be in enclosed spaces that can be secured. The motor pool shop area and the grounds shop area should be located immediately off the exterior yard area. The central tool and material supply areas should be secured and convenient. Easy access is needed between central dispatch and the shop areas, as well as between the shop areas and the staff break areas, locker rooms, and training rooms. The secured exterior yard should be appropriately sized for storage of operations maintenance vehicles and building and grounds maintenance supply materials and equipment. Central mail services for the entire campus will require its own loading and receiving dock areas. And all office and office support space will be designed as generically as possible to that they will be functional for a wide range of programs.

Very limited visitor and staff parking will be provided on the building site, although service vehicles will be parked on the site. Visitors and staff will park initially on surface and later on structured parking spaces.

A communication system will be extended from Building 500, where a telecommunications and switch room facility was built as part of the first renovation. Copper for telephone service and fiber for data service will connect the Facility Support Building with the rest of the campus through Building 500.

The table below shows the space needs for the functions planned for it:

Facility Support Building Space Needs

<i>Space Name</i>	<i>Total ASF</i>	<i>Total GSF</i>
Facilities Projects Administration	3,480	
Office of Institutional Planning	1,300	
Campus Police Program	7,862	
Facilities Operations Administration	380	
Finance, Administration and Support Services	5,465	
Building Operations	19,960	
Building Services	2,250	
Shared Spaces (conference, training etc., lockers, showers, plan storage)	3,000	
Enclosed Vehicle & Equipment Storage	3,155	
<i>Total</i>	<i>42,000</i>	<i>60,000</i>

A significant amount of equipment and furnishings will be moved from the 9th and Colorado campus. However, Health Sciences Center anticipates a total budget of \$735,068 for new equipment (\$202,764), furnishings (\$199,440), and technology (\$333,864).

Building Functional Uses:

The Facility Support Building will be used for shops, storage, office, and training.

Building Efficiency Factor/Space Utilization:

Facility Support Building will have a building efficiency of 70 percent (42,000 asf/60,000 gsf), compared to CCHE space utilization guidelines of 68 percent for office buildings and 90 percent for physical plant service buildings. The planned efficiency factor is high for an office building but low for a physical plant service building, but probably inevitable given the mix of uses.

Appropriateness of Funding:

The project will be financed through lease-purchase agreements made possible through passage of HB 03-1256, which included the Facility Support Building as among the seven University of Colorado Health Sciences projects that could be financed through the issuance of state-backed Certificates of Participation. Annual aggregate state “rentals” of the buildings are not to exceed \$15,100,000 a year for up to 25 years. This is an appropriate source of funding given the extremely limited amount of state capital construction money available for higher education in the current poor economic times. The financing mechanism is one way the University of Colorado Health Sciences Center can accelerate the move of its students and faculty from the 9th and Colorado Boulevard campus to Fitzsimons. Called for in a study by the Urban Land Institute that CCHE requested, the accelerated transition to the Fitzsimons campus should help Colorado realize the economic impact of the Fitzsimons project sooner, reduce overall facility costs if construction can start while the construction market is highly competitive and the rate of construction cost inflation is low, and avoid continuing operating, maintenance, and remodeling costs at the 9th and Colorado Boulevard campus, among other benefits. These benefits of accelerating the move to Fitzsimons are spelled out in HB 03-1256.

Facility Alternatives:

Alternatives to building the Facility Support Building that were rejected in the program plan were:

- Expand the Facilities Operation’s Department’s current building at 9th and Colorado: Expansion would require a costly and disruptive renovation of the entire facility, and the Facilities Operations Department would not be relocated to the Fitzsimons campus along with the Health Sciences Center programs it supports. This would not be consistent with the Facilities Master Plan of 1998 and with the 2002 Supplements to the plan that CCHE approved in February 2003.
- Lease an off-campus facility near Fitzsimons: If a large enough vacant facility could be found, an off-campus facility might be inaccessible to many of those needing building support services and require unnecessary lease payments when the University of Colorado already owns an appropriate site at Fitzsimons.

The program plan did not examine the possibility of moving some of the functions that will occupy the Facility Support Building off campus (such as storage and shops) and locating the offices in the Academic Office Facilities instead. With the passage of HB 03-1256 specifying the

building as among the “academic” buildings for the Fitzsimons campus that will be financed through lease-purchase agreements, however, the time to consider that possibility may be past.

Consistency with Institutional Master Plan:

The University of Colorado Health Sciences Center Institutional Master Plan of 1998 estimated 78,000 gsf would be needed to support the 2.6 million gsf expected to be on the Fitzsimons campus by 2007. The 78,000 was calculated as 3 percent of that 2.6 million gsf total, a total that excludes the planned Research Complex 3 of 400,000 gsf and all the square footage for the University of Colorado Hospital facilities. CCHE space guidelines no longer include a percentage of the total square footage as the recommended size of physical plant service space. The 60,000 gsf size of the proposed building should be sufficient for several more years. The building site includes space for expansion should that be necessary later.

Consistency with Institutional 5-Year Capital Improvement Plan Schedule:

This project is consistent with the latest campus five-year capital plan.

Governing Board Approval:

The Board of Regents approved this program plan on April 24, 2003.