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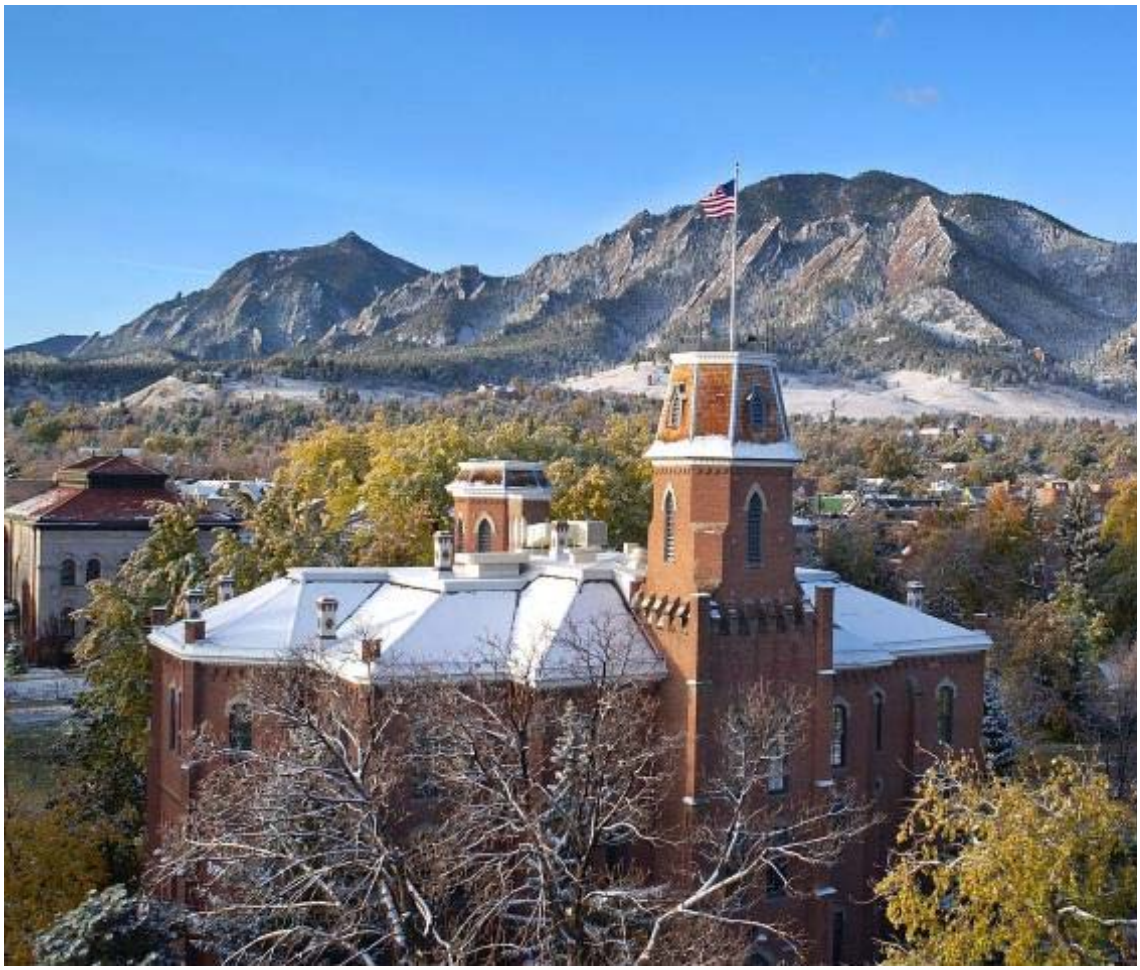
TASK FORCE REPORTS

CAMPUS MASTER PLAN



Colorado
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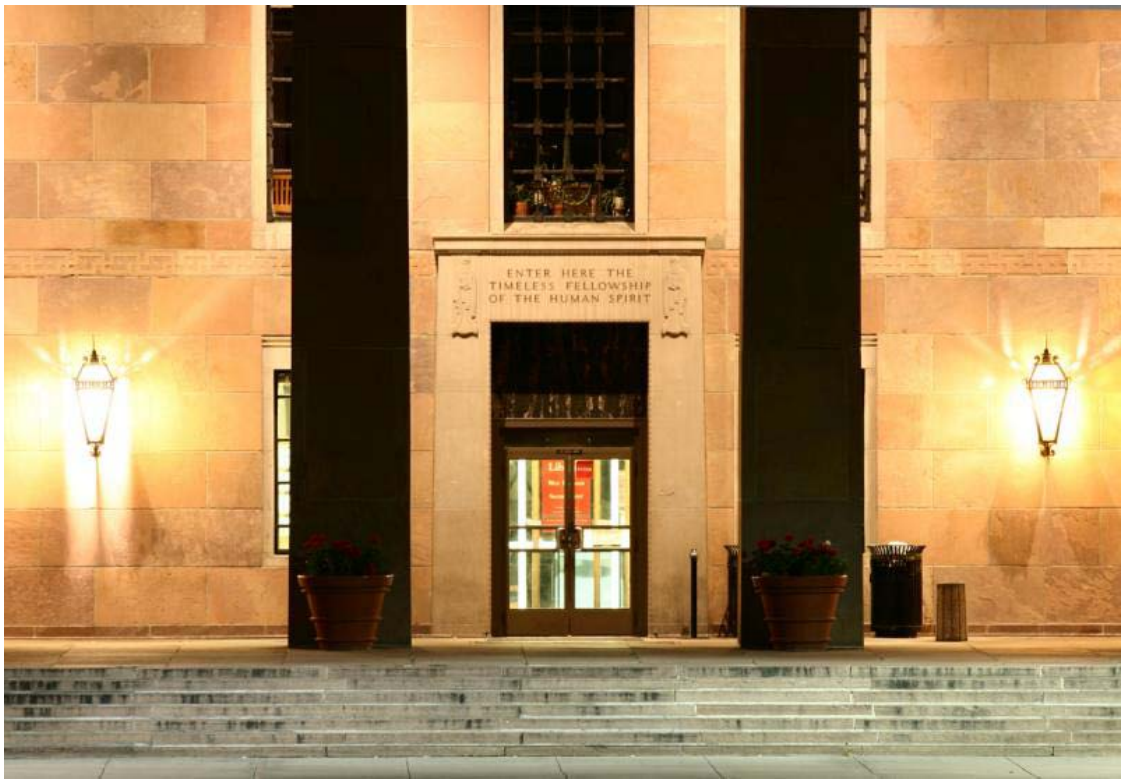
REPORT OF THE MASTER PLAN TASK FORCE ON

ACADEMIC NEEDS & SPACE UTILIZATION



"Together, we will achieve great things for CU-Boulder in an exciting new century, and we will fulfill the university's highest ambitions in research, teaching and service."

-Phil DiStefano, Chancellor

Boulder Campus Master Plan: 2011-2020
Academic Needs Task Force Report

Final Draft: February 12, 2010

The academic needs task force was charged with studying the 10-year facilities needs related to the delivery of education and research and creative work on the Boulder campus and making recommendations for facility growth and use in the 2011-2020 campus master plan (CMP). The task force met bi-weekly from October 12 to December 9, 2009 and again on January 6, 2010.

Task force members:
Elizabeth Bradley, Professor of Computer Science
Bob Cloutier, Instructor, College of Music
Deb Coffin, Associate Vice Chancellor for Student Affairs and Dean of Students
John Culshaw, Professor, Library Administration
Noel Cummings, Facilities Management
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Tom Higginbotham, Student
Bill Kaempfer, Associate Vice Chancellor for Budget and Planning
Bill Lewis, Professor, CIRES
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Hans Morgenthaler, Associate Dean, Architecture and Planning
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Phil Simpson, Facilities Management
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JoAnn Zelasko, Assistant Dean, College of Engineering 2

Introduction and Background

The phrase "academic needs" in the context of this task force refers to improvements in existing facilities, and development of new facilities, that are important for sustaining and optimizing the academic functions of the university. These academic functions are teaching, research and creative work, and to some extent outreach and engagement.

While this definition could support a broad inclusion of facilities, we interpret it to mean classrooms, meeting rooms, libraries, unit-level (including research institutes) office space for faculty, graduate students and staff, laboratories, studios, performance venues, and exhibition space including museums. We do not address facilities needs for centralized and college-level administration, university auxiliary functions, transportation and parking, or housing except where those activities implicate educational delivery.

For this purpose the task force met bi-weekly beginning in mid-October. It accumulated relevant data on existing facilities and prospective growth scenarios. The task force interviewed the Deans or Associate Deans of each College and School, the Assistant Dean of Continuing Education, the Dean of Libraries, the Dean of Students, and the Vice Chancellor for Research.

General Principles and Observations

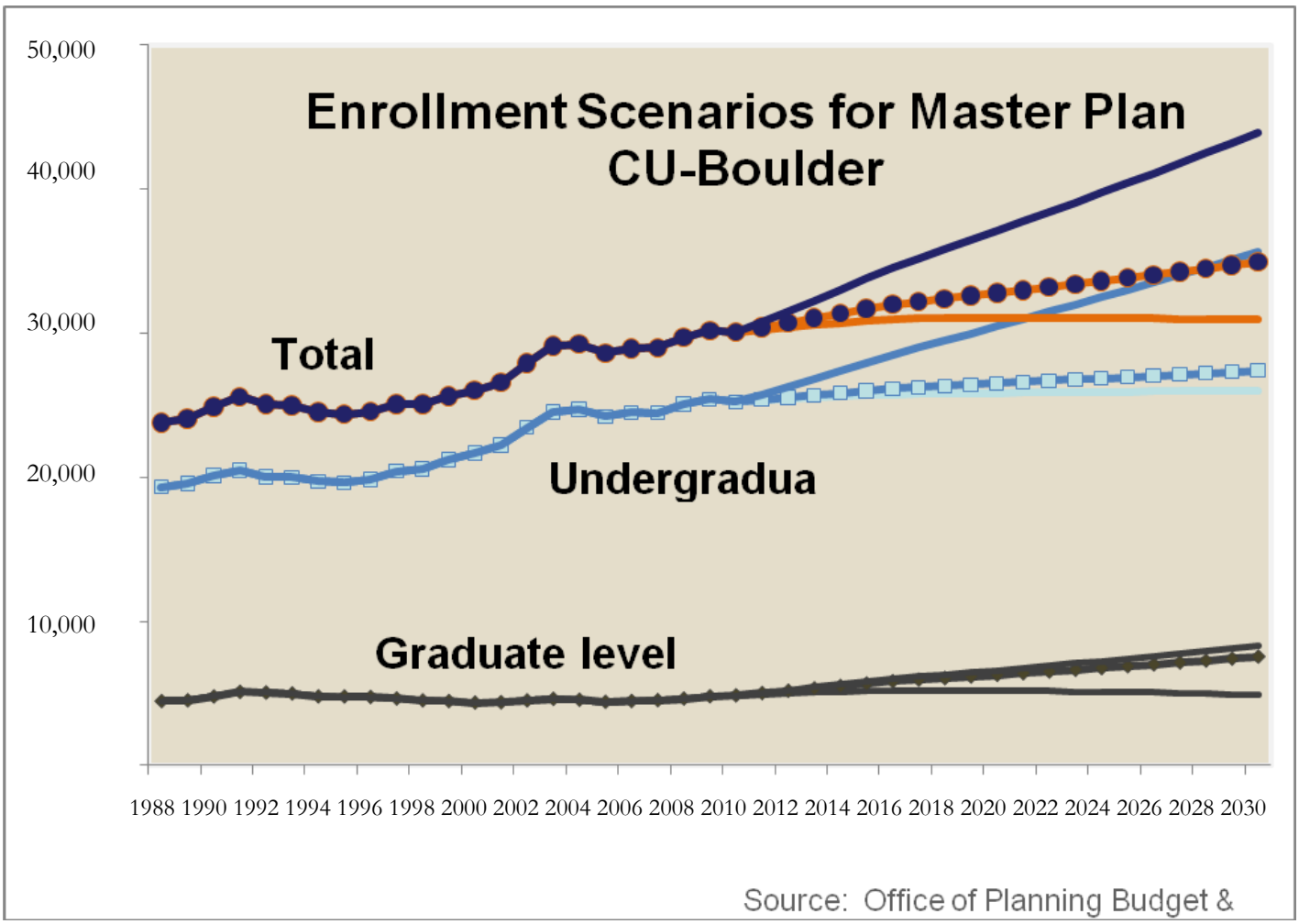
1. Our intention is to identify current and future academic needs that are poorly met by existing facilities or may require new facilities. We suggest in general terms how to meet those needs without getting overly prescriptive in terms of building sizes or locations.
2. Our analysis of future needs is based largely on the central projections of the Flagship 2030 report.
3. A central problem on the campus is the lack of resources for renovating and maintaining existing academic facilities.
4. The consensus of the task force is that the main campus (MC) is currently almost fully built out and is under stress in terms of congestion and utility provision. While there is scope for building renovation and additions to some buildings, we do not favor additional new construction projects on MC.
5. In part, item 4 reflects our expectation that east campus (EC) will see significant construction activity over the planning period, part of which will support migration of units and services from MC to EC and free up space on MC for backfill. In short, the university's anticipated growth projections should, in the first instance, be addressed by facilities growth on EC.
6. Our task force envisions that EC will be developed as more than simply a scientific research campus and will involve some classroom expansion, office space, and student facilities. We think it important that EC become a functioning academic campus.
7. The quality of our physical facilities is a key consideration in recruiting new faculty and graduate students. Existing space for doctoral students is poor and scarce across all units, but especially in the social sciences, humanities, and music.

8. The Boulder Campus has been successful in creating new classroom space to meet the needs of the current enrollment. We foresee some future deficiencies in this critical resource if the enrollment projections of Flagship 2030 are realized. Therefore, planning must begin now for provision of additional classroom space as needed.
9. Expanding graduate enrollments will require better office facilities and due consideration for expanding library collections, computer labs and science laboratories.
10. It is important to sustain as much flexibility in facility use as possible to accommodate needed technical changes going forward.

Central Projections

1. Consistent with Flagship 2030 we anticipate that undergraduate enrollments will rise modestly from 25,408 in F09 to 26,951 in F30. Graduate enrollments will rise from 4,788 to 7,100. Flagship 2030 does not break down the growth in graduate enrollments and we simply guess that 2/3 of that increase will be in MA and professional MA and MBA programs, with 1/3 in PhD programs. We believe it prudent to prepare for these increases within the context of the next CMP. We also note that F2030, in its higher projections, allows for approximately 1,500 undergraduate students more than our working figure.

2. The University's strategic plans call for an increase in the net number of TTT faculty of 300 by 2019, which is within the CMP period. As of 2010 approximately 100 of these have been hired, leaving a net growth of 200. Plans also call for further increases in TTT by 2030 to reduce student-faculty ratios. We think it is sensible to prepare for at least 220 new TTT faculty within the next CMP, particularly to manage the anticipated growth in MA and MBA programs.



3. While it is impossible to predict how these new faculty will be allocated, we anticipate significant growth (at least 100%) in sponsored research funding. Thus, our central projections envision about half the net increase in TTT faculty will be in the natural sciences and engineering (S&E), with many of them assigned partially to research institutes. This growth in S&E will be driven by grant funding but investments need to be made in facilities to support the activity of winning extramural support.

4. Growth in students and faculty will require concomitant growth in staff, advising, doctoral students and post-doctoral research faculty.

General Recommendations

1. As a high priority, the campus should put aside a proportion of perhaps 1% to 1.5% of general-fund revenues for ongoing renovation and maintenance of academic facilities (hereafter called "renovation fund").
2. As facilities are moved to EC there will be many decisions that need to be made about backfill use of vacated buildings. The task force recognizes that authority for those decisions must rest with central administration. However, we urge the campus to develop a more transparent and inclusive process for reaching those decisions. One suggestion is that there be a periodic (perhaps bi-monthly) meeting involving the Vice Chancellor for Administration, Associate Vice Chancellor for Budget and Planning, Director of Planning

for Facilities Management (or their designees) with the Council of Deans (or a group of Dean designees), a representative of the Boulder Campus Planning Commission, and other relevant officials (e.g., in cases where academic space may be converted to other uses). At those meetings participants would discuss impending building plans, resulting vacancies, and prospects for backfill decisions.

3. The campus administration should consider devising and implementing a system of incentives that will improve the efficiency of space usage. Examples of efficient usage could be offices shared in a "hotel" arrangement and, for graduate students, increasing resort to cubicles and partitioned spaces.

Overview of Space Deficits by Type

A. Classrooms.

As of spring 2010 there are 182 centrally scheduled classrooms, plus 18 in Fleming and Wolf Law that are not currently centrally scheduled. Eight are not wheelchair accessible. Of the 182, 45 are not equipped with AVM or AVM-SMT capability, 13 are AVM and the remainder SMT or AVM-SMT.

Size distribution:

Small (under 50 seats):	137
Medium (50-100 seats):	24
Large (100-200 seats):	13
Very large (over 200 seats):	8

Note that of the final category only 3 (CHEM 140; MATH 100; MUEN E050) exceed 400 seats and the largest is 479. Our understanding is that the Systems Biotech building on EC will incorporate auditoriums of 200, 90 and 60 seats.

In addition to these rooms most academic units have at least one small seminar room that is not centrally scheduled. There are additional rooms in Macky and Imig that are used as classrooms in Music.

In its discussion the task force saw relatively little need to expand the stock of small and medium classrooms. However, the relative lack of larger rooms is a constraint on the ability to offer efficient large classes and will become more constraining with enrollment growth and expansion of continuing education. There was discussion of whether a need arises for 1 or 2 super large rooms, with 800-1,000 students in each. Some expressed concerns about whether constructing such facilities would generate congestion and place further stress on utility supplies. Perhaps a better model would be to plan for at least one more very large classroom (600-750 students) and equip it with the capacity to transmit lectures to satellite rooms elsewhere on campus. We recognize that such remote transmissions raise their own problems for the integrity and appeal of such classes, a factor that needs to be considered.

Recommendations regarding classrooms: 5

1. Ensure that funding is allocated to complete the job of making all classrooms AVM-SMT equipped as soon as possible.

2. Plan for an additional 600-750 seat classroom. Timing of the EC build-out may dictate whether this should be located on MC or EC. If it is to be MC we would urge that it be done within an existing facility (e.g., Carlson Gymnasium) to avoid further construction and congestion.

B. Computer Labs

The task force heard no complaints about inadequacy or additional needs for teaching-related computer lab space. Rather, some labs may be converted to other uses in recognition of the nearly universal tendency of students to have their own laptops.

Recommendations regarding computer labs:

1. Encourage academic units to work with central administration to consider whether existing labs should be converted to offices or other uses.
2. As new facilities are constructed make allowance for computer labs as requested by units.
3. Wireless locations, including cafes, may be effective substitutes and create beneficial learning environments for students.

C. Performance Venues and Studios

For musical performances the campus has Macky Auditorium (2,000 seats), which is in heavy use by both the university and Boulder. It also has the Grusin Music Hall (500 seats) the Music Theater (250 seats) and a Chamber Hall (120 seats) in Imig. Music Dean Sher argues that there needs to be an additional 1,000-seat performance venue on campus to be competitive, along with a large ensemble space that could be used also for theater (see below). There is also need for more studio space and 60 recital/practice rooms.

For theater the campus has the University Theater and the Loft Theater, both small venues. THDN sees a need for additional studio and practice space.

Graduate students and faculty in film studies were not provided space in the VAC. FILM has faculty office space in Atlas and sub-standard editing space in Macky. The department expresses a need for 9 graduate studios and another 3 faculty studios by 2015.

Recommendations regarding venues and studios:

1. Incorporate into CMP the possibility of constructing a performance venue that would have both a 1,000 seat music hall and music-theater ensemble space, along with music and dance studios and practice rooms.
2. Set aside funds for renovation in ENVD or another location that would permit additional studio space for music and architecture and planning.
3. Space is needed for studio space for film studies students.

D. Exhibit Spaces

The campus has just constructed what will become an outstanding art museum in the VAC. The task force sees value in having an equally outstanding science museum to complement the nature of EC. This could combine the Henderson Museum, the Museum Collection, and perhaps additional displays involving atmospheric science, astronomy and physics. Having that venue on EC would make it accessible to the community and it could incorporate the Science Learning Center.

Recommendation regarding exhibit spaces:

1. As resources permit, construct a science museum on EC.
2. Convert Henderson Museum and MCOL to classroom and office space.

E. Faculty and Staff Offices

It is quite difficult to predict accurately the anticipated deficits in faculty and staff office space because so much depends on anticipated construction and renovation projects. Following are some relevant considerations.

a. There are virtually no unused office spaces on campus.
b. At present all TTT faculty have an individual office.
c. Faculty in some units are spread across 2 or more buildings.
d. Very few offices are devoted to emeritus faculty and the task force sees value in the campus providing at least shared offices for active emeritus professors.
e. Instructors generally share offices, 2 or 3 per space.
f. Honorarium lecturers share space, generally holding office hours in someone else's office.
g. In some older buildings on MC faculty offices can be quite large and may be eligible for splitting into two.
h. Buildings soon to be empty or partially empty (Grandview buildings, either ENVD or Fleming) offer some scope for office space but much of it is sub-standard and would require significant renovation. Note that construction of the new IBS building will permit different uses for Grandview.

From these considerations we conclude that existing buildings are filled and cannot be used to house 200-300 new TTT faculty and associated staff and advisors. Buildings currently or soon to be under construction (Systems Biotech, JILA addition, Aerospace Engineering) should offer space for 50-60 TTT faculty and associated labs. Acquisition of existing non-university buildings on EC would offer a number of additional offices but programming is uncertain. However, Systems Biotech is likely to create backfill space that will be filled by existing faculty as old labs are shut down. Our best guess is that current program plans will support on the order of 30-40 net offices and labs for new faculty. A Geosciences building might add another 10.

We conclude that the impending faculty office space deficit remains large. Of 220 new TTT faculty potentially arriving by 2019 we might anticipate the following:

COLLEGE	FACULTY GROWTH	AVAILABLE OFFICES*	DEFICIT
A&S: natural science	60	30	30
A&S: social science	33	0	33
A&S: humanities	33	0	33
Engineering	30	20	10
Leeds	20	0	20
Law	7	7	0
SJMC	8	0	8
Education	3	0	3
Arch & Planning	4	0	4
Music	2	0	2
Grad School (Institutes)	20	10	10
TOTAL	220	67	147

*Offices in Systems Biotech, JILA, Aerospace; assume Wolf Law has offices available for faculty expansion.

Up to perhaps 10 additional offices might be developed from portioning larger offices in Hellems, Guggenheim, and Ketchum.

Other buildings that may offer some office space include the Grandview buildings, ENVD, and any unclaimed portion of Fleming. It does not seem that the best use of Grandview buildings is for faculty offices, however, because they are not ADA accessible and in need of renovation.

As the TTT faculty expands there will be additional needs for staff offices. Growth of 220 TTT faculty probably translates into another 30-35 staff, for whom offices currently do not exist. This is a modest estimate; the university should begin investing to raise the staff support for faculty teaching and research.

Recommendations regarding TTT faculty and staff offices.

1. Use renovation funds to partition larger faculty offices as practicable.
2. Ensure that as units move to EC sufficient funds are allocated in program plans for backfilling buildings on MC with faculty and staff offices.
3. Incorporate into CMP the possibility of a combined office building and classroom building on EC. Plan for enough faculty and staff offices that could house designated units and needed laboratories, such as SLHS and LING.
4. If Grandview, Fleming and/or ENVD are to be programmed for faculty offices, set aside sufficient renovation funds.
5. Plan for an addition to the Leeds School building as an undergraduate center that would also contain staff and instructor offices, along with needed renovations to

existing building to house current TTT faculty plus anticipated growth of 20 TTT faculty.

F. Non-TTT faculty offices

There are no easy proportions to use to predict growth in instructor, lecturer and research faculty (post-doc) ranks. Those changes depend both on student growth and university preferences over student-faculty ratios and presence of TTT faculty in classroom teaching, along with gains in research funding. Our best guess is that the growth in undergraduate population by 2020 is likely to be handled largely through a mix of TTT faculty growth, larger classes and expanded teaching by graduate students. Thus, we predict zero growth in these ranks and therefore no need for more offices under business as usual. This is not a consensus within the task force, however. Leeds, Architecture and Planning, Law, SJMC, and Music all envision modest increases in their instructor ranks.

It must be noted that instructors are often housed poorly, sharing as many as 3 or 4 per office. And as the number of TTT faculty grows they will physically displace some instructors in certain units. To make their situation more tolerable the task force finds that as many as 40 to 50 more offices might be needed by 2020. We see no particular need to expand space for lecturers.

A further problem, which applies also to graduate-student TAs and GPTIs, is that non-TTT faculty often do not have private space within which to have confidential conversations with students.

In contrast, there is likely to be a substantial increase in research faculty. Engineering anticipates another 25-30 such faculty by 2020, while it is fair to predict another 90 in the natural sciences (at a rate of 1.5 post-docs per TTT faculty member). These professionals need at least shared offices and laboratory space.

Recommendation regarding non-TTT faculty offices:

1. As buildings are constructed or renovated make due allowance for instructor needs.
2. Consider making use of Grandview buildings and some backfill opportunities elsewhere for instructors.
3. Consider whether there is a need for a few offices designated as spaces in which instructors, lecturers, could GPTIs could have private office hours on a rotating basis.
4. In construction of new science buildings and renovations of acquired buildings and backfill space, make allowances for growth in research faculty.

G. Graduate student offices

Except in some of the natural sciences and engineering doctoral students have no offices or designated study spaces except what can be found in the libraries. This situation is academically unsound and poses a threat to effective recruitment and retention of graduate students.

GPTIs and TAs typically share large "bullpens" with multiple desks, each shared for designated office hours. Again, this situation is sub-standard.

The task force thinks it should be a high priority for the CMP to incorporate more and better study space for doctoral students.

Recommendations regarding graduate student offices

1. Set a goal within the CMP that there will be study spaces made available for doctoral students with no more than 2 students per space.
2. As backfill space comes open invest in cubicle arrangements in designated buildings to build more study space for students and offices for GPTIs and TAs. (Grandview, ENVD and Carlson may be examples.) This approach may also support one or two large common rooms designated for quiet study.
3. As paper collections move offsite from the libraries consider adding locked carrels for graduate students to share.
4. To the extent possible attempt to locate doctoral-student study spaces near the departments and schools in which they study.

H. Research and teaching laboratories

The task force identified two major problems. First, laboratories in many of the existing buildings are inadequate to performing state-of-the-art science. Many buildings (Carlson, Cristol, parts of Duane, Engineering complex, and others) were built 40 or more years ago and have reached the end of their intended lives as effective laboratory sites. Utilities needed to service these labs are sometimes outdated and inadequate.

Second, there are not enough laboratories in several units to manage anticipated faculty growth. Units that face severe limitations on growth because of a lack of laboratory space include CHEM, IPHY, PHYS, SLHS, LING, APS, Engineering and some of the research institutes. An A&S planning document claims that as many as 40 wet labs and 20 dry labs in the natural sciences, along with 12-15 specialized labs in SLHS and LING, are needed by 2020. These would amount to at least 70,000 assignable square feet (asf) of space. Engineering will need another 68,000 asf of wet labs and the Institutes see a need for 20 additional labs in that period, amounting to at least 25,000 asf.

Coming on line are perhaps 60 labs in Systems biotech (not all to be used by CU faculty) and perhaps an uncertain number of dry labs in non-university buildings on EC. Geosciences and a second chemistry building on EC would add substantially more capacity. An additional building in partnership with NREL would add more capacity.

The IPHY labs in Carlson should be closed or converted to different use once they are vacated. Substantial renovation costs would be required to backfill Ekeley and Cristol for IPHY and other labs.

Recommendations regarding laboratories

1. Use monies from renovation fund to upgrade existing laboratories.

2. Acquire non-university buildings on EC.
3. Incorporate into CMP the possibility of at least three additional science buildings on EC (Geosciences, Chemistry 2 and a partnership with NREL are possibilities).

I. Libraries

Library services are undergoing a transition toward lesser reliance on paper materials and greater reliance on electronic delivery and web-based information access. Still, some units, especially in the humanities, use printed materials primarily and the libraries have special collections and archives to care for.

Students see libraries increasingly as places to gather and study, suggesting a need for more commons spaces.

Recommendations regarding libraries

1. Locate permanent spaces for special collections and archives. Renovation funds may be needed for this purpose.
2. Complete the retrofit of Norlin Library per the Norlin Renaissance Plan.
3. Establish more multi-use areas, commons spaces, interactive connections, and study spaces within libraries.
4. Include in CMP the possibility of a library welcome/information center on EC.

J. Student services

The locus of student activity is the UMC, which includes important academic functions such as classrooms, meeting rooms, and conference facilities. The construction of C4C will not add capacity in these academic areas. With campus plans for enrollment to grow, the UMC will be undersized to serve the needs of the student body and campus community. The UMC is the highest trafficked building on CU campus with approximately 16,000 people visiting the building daily. The 263,000 square foot facility is already lacking in meeting room space and conference facilities. Currently the UMC does not have an auditorium to accommodate lectures, films, performances and orientations. While the Glenn Miller Ballroom's capacity is 1100 and it is the largest venue of its kind in the City of Boulder, it has not received a major renovation in several decades nor is it the right type of facility for lectures and performances. Considerable renovation and expansion of the UMC is needed to meet the needs of students going forward, as noted in the student services document in the Annex.

There will be increasing needs for student services on EC as that area is built out as a second academic campus. A multi-use building with some student services, dining facility and conference/video space makes sense.

Recommendations regarding student services 11

1. As UMC is renovated and expanded increase the capacity for classrooms, meeting rooms, some conference-sized meeting rooms, and a sizeable facility for lectures and performances.

2. Include in CMP the possibility of an EC mixed-use facility that might combine student services with a library presence and additional office space.