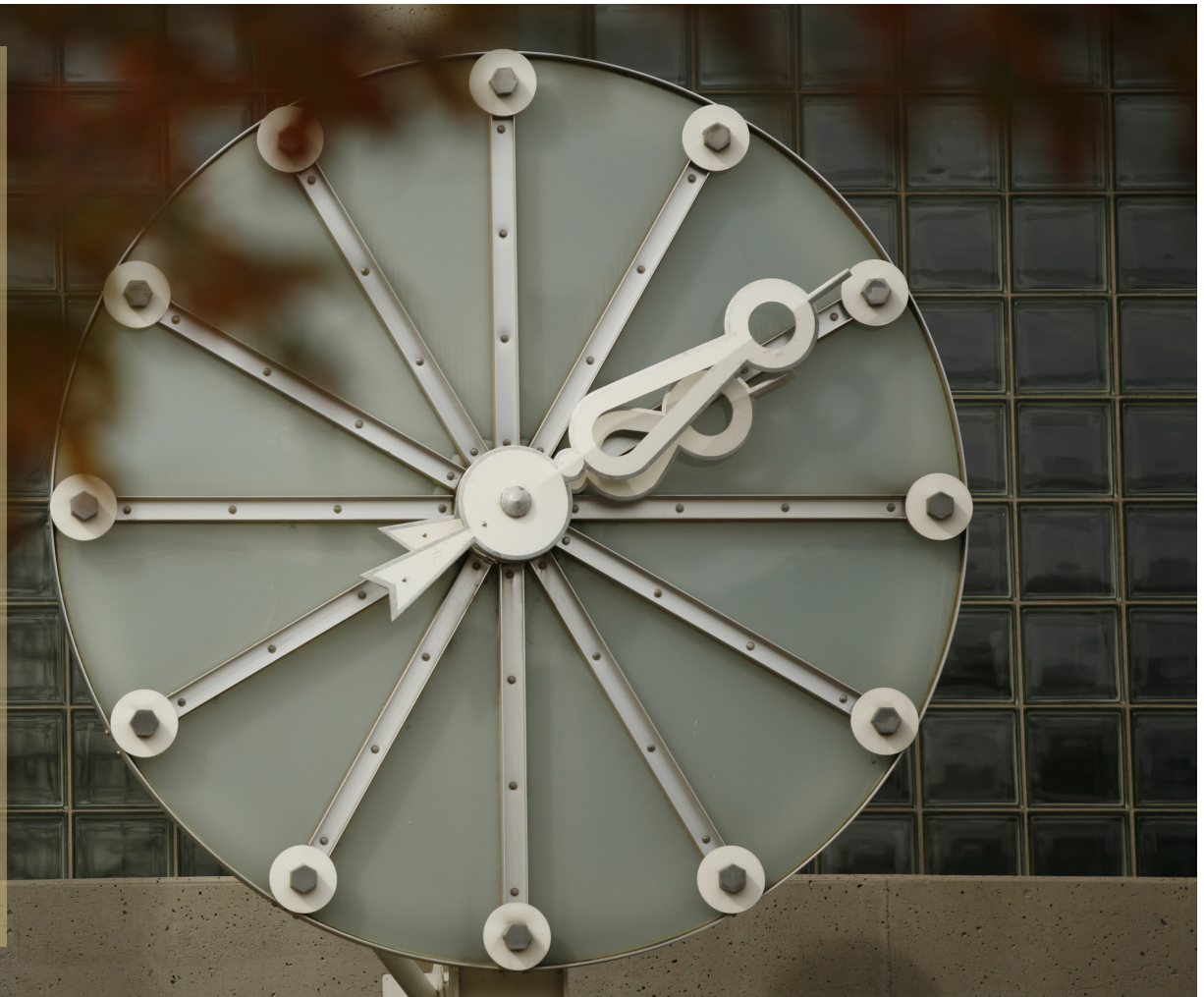ANALYSIS **5**

One of the major goals of this plan is to better understand how CU Denver is currently using its facilities, which requires answers to the following questions:

- *How well is the university using its existing academic and administrative space?*

- *What does the future of funded research look like at CU Denver?*

- *What perceptions do CU Denver students have of the existing student life facilities?*

- *What choices are students making today about where they live, and what demand is there for additional on-campus student housing?*

This section concludes with a summary of the additional spaces needed over the next ten years to enable the university to meet its enrollment, research and on-campus residential growth targets.

5.1 SPACE NEEDS

PROCESS

Defining future space needs for the university required a thorough assessment and understanding of current space by type, size, condition, and use. This exercise consisted of the following three steps:

Survey of Existing Conditions: Document the current space conditions—quality, composition, and functionality—that could affect future space priorities, choices and resolutions. The project team distributed customized surveys to each academic and administrative unit to obtain differentiated input and identify unit-specific space-related issues and opportunities. Simultaneously, the planning effort included an environmental scan that ascertained relevant national and state level educational trends that might affect future space needs. Finally, the deans completed an enrollment planning exercise.

Utilization Analysis: Perform an existing space utilization analysis by merging facilities inventory, staffing and student headcounts, and course offering data provided by CU Denver.

Space Needs Analysis: Develop projections of current and future space needs, based on the survey of extant conditions and the utilization analysis.

What follows is a summary of those three steps and the key findings.

ACADEMIC / ADMINISTRATIVE SURVEY

The survey tool distributed to academic and administrative constituents invited each respondent to address four fundamental unit operational components:

1. the condition and function of all their current spaces (owned/ assigned, shared, or leased);

2. warranted growth projections for their department/unit;

3. potential future space needs by type and number; and,

4. planned changes in programs and services that will affect future space priorities and needs.

ACADEMIC SURVEY

Deans, chairs, and unit directors returned 26 completed survey responses, with five incomplete responses out of the 33 distributed. The majority of respondents indicated that they had space-related issues with their current instructional spaces. Space-related issues include, but are not limited to, inadequate (crowded) classroom space, inflexible furniture/space configuration, and classroom spaces that do not meet teaching requirements. Respondents also rated the general quality of instructional and research space on campus at, or very near, average (3 on a 5-point scale).

It should be noted that the survey was conducted prior to the completion of the North Classroom Renovation, which included the renovation of 34 classrooms.

Most respondents felt their departments were growing, primarily in enrollment numbers, but also in new program offerings. Respondents indicated that their existing spaces could not accommodate this growth and that they would need more space – primarily for instructional use and for graduate students. Furthermore, they thought a general lack of appropriate spaces negatively affected their ability to attract students.

- In addition to more space in general, the top three space concerns for respondents were a lack of office space, instructional space and student space.

- 76 percent felt there were space-related issues in their classrooms, and 55 percent felt there were space-related issues in their teaching laboratories.

- 50 percent of respondents felt their department did not have enough space to meet with current students or post-doctoral fellows. However, 82 percent said that until new space is constructed, they would be willing to explore alternative office options to meet their space needs.

- 52 percent felt the current instructional space did not adequately support active
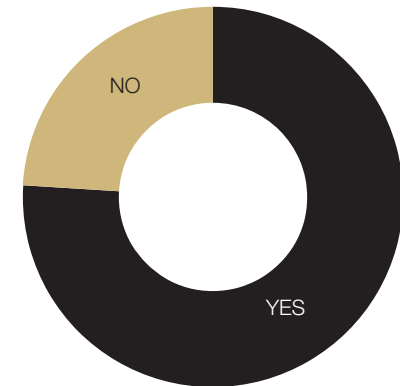
DO YOU HAVE SPACE-RELATED ISSUES IN YOUR CLASSROOMS?

NO
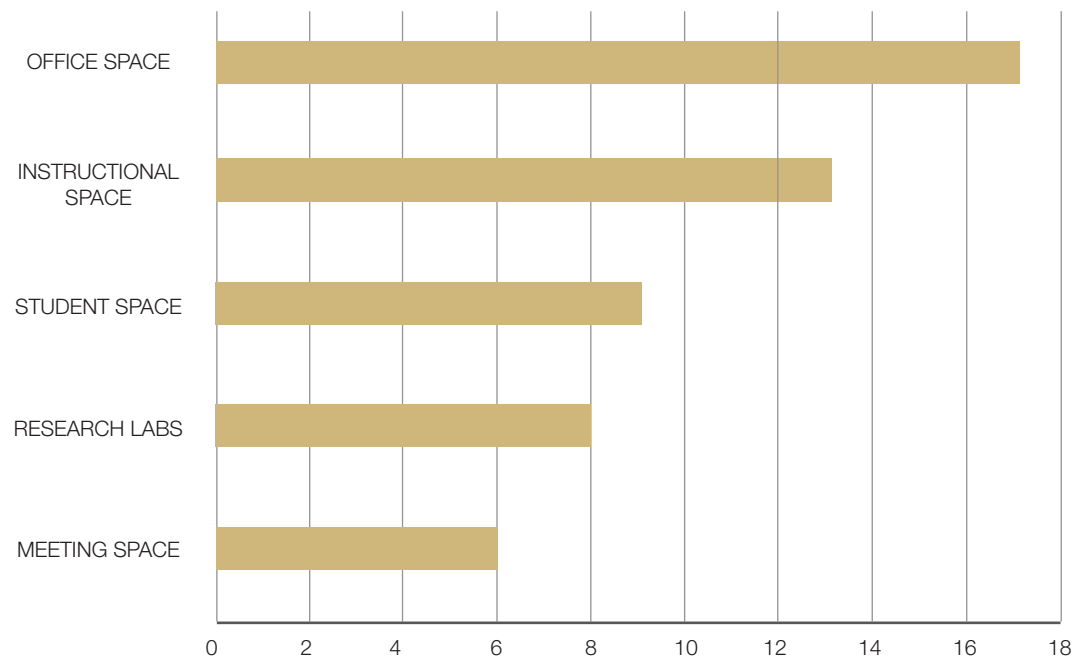
YES

Figure 5-1: Academic Classroom Concerns

OFFICE SPACE

INSTRUCTIONAL SPACE

STUDENT SPACE

RESEARCH LABS

MEETING SPACE

0   2   4   6   8   10   12   14   16   18

Figure 5-2: Top Space Concerns

UNIVERSITY OF COLORADO **DENVER**

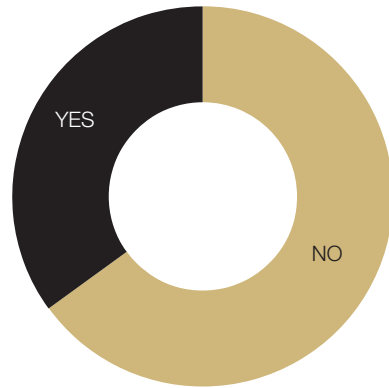## IS THERE SUFFICIENT COMMON SPACE IN ACADEMIC AREAS?

YES

NO

Figure 5-3: Common Space Concerns

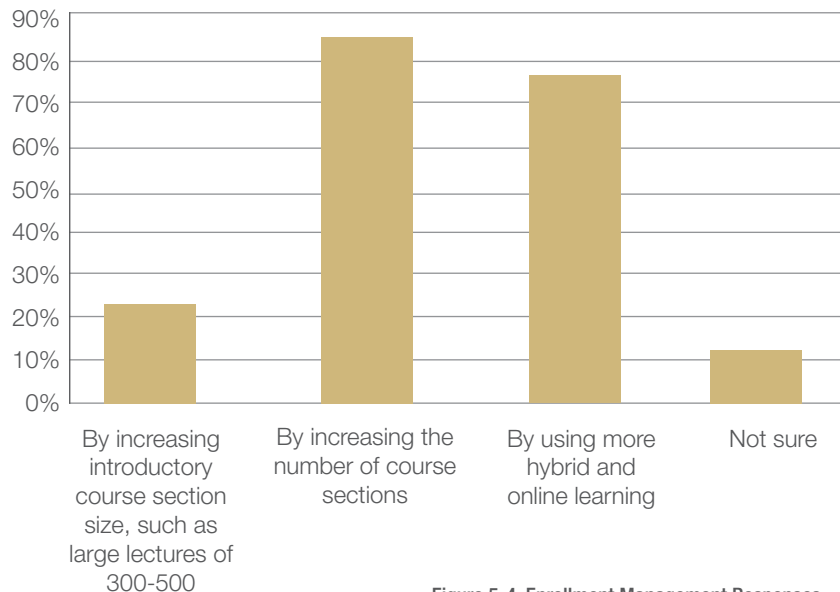## HOW SHOULD ENROLLMENT INCREASES BE MANAGED?

Figure 5-4: Enrollment Management Responses

learning, and 79 percent of those said they would teach more active learning courses if the physical space would support it.

- Departments anticipated personnel increases of 22 staff and up to 80 faculty—45 full-time and 52 part-time teaching faculty/instructors. All projected increases in faculty and full-time teaching faculty/instructors and nearly all departments anticipated some increase in part-time instructors and staff.

- Many respondents felt space constraints had a negative impact on their ability to attract students. A few mentioned that enrollments increased after they obtained purpose-built pedagogy space.

- 60 percent felt they did not have enough office space for anticipated increases in staff and graduate students or post-doctoral fellows.

- When asked to indicate the best way to manage enrollment increases, 85 percent said they would increase the number of course sections, and 73 percent would use more hybrid and online learning. Only 23 percent felt that increasing the section size of introductory courses would be effective.

- The survey asked academic unit leaders about common spaces that would help promote student engagement, such as areas for study, team or project work, informal collaborative learning, and student

clubs. A majority (59 percent) responded that there were not enough of these common spaces.

- The survey also asked the academic unit leaders about the chancellor's listening tour goal to promote career pathways for community college students to obtain a four-year degree. The majority of respondents said achieving this goal would positively affect their unit's programs and enrollments.
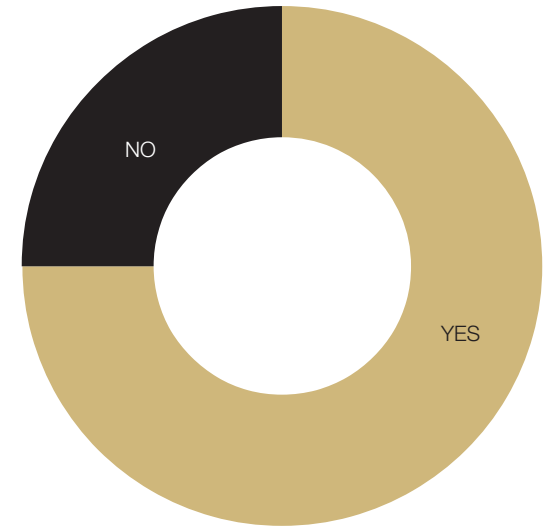
ADMINISTRATIVE SURVEY RESULTS

Of the 32 surveys distributed, administrative units returned 20 completed and 12 incomplete responses. The following units identified space needs related to anticipated growth:

- Student Affairs
- International Affairs
- Student Services
- Advancement
- Financial Aid
- Diversity and Inclusion
- Inworks

Overall, respondents reported that their spaces were already near, at or over capacity for their existing programs and staff. Lack of storage and conference space were concerns. Most units have already tried to reduce their space needs by using technology and space solutions such as shared or open offices. Given that most units in this survey anticipated adding

or expanding programs and services, they perceived a future need for more space.

- 100 percent of respondents felt their unit had deficiencies in their support space; 94 percent identified deficiencies in conference rooms, and 88 percent indicated that they had a lack of office space.

- Respondents listed their top three space concerns as a lack of space in general, a lack of storage space and a lack of conference space.

- Some respondents already utilized concepts such as shared offices and conference space, hoteling or open offices to manage space constraints.

- Most respondents stated that strategic goals and enrollment growth would necessitate additional full-time and part-time staff, administrative staff and student workers.

- On a five-point scale, with one being very poor, and five being excellent, the survey asked respondents to provide a general rating for various aspects of their spaces such as size and overall quality. The mean for most factors hovered around 3.3 to 3.6, with storage space having a mean of 2.5. As three represents an average score, except storage, respondents rated most spaces slightly above average.

ARE YOU WILLING TO EXPLORE ALTERNATIVE OFFICE SOLUTIONS?

75% SAID YES

Figure 5-5: Alternative Work Environment Response

- Most units anticipated adding or expanding programs and services, necessitating more space for staff.

- Most units were already using technology for electronic storage, student services, and general business, reducing space needs to some extent.

- 75 percent of respondents indicated a willingness to explore alternative work environments.

AHEC CLASSROOM SCHEDULING CHANGES

Over the last five years, the process of assigning and scheduling general classrooms on the Auraria Campus has undergone a number of changes.

REMOVAL OF SPLIT ALLOCATIONS

Prior to 2014, many classrooms on the Auraria Campus still carried split allocations, or allocations that assigned use of the room in the day to one institution and in the evening to another institution. With this previous model, CU Denver had a number of evening allocations, based on the outdated perception that it was a predominantly graduate institution. In 2014, an agreement was signed which resulted in a number of classrooms exchanges, which effectively ended the split allocation model.

REDUCTION OF AHEC-CONTROLLED CLASS-ROOMS

Historically, AHEC staff have been responsible for final scheduling and rooming for most of the classrooms on the Auraria Campus. This allowed for more "cross-rooming", or sharing of classrooms to accommodate courses that were without a location near the beginning of the semester. However, rooming technology has made the scheduling process much more efficient, and unroomed courses were becoming very rare.

In recognition of that, and to support the neighborhooding concept introduced in the 2007 Auraria Master Plan, AHEC and the three institutions began discussing a way to give the institutions more scheduling autonomy, particularly in rooms within their respective neighborhoods. A proposal was put forth in 2014 to reduce the number of General Assignment classrooms being scheduled by AHEC from 181 to 50. The 131 rooms previously categorized as AHEC General Assignment rooms would become Proprietary Classrooms, or rooms which the institutions of ownership alone would have the responsibility to schedule.

These rooms were divided amongst the Auraria institutions. Most of the rooms allocated to CU Denver are in the North Classroom. This new scheduling model went into effect in the fall of 2014.

CU Denver was still adapting to these scheduling changes in Fall 2015, the start date of the classroom utilization analysis, which may account for the discrepancy between the qualitative data in Figure 5-2 that indicates a lack of instructional space, and the quantitative data on page 57 that indicates that some additional course capacity exists within CU Denver's existing classrooms. Section 7.2 contains a number of recommendations related to improving the utilization of classrooms.

HIGHER EDUCATION TRENDS

The results of the completed environmental scan of national and statewide trends affecting higher education are listed below.

- Nationally, total undergraduate enrollment in degree-granting postsecondary institutions increased 31 percent between 2000 and 2014.

- From 2000 to 2025 total undergraduate enrollment is projected to increase by 49.2 percent (to 19.8 million students) while post-baccalaureate enrollment is projected to increase by 21 percent.

- In 2015-16, the number of international students in the United States increased 7 percent over the prior year.

- Between 2000-01 and 2013-14, there was an 84 percent increase nationally in the number of bachelor's degrees in science, technology, engineering and math (STEM) and health related fields. In 2013-14, 28 percent of bachelor's degrees conferred nationally were in these fields.

- Workers with a bachelor's degree or higher took almost all the jobs in high- and middle-skill occupations (5.8 million high-skill and 1.9 million middle-skill jobs) during the economic recovery (2010-2016).

- The population of Colorado was just over 5 million in 2010. The population is expected to reach just under 8 million by 2040. The majority of this growth, roughly 81 percent, will be along the Front Range region of the state.

- The racial and ethnic composition of the Colorado population is experiencing dramatic shifts. By 2050, the workforce will near a 50 percent balance between majority and minority populations.

- Based on publications by the Colorado Department of Local Affairs and the State Demographic Office, Colorado has significant disparities in education levels between its majority white non-Hispanic adult population and Hispanic, African-American and Native American populations

- Projections suggest that without continued improvement in educational attainment levels, there will be declines in the education levels of the adult population, which is not just an education issue, but a "workforce" and "economic" issue.

- Colorado—like many states—has an educational pipeline with numerous leaks, with drops in key metrics such as on-time high school graduation through college enrollment, retention, and graduation. These gaps are more evident for Hispanic, African-American, Native American and low-income youth.

- Job growth in Colorado is projected to increase 24.3 percent between 2015 and 2025. Based on the in-migration of residents with bachelor's degrees, research indicates that Colorado's higher education institutions are not producing an adequate supply of in-state graduates to keep up with workforce demand.

Trends suggest that a strategy of increasing out-of-state and international recruitment and working with community colleges via career pathways, especially among Hispanic, African-American, Native American and low-income youth, can bolster student enrollments and participation rates in higher education. These trends bode well for CU Denver enrollment projections in STEM and health related programs.

CLASSROOM UTILIZATION

CU Denver schedules courses in 117 classrooms within ten buildings. During the Fall of 2015, classroom utilization was in-line with CDHE guidelines but below that of many universities with a similar profile. CDHE guidelines recommend scheduling classrooms at 30 weekly room hours (WRH), and on average, CU Denver achieved 31 WRH and filled 55 percent of the seats or student station occupancy (SSO). Nonetheless, many comparable universities now average 35 WRH at 67 percent SSO, which is a target more in line with national trends and many state system guidelines. Classrooms in the Business School were the only instructional spaces that met or exceeded national trends and all three CDHE recommended guidelines by averaging 35 WRH, 67 percent SSO and 32 ASF/SS.
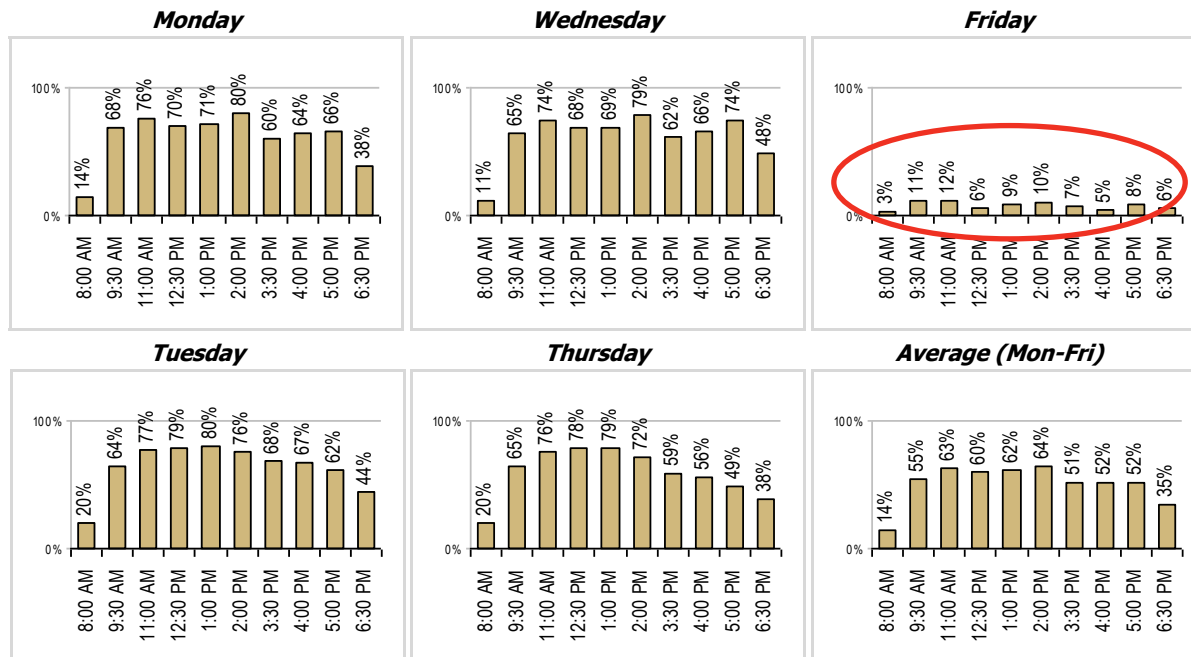
The current inventory of classrooms used by the university averages 20 ASF per student station (SS), which is at the lower range used for modern classrooms (20-30 ASF/SS). Most of the classrooms retain the original designed capacity, form, furnishings, and equipment as existed when the Auraria Campus buildings opened 20-30 years ago: classrooms with tightly arranged, forward-facing rows of tablet armchairs.

However, the university is making progress in modernizing classroom inventories, including a current project that renovates and right-sizes 34 classrooms in North Classroom Building, and the development of three highly-adaptive, active-learning instructional spaces in the new Student Commons Building (SCB). These new learning environments can each accommodate up to 150 students, with two designed as tiered classrooms with two rows of rotating furniture per tier to support team learning, and one divisible, flat-floored active-learning classroom with ubiquitous technology to increase flexibility.

Since the university is already transitioning towards an active learning pedagogy, a more consistent target of 24 ASF/SS was set for this analysis to better reflect the new direction of the university. By using this metric, future enrollment growth generated an overall classroom space need.

The analysis indicated a strong pattern of Monday through Thursday classroom scheduling, compared with the low classroom scheduling on Fridays of 12 percent or less. An analysis of course records indicated that the university scheduled only three courses

Total classrooms = 117

Figure 5-6: Percent of Classrooms in Use

LEGEND

CLASSROOMS
WEEKLY ROOM HOURS

- LOW
-
-
- HIGH

BUSINESS SCHOOL
CLASSROOMS: 13
WEEKLY ROOM HOURS: 35

CU BUILDING
CLASSROOMS: 12
WEEKLY ROOM HOURS: 21

STUDENT COMMONS
CLASSROOMS: 11
WEEKLY ROOM HOURS: 26

LAWRENCE STREET CENTER
CLASSROOMS: 6
WEEKLY ROOM HOURS: 21

NORTH CLASSROOM
CLASSROOMS: 42
WEEKLY ROOM HOURS: 36

PLAZA
CLASSROOMS: 13
WEEKLY ROOM HOURS: 32

SCIENCE
CLASSROOMS: 3
WEEKLY ROOM HOURS: 29

KING CENTER
CLASSROOMS: !!
WEEKLY ROOM HOURS: 26

ARTS
CLASSROOMS: 3
WEEKLY ROOM HOURS: 19

WEST
CLASSROOMS: 3
WEEKLY ROOM HOURS: 29

Figure 5-7: Classroom Weekly Room Hours

LEGEND

STUDENT STATION
OCCUPANCY*

- 45%
- 50%
- 55%
- 60%
- 65%

WELLNESS CENTER

BUSINESS SCHOOL 67%

CU BUILDING 56%

LAWRENCE STREET CENTER 57%

STUDENT COMMONS 51%

AURARIA PARKWAY

WALNUT ST

11TH STREET

LARIMER ST

LAWRENCE ST

ARAPAHOE ST

TIVOLI STUDENT UNION

NORTH CLASSROOM 52%

PLAZA 53%

KING CENTER 60%

SCIENCE 46%

SPEER BOULEVARD

ARTS 52%

7TH STREET

WEST 65%

5TH STREET

9TH STREET PARK

5TH STREET HUB

ADMINISTRATION

BOULDER CREEK

* Student Station Occupancy is the average percent of seats filled when a room is occupied during scheduled use

WEST COLFAX AVENUE
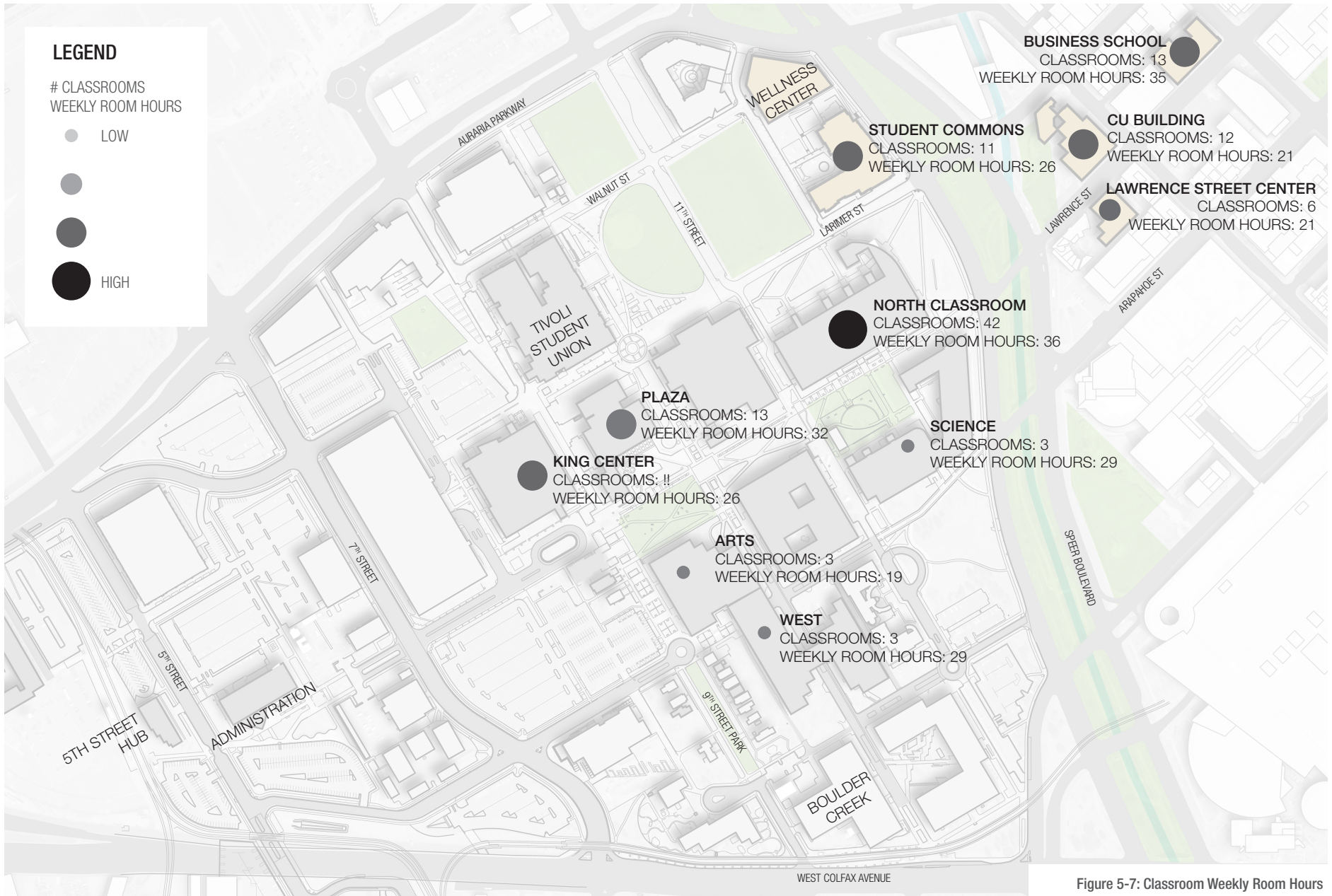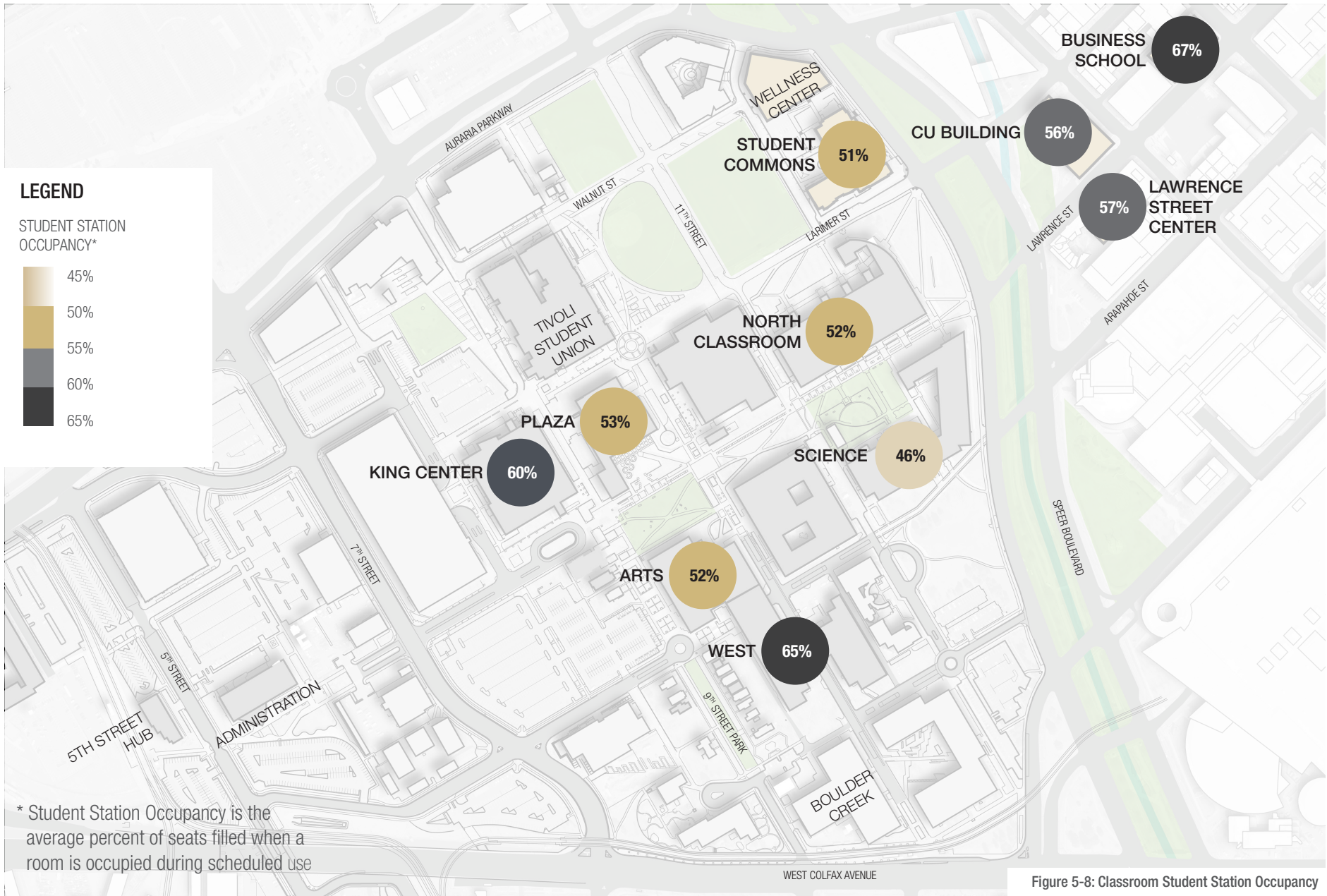
Figure 5-8: Classroom Student Station Occupancy

that met on three days a week (Monday, Wednesday, Friday). The findings indicate an opportunity exists to increase Friday utilization. However, a **comprehensive classroom scheduling** study should occur that considers student, faculty, and university needs, priorities and capabilities to determine an institution-appropriate strategy to increase overall utilization.

A move toward a Monday through Friday class schedule could have positive impacts on the quality of life for traditional students, especially if CU Denver continues to evolve into a more residential campus. Conversely, the change may negatively impact a large number of non-

traditional and working students that often require scheduling options and flexibility.

However, the university would need to study the benefits and disadvantages of adopting new classroom scheduling practices and policies and assess potential impacts on student success and retention.

Almost two-thirds of CU Denver's classrooms fall in the 31-50 seat range. These classrooms consistently were in use for 30 WRH. Classrooms that seat under 30 students were scheduled the least, ranging from 15-20 WRH, which suggests that there may be an

opportunity to combine smaller classrooms to meet the demand for classes in larger rooms.

At the same time, CU Denver's eight classrooms with over 100 seats had the lowest occupancy, with only 40-42 percent of seats filled during classes, indicating a further mismatch between classrooms and section size. Opportunities to reconfigure the larger classrooms to be more efficient or accommodate different class sizes could yield more medium-sized rooms to meet those needs. It would also give CU Denver increased scheduling flexibility. Conversely, projected undergraduate enrollment increases could lead

TIME OF DAY	MONDAY		TUESDAY		WEDNESDAY		THURSDAY		FRIDAY		SATURDAY		SUNDAY		AVERAGE	
	ROOMS IN USE	% IN USE	ROOMS IN USE	% IN USE	ROOMS IN USE	% IN USE	ROOMS IN USE	% IN USE	ROOMS IN USE	% IN USE	ROOMS IN USE	% IN USE	ROOMS IN USE	% IN USE	ROOMS IN USE	% IN USE
8:00 AM	16	14%	23	20%	13	11%	23	20%	4	3%	14	12%	1	1%	16	14%
9:30 AM	79	68%	75	64%	76	65%	76	65%	13	11%	16	14%	2	2%	64	55%
11:00 AM	89	76%	90	77%	86	74%	89	76%	14	12%	16	14%	2	2%	74	63%
12:30 PM	82	70%	93	79%	79	68%	91	78%	7	6%	13	11%	2	2%	70	60%
1:00 PM	83	71%	94	80%	81	69%	92	79%	10	9%	13	11%	2	2%	72	62%
2:00 PM	94	80%	89	76%	93	79%	84	72%	12	10%	13	11%	2	2%	74	64%
3:30 PM	70	60%	80	68%	72	62%	69	59%	8	7%	11	9%	2	2%	60	51%
4:00 PM	75	64%	78	67%	77	66%	66	56%	6	5%	9	8%	2	2%	60	52%
5:00 PM	77	66%	73	62%	87	74%	57	49%	9	8%	4	3%	1	1%	61	52%
6:30 PM	44	38%	52	44%	56	48%	45	38%	7	6%	0	0	0	0%	41	35%

TOTAL CLASSROOMS = 117

DARKER COLORS INDICATE A LARGE PERCENTAGE OF ROOMS ARE SCHEDULED.

Figure 5-9: Scheduled Classroom Use by Day and Time

to larger class section sizes requiring larger classrooms. This critical space issue will need further study by the university.

Departments control scheduling of nearly 40 percent of CU Denver's classrooms, while the remaining 60 percent are centrally scheduled. Centrally scheduled rooms fall into two categories: Proprietary Classrooms that are only used by the controlling institution; and General Assignment Priority Scheduled rooms that are scheduled first by the controlling institution, but then released to the other AHEC institutions if any vacant slots remain.
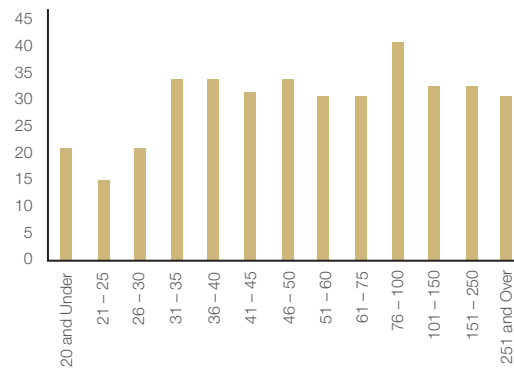
Departmentally controlled classrooms averaged 27 WRH at 59 percent SSO and 25 ASF/SS. Centrally scheduled classrooms averaged 33 WRH at 53 percent SSO and 17 ASF/SS. While the two categories had similar occupancy, scheduling of departmental classrooms was six fewer hours per week. Departmental classrooms also had 50 percent more ASF/SS, indicating that they were more flexible learning spaces and better suited for active learning.

Given that most departmentally controlled classrooms are not on the Auraria Campus and relatively distant from several of CU Denver's largest colleges, it may be more difficult to increase the weekly room hours in these rooms.
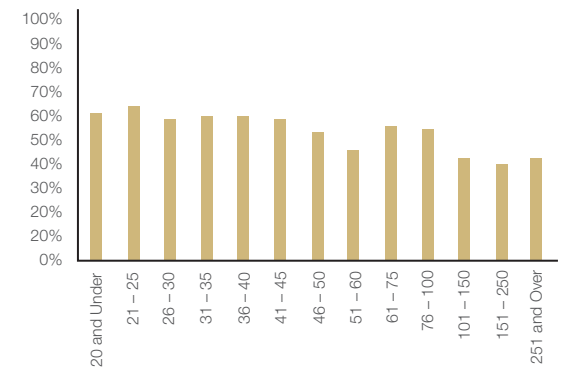
CLASSROOM CAPACITY GROUPING	NO. OF ROOMS	NO. OF SEATS	AVG ROOM SIZE	AVG ASF PER STATION	AVG SECTION SIZE	WEEKLY SEAT HOURS	AVG WEEKLY ROOM HOURS	HOURS IN USE STUDENT STATION OCCUPANCY %
20 and Under	8	145	455	26	11	12.8	21	61%
21-25	4	93	528	23	13	9.8	15	64%
26-30	4	115	572	20	16	11.4	20	58%
31-35	14	484	699	20	19	20.2	34	60%
36-40	19	730	782	20	21	19.7	33	60%
41-45	12	522	938	21	25	18.4	31	59%
46-50	29	1,400	959	20	25	17.7	33	53%
51-60	9	494	1,052	19	24	13.5	30	44%
61-75	8	574	1,336	19	42	16.7	30	56%
76-100	2	189	1,145	12	52	21.9	41	54%
101-150	3	380	1,775	14	52	13.5	33	42%
151-250	4	807	3,307	17	77	12.8	33	40%
251 and Over	1	277	4,706	17	117	12.7	30	42%
Total # of Rooms = 117	**AVERAGE**		**1,004**	**20**	**27**	**16.4**	**31**	**55%**

Figure 5-10: Classroom Utilization Analysis by Capacity

WEEKLY ROOM HOURS BY CAPACITY:

STUDENT STATION OCCUPANCY BY CAPACITY:

TEACHING LABORATORY UTILIZATION

CU Denver schedules courses in 66 teaching laboratories within ten buildings (Figure 5-11). The vast majority (86%) are in 4 buildings: the Arts Building (12); CU Denver Building (10); North Classroom Building (20); and Science Building (15). The utilization analysis of the teaching laboratories determined that it was relatively in-line with recommended guidelines.

The CDHE guidelines for instructional laboratories are 20-30 WRH at 80 percent SSO. Overall, the campus averaged 22 WRH at 59 percent SSO.

Overall, the Science Building and the CU Denver Building teaching labs achieved 73 percent and 72 percent SSO, respectively. This high rate of utilization does not allow a lot of room for additional courses. In the future, enrollment growth in the STEM fields (Science Building) and architecture/planning professional programs (CU Denver Building) may be limited by a lack of teaching lab space.

BUILDING NAME AND ID		NUMBER OF ROOMS	AVERAGE ROOM SIZE	AVERAGE ASF PER STATION	AVERAGE STATION SIZE	WEEKLY SEAT HOURS	AVERAGE WEEKLY ROOM HOURS	HOURS IN USE STUDENT STATION OCCUPANCY %
5th Street Hub	859	1	3,064	88	22	3.7	6	61%
Arts Building	803	12	1,077	27	12	8.7	26	35%
Boulder Creek	831	2	1,384	28	17	13.1	41	34%
Business School	840	1	924	24	28	27.1	36	74%
CU Denver Building	897	10	945	38	15	15.3	22	72%
King Academic & Performing Art	813	1	981	20	22	13.8	30	46%
Lawrence Street Center	898	3	947	24	20	7.3	13	58%
Library & Media Center	814	1	1,820	83	19	20.7	24	86%
North Classroom	819	20	960	31	18	11.0	18	60%
Science Building	825	15	1,282	49	17	16.2	23	73%
Total No. of Rooms = 66	AVERAGE		1,109	37	17	12.2	22	58%

Figure 5-11: Teaching Laboratory Utilization Analysis by Building

OFFICE UTILIZATION

Office and office support space constitute the largest portion of the CU Denver space portfolio, at over 340,000 ASF or 42 percent.

The analysis noted an existing surplus in office space for CU Denver, which is due in part to old inefficient building floor-plans, and reuse of a former commercial tower without renovations to conform with university needs and space criteria. For example, the CU Denver Building has 47 private offices, averaging 167 ASF, and the Lawrence Street Center (LSC) has intact floors originally designed for commercial tenants with generous internal circulation corridors and large offices, averaging over 140 ASF.

The university recently completed a total renovation of the thirteenth floor of LSC to house the Office of Information Technology, that previously occupied both the twelfth and thirteenth floors of LSC. The renovation consolidated all OIT administration and staff onto the thirteenth floor that resulted in a roughly two-fold increase in density while creating a state-of-the-art activity-based work environment.

Office space practices that are reflective of recently completed buildings at CU Denver indicate that there is an additional need for approximately 82,000 ASF of office space at the end of the 10-year Facilities Master Plan period. If the university were to develop, adopt and implement workplace space guidelines similar to those of CU Anschutz, this office space need could be reduced by over 52,000

ASF to 29,823 ASF. To achieve this would require the renovation of all existing space, and new construction to conform to newly adopted workplace guidelines. However, it does indicate the potential magnitude of space savings and avoidance of costly new construction that could occur by adopting the guidelines.

Feedback from the surveys and interviews indicated an openness to try new office work environments, as facilitated by the adoption of active workplace guidelines, especially if accompanied by new amenities and a variety of furnishing options as recommended by the CU Anschutz guidelines.

SPACE NEEDS BY SPACE CATEGORY

PLANNING ASSUMPTIONS

For the 2025 projections of space needs, the space model assumes that all office space will conform to workplace guidelines similar to those at CU Anschutz. As discussed above, the university would renovate, over time, all existing outdated, underutilized workspaces and design all newly constructed facilities, consistent with new guidelines.

CDHE guidelines of 30 WRH were used to calculate future classroom needs. This assumes that current class scheduling practices continue.

Figure 5-12 compares the 2015 existing space inventory (light gray) with the calculated space needs for 2015 (dark gray) and 2025 (gold). There are some surpluses indicated in 2015 due to lower than optimal utilization. Figure 5-13 identifies the space need (in ASF) for each of the space categories over the 10-year planning horizon.

For these two figures, and in all subsequent ones in this section, the spaces indicated in the "Classroom", "Office", "Open Laboratory" and "Teaching Laboratory" categories include any support rooms that directly serve the primary activity, such as telecommunication control booths, preparation rooms, material storage, file rooms, break rooms and copy rooms.

CLASSROOM

As discussed above, a higher ASF/student station is indicative of active learning environments and is the primary driver of future space needs in the classroom and classroom service category. Enrollment targets for 2025 will increase demand for additional classrooms. The identified classroom need of 20,763 ASF assumes that CU Denver will meet the 35 WRH target through new scheduling practices developed by the university. But, if CU Denver only achieves the 30 WRH target, the overall need for additional classroom space would roughly double to 45,038 ASF within ten years.

TEACHING LABORATORY

The availability and quality of teaching laboratories will limit the growth of STEM related fields, architecture and planning, and technology-intensive media arts.

OPEN LABORATORY

CU Denver ranks below its benchmarked peers in ASF per student provided in open laboratories. This category includes computer laboratories and project or maker space. Similar to collaborative learning spaces, these facilities encourage students to stay on campus and become engaged in their learning community that promotes retention and student success.

RECREATION AND ATHLETICS

Recreational facilities and amenities are important components of student life and demand will increase as enrollment grows, particularly as the university evolves to a more residential campus. The new Student Wellness Center will meet the need for indoor recreation and several club sports. The multi-use field, while in need of upgrades, provides core campus outdoor space for certain club sports and recreation.

PHYSICAL PLANT

Once the Student Wellness Center is completed in spring of 2018, CU Denver will own and operate five buildings within its neighborhood and a sixth, Campus Village Apartments, that lies outside of the neighborhood. The transition from an Auraria Campus tenant institution to building owner requires an increase in CU Denver Facilities Management (FM) personnel and space. Until CU Denver is able to identify adequate space for FM, some of these services and the personnel who provide them will continue to originate from CU Anschutz, which is an inefficient model.

STUDY AND COLLABORATIVE LEARNING

Study and collaborative spaces are important for encouraging student engagement, collaboration, and success. The design of new facilities, such as the Student Commons Building and Student Wellness Center, incorporated a much higher percentage of informal and group study space and interaction areas.

Often called "sticky spaces," these areas are largely absent from older buildings in the CU Denver Neighborhood, as confirmed by the academic survey. Commuter and residential students alike can benefit from spaces to informally gather between classes and interact with other students and faculty.

SUPPORT SPACE

Interviews were conducted were several departments that provide critical support functions for CU Denver.

The Office of Information Technology (OIT) indicated that the current data center, located in North Classroom, is land-locked and unable to expand. Therefore, a new data center of approximately 2,000 ASF would be needed if CU Denver grows as projected in this master plan.

Environmental Health and Safety (EH&S) indicated a need for three offices, a dedicated hazardous waste room, and a biosafety room within the 10 year horizon of the master plan. The total square footage is 1,260 ASF.

Figure 5-12: Space Needs Analysis by Space Category

Figure 5-13: Space Needs Analysis Future Deficit by Space Category

SPACE NEEDS BY SCHOOL AND COLLEGE

The space analysis defined optimum space needs by school and college for base-year 2015 and projected their need for target years 2020 and 2025. This section discusses the 2025 target year outcomes. The Business School, College of Engineering and Applied Science, and College of Liberal Arts and Sciences are each expected to grow in enrollment at a higher rate than the five other schools and colleges of CU Denver. As classrooms are mainly a university asset not owned by a school or college—even when departmentally scheduled—classroom space needs are not included in school and college projections.

Business School: The analysis showed the school had a space deficit in 2015, and with a projected 10-year enrollment growth rate of 21 percent a space deficit will continue into 2025. The 2015 deficit included a need for additional teaching laboratories, open laboratories, and study and collaborative learning categories that will grow by 2025. The model also identified a need for 3,745 ASF in additional office space.

CAP modeling showed a space surplus in the year 2015 due, in part, to the infancy of the undergraduate architectural degree program started in 2013. However, undergraduate enrollment growth in years 2016 and 2017 has been strong and now almost equals the graduate program. The planning model
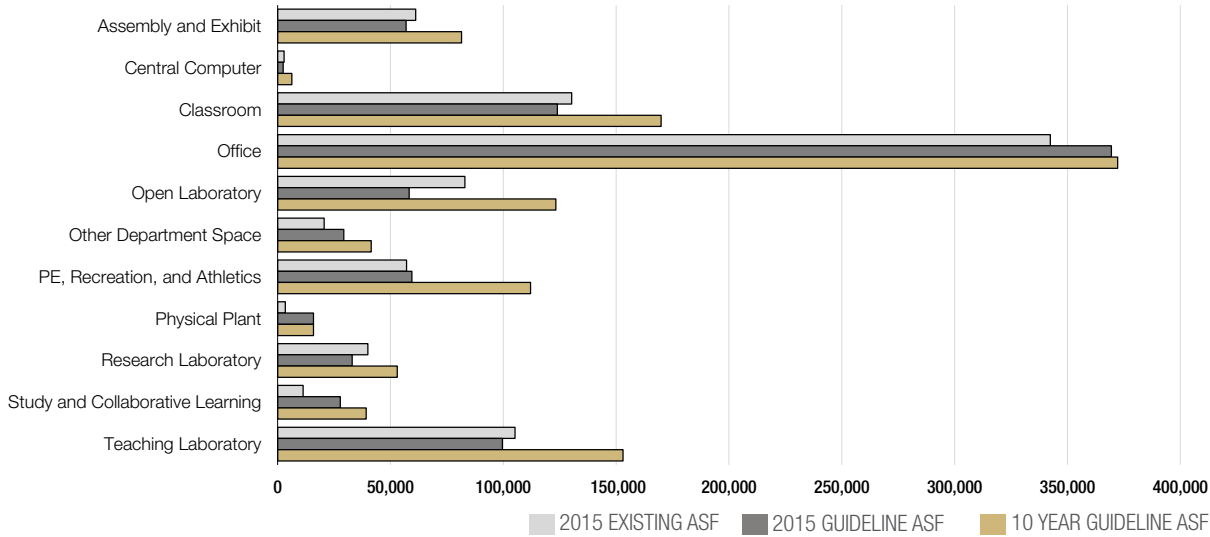
identified an additional need of 14,656 ASF in open laboratory space—large open studios—by 2025 if the college is to reach undergraduate enrollment targets.

CAM shows a 2025 space need of approximately 27,000 ASF for teaching and open laboratories, especially in technical production facilities. Programs in the visual and performing arts will require more performance (assembly) and exhibit space. Enrollment growth drives this need for additional facilities.

CEAS shows a significant space need in offices and office service (11,862 ASF), as well as in research laboratory and support spaces (10,000 ASF). This growth places severe pressure on the already limited and out-dated teaching laboratories, research laboratories, open laboratories and offices. CEAS currently lacks the increasingly important interdisciplinary and collaborative learning environments known as makerspaces, fablabs, and hackspaces.

CLAS shows an existing office space deficit in 2015 that will grow by 2025 to 29,770 ASF, along with additional space needs for study and collaborative learning. Another key space need in 2025 is for laboratories (teaching, open and research).

SEHD and **SPA** will have modest space needs by 2025. The greatest single space need for both schools will be office and service space. SEHD will need 7,655 ASF and SPA will need 1,574 ASF in office and service space in 2025.

Figure 5-15 on the following page provides space deficits details by college, school and other units for the target year 2025. Shown in gray is existing space for 2025, with the deficits in gold stripes. The numeric values of the deficits are also provided.
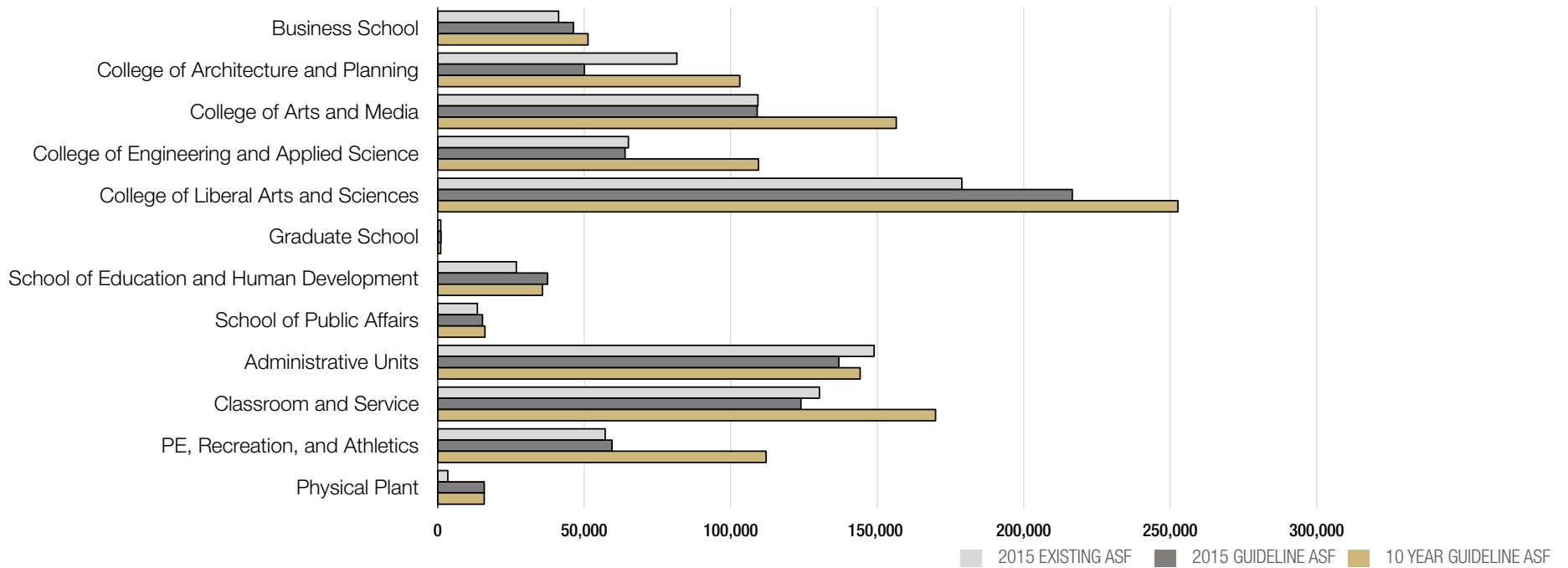

Figure 5-14: Space Needs Analysis by College/Unit

2015 EXISTING ASF   2015 GUIDELINE ASF   10 YEAR GUIDELINE ASF

SPACE NEEDS SUMMARY

The space assessment indicates that growth in enrollment and research will drive the need for space across all categories and in all academic and administrative units. The development and adoption of office space guidelines and classroom scheduling policies can lower projected office and classroom space needs. Teaching laboratories will become a critical pinch-point for serving growth, particularly in the STEM fields. CU Denver's older facilities lack the informal student-centered, collaborative learning space provided in the relatively new Student Commons Building, and

Student Wellness Center Building that will open in spring of 2018.

The current and projected space issues of each school and college differ. The Business School has maximized the existing space in its building, which will require the planned addition to the facility, or use of leased space. The CU Denver Building has the capacity for CAP expansions in office and support services, but the college will need additional teaching labs to accommodate full enrollment targets. CLAS and CEAS also demonstrated sizeable space needs, especially in response to growth in enrollment and research. While

SEHD and SPA have modest space needs at the target year, the projected enrollment growth of CAM will require additional space. If the university decides to realize its long-term goal of consolidating the college's scattered departments, the space requirement will increase significantly.
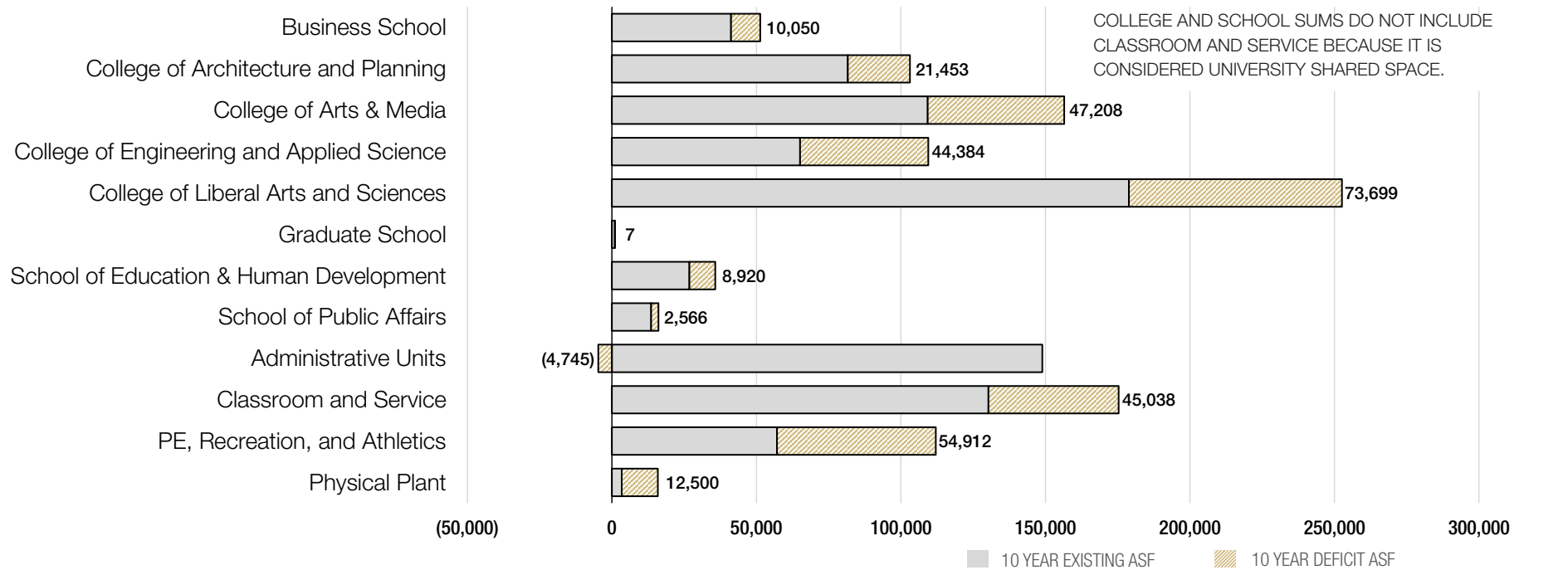
COLLEGE AND SCHOOL SUMS DO NOT INCLUDE CLASSROOM AND SERVICE BECAUSE IT IS CONSIDERED UNIVERSITY SHARED SPACE.

College/Unit	Value
Business School	10,050
College of Architecture and Planning	21,453
College of Arts & Media	47,208
College of Engineering and Applied Science	44,384
College of Liberal Arts and Sciences	73,699
Graduate School	7
School of Education & Human Development	8,920
School of Public Affairs	2,566
Administrative Units	(4,745)
Classroom and Service	45,038
PE, Recreation, and Athletics	54,912
Physical Plant	12,500

10 YEAR EXISTING ASF   10 YEAR DEFICIT ASF

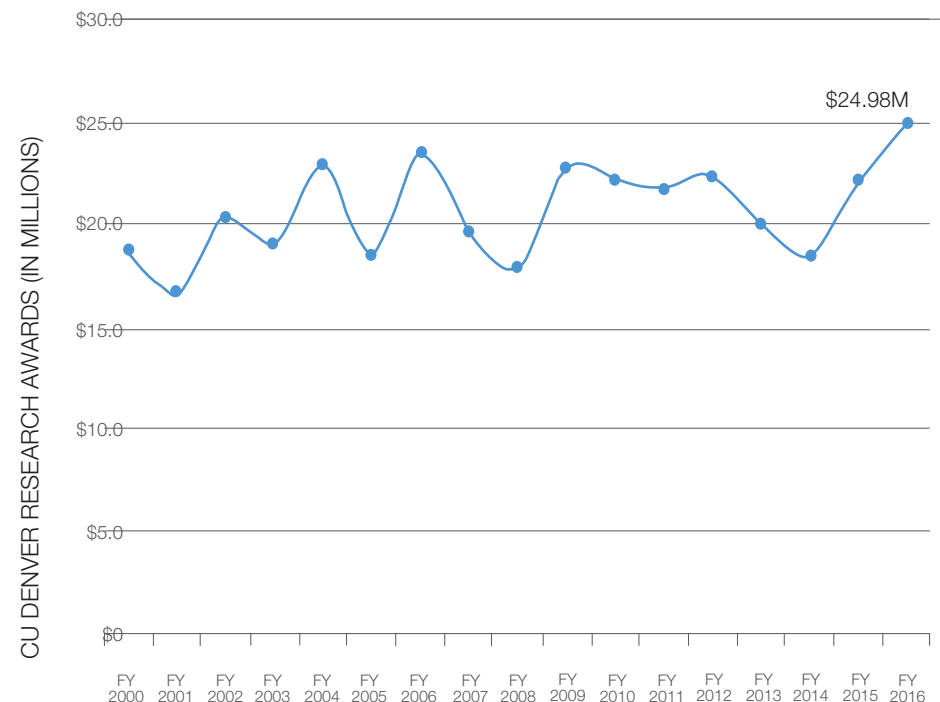**Figure 5-15: Space Needs Analysis Future Deficit by College/Unit**

5.2 RESEARCH TRENDS

CU Denver aspires to grow funded and unfunded research activity over the 10-year Facilities Master Plan horizon. Funded research in FY2016 was $25 million in awards.

CU Denver's research activity grew substantially in 2008. Research in science and engineering has been a particularly fast-growing component of the overall research portfolio since that time.

In 2015, nearly three-quarters of CU Denver's research expenditures were in four areas:
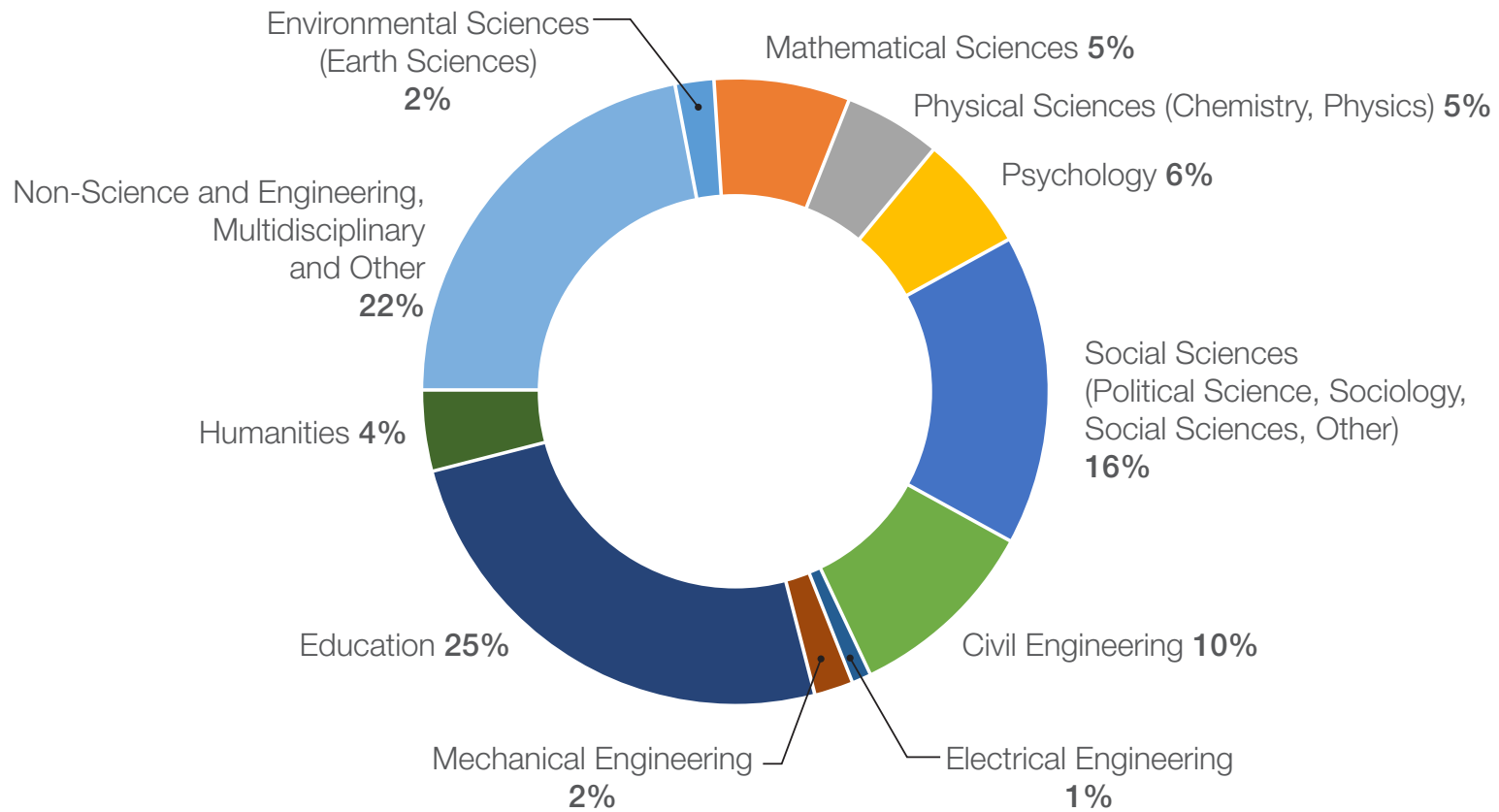
- SEHD ≈ 25 percent

- CLAS – Social Sciences (political science, sociology, social sciences) ≈ 16 percent

- CEAS – Civil Engineering ≈ 10 percent

- Other Non-Science and Engineering ≈ 22 percent

Source: University of Colorado System Office, Office of Institutional Research

Figure 5-16: Funded Research Awards, FY2000-FY2016

CU Denver Funded Research by Discipline

Environmental Sciences (Earth Sciences) **2%**

Mathematical Sciences **5%**

Physical Sciences (Chemistry, Physics) **5%**

Psychology **6%**

Non-Science and Engineering, Multidisciplinary and Other **22%**

Social Sciences (Political Science, Sociology, Social Sciences, Other) **16%**

Humanities **4%**

Education **25%**

Civil Engineering **10%**

Mechanical Engineering **2%**

Electrical Engineering **1%**

Source: National Science Foundation (NSF), 2015 Expenditures

Figure 5-17: Funded Research Portfolio, 2015

Funded Research at CU Denver needs to grow two (2) percent annually—roughly the annual rate of inflation—to reach $30 million in funded research awards by 2025. The university should pursue multiple strategies simultaneously to meet this goal, such as:

- *Achieve higher productivity:* The university should strive for a modest increase in research productivity. A ten percent increase in expenditure dollars per principal investigator from the same number of researchers as CU Denver currently has by 2025 translates to one percent increase per year. The exception is principal investigators in CEAS and CLAS, who should strive for a higher increase given the relative amount of funding in those research topic areas. For comparison, in 2015 the average expenditure dollar per principal investigator for CU Denver was $116,863, while the average for the three Facilities Master Plan peer institutions was $280,000.

- *Recruit:* The university should recruit additional researchers with proven productivity. The greatest opportunity for projected funded research growth will be in engineering and physical sciences. CEAS and CLAS should each recruit ten additional researchers over the next ten years (20 total new PIs).

- *Expand research square footage:* The university will need to offer new or newly-renovated research laboratory space to newly-recruited researchers who have proven to be productive. The improved facilities should be larger than the existing averages per PI for CEAS (439 ASF) and CLAS (372 ASF). Each new research laboratory should be, on average, approximately 1,000 ASF per new principal investigator. The University can meet this goal by constructing 20,000 ASF of new research space over the next ten years.

5.3 HOUSING DEMAND ANALYSIS

At present, the only on-campus student residential offering is Campus Village Apartments (CVA), which opened in 2006 on the western edge of the Auraria Campus. CVA has 685 beds, with a mix of apartment and full-suite units, as well as a dining hall, fitness center, computer laboratory and other community spaces. Although the majority of CVA residents are CU Denver students (570 beds), MSU Denver and CCD students are allowed to reside there as well. CU Denver does not require students to live on campus, but approximately 24 percent of full-time, first-year students live at CVA.

Relative to other on-campus life offerings, the Tivoli Student Union is considered the central hub of activity and social gathering for all students. This shared building houses food services, retail, event spaces, meeting rooms, lounge and study spaces, and student services and support offices for CU Denver, CCD, and MSU Denver. Additional offices and resource centers occupy space in the Tivoli Student Union, including the Student Government Association and student clubs.

STRATEGIC ASSET VALUE ANALYSIS

On November 30, 2016, Brailsford & Dunlavey conducted a working session with the Master Plan Advisory Committee to develop strategic housing and student life objectives for this plan. The Strategic Asset Value presentation was used by the committee to discuss independent strategic objectives for student housing and broader student life decisions. Based on the Strategic Asset Value exercise, the Master Plan Advisory Committee provided the following strategic priorities, organized around four outcome categories:

1. Educational Outcomes

   • Additional student housing offerings would provide an opportunity to enhance the overall academic experience and improve the campus community.

   • Strengthened connections between campus housing and academic resources may bolster student success and, ultimately, retention rates.

• Student housing or any other student life facilities should provide adequate social, study and community spaces for both residents and commuter students alike.

• A variety of housing options and price points should be provided to cater to the diverse CU Denver population.

2. Enrollment Management

   • Housing could be both a recruitment and retention asset. However, the location of the current facility limits these opportunities.

   • There is a need to provide viable housing options for out-of-state and international students to encourage higher enrollment within these populations.

   • Prospective students, specifically international and out-of-state students as well as those looking for a residential college experience, are disappointed in a lack of housing options and the out-of-classroom experience.

• Each of the above factors significantly impacts the ability to attract students to CU Denver.

3. Campus Community

   • The current distribution of student life spaces, services and amenities does not allow for the creation of a CU Denver central gathering place.

   • The university should continue to provide larger spaces open to all students, regardless of major or program, to assist in the creation of a shared experience and identity.

   • The location of CVA feels isolated and, at times, unsafe. Future housing should be better integrated into the CU Denver Neighborhood to take advantage of proximity to downtown and academic resources.

   • CU Denver should aspire to balance the needs of students desiring a more traditional residential college experience with a large non-traditional commuter population.

4. Financial Performance

    • CU Denver financing of future housing projects is unlikely, and the university should consider alternative funding methods.

    • Providing active and vibrant student life spaces can help to engage alumni and create donor opportunities.

    • In Denver's expensive market, affordable and high-quality housing options would help differentiate CU Denver from the competition.

OFF-CAMPUS HOUSING MARKET ANALYSIS

The objective of the off-campus housing market analysis was to identify the nature of the private rental housing market allowing a comparison of non-university housing options that are available to students at CU Denver. Data was collected from rental properties that were most likely to be populated by CU Denver students. Specific locations and properties were determined to be significant based on conversations with students during focus groups and survey results.

The rental market in Denver provides students with a wide variety of housing options, ranging from studio to four-bedroom apartment units. Tenants within apartment communities consist of a mix of students, young professionals, and families. The overall condition, size and amenities vary between each rental property.

Aside from CVA, the Auraria Student Lofts and The Regency are currently the only purpose-built student housing communities near CU Denver. Although there has been significant apartment construction in the downtown area in recent years, these properties are typically offering units at higher price points than what most CU Denver students can afford.

Light Rail Station	Map #	Avg Rent/Bed
Colorado	1	$779
Louisiana & Pearl	2	$1,150
Evans	3	$944
Yale	4	$733
Broadway	5	$1,322
Alameda	6	$1,220
Englewood	7	$897
Southmoor	8	$1,053
Oxford / Sheridan	9	$1,047
10th & Osage	10	$1,599
Auraria West	11	$1,089
Mile High	12	$1,272
Union Station	13	$1,634
Decatur / Federal	14	$1,120
Perry	15	$708
38th & Blake / Rino	16	$1,157
Lakewood / Wadsworth	17	$761
Federal Center	18	$934
120 Apt / 260 Units Total Average		$1,079

*DATA PROVIDED BY ZILLOW, APARTMENTS.COM AND RTD DENVER

Figure 5-18: Light-Rail Station Rental Analysis

CU Denver's downtown location and proximity to public transportation offer students the opportunity to live throughout the metropolitan area. A comprehensive analysis was conducted to calculate average rent per bed in proximity to Regional Transportation District (RTD) light-rail stations throughout Denver and surrounding areas to understand the correlation between rental costs and transit availability.

Based on the light-rail stations closest to the Auraria Campus, the average rent per person per month in off-campus housing communities ranges from $1,089 to $1,599. Figure 5-18 shows the relevant light-rail stations that students may utilize to commute to campus. Stations that are farther from the Auraria Campus are more affordable but require a longer commute time. Based on the survey findings, 31 percent of students utilize public transit to commute to campus while 22 percent drive a car. Of those that indicated they commuted to campus, 52 percent stated that their one-way commute time was less than 20 minutes. However, 42 percent indicated their average commute was between 21 and 50 minutes with the final six percent stating their commute took over 50 minutes. The responses suggest that a significant portion of students are willing to make a longer commute to save on housing costs.

FOCUS GROUP INTERVIEWS

The purpose of the focus group interviews was to engage a variety of CU Denver students in dynamic conversations about their preferences, experiences, and recommendations regarding on-campus and off-campus housing and student life. CU Denver also hosted a series of open houses for students, faculty, and staff.

The focus groups were intended to yield qualitative data, reveal hidden sensitivities and help structure the student survey questions. The focus groups also aimed to engage participants in a dialogue about campus life, housing preferences, residential programming, off-campus housing opportunities and a variety of other topics.

Students participated in five focus group sessions: on-campus residents; commuter students; transfer students; first-year students; and graduate students. The following is an overview of the key findings of the focus groups and contains a summary of major themes organized by discussion topics. The responses shown are meant to illustrate the range of answers, comments, and concerns voiced during the sessions.

1. Reasons for Choosing CU Denver

   • Felt more academically focused than other traditional institutions

   • Student diversity (socioeconomic, ages, racial) was appealing

   • Affordability/access to academic scholarships

   • Urban location – "I chose CU Denver because of the city of Denver."

   • Proximity to family – "I'm a first generation student and needed to stay close to my family."

   • Reputation of a CU degree

2. Campus Life Experience

   • Divide between needs and wants of "traditional" and "non-traditional" students

   • Traditional college-aged students crave elements of both the typical college experience (housing, Greek life, activities, and so forth) and big city living

   • Non-traditional students want a convenient, accessible and affordable college experience providing quality education

- Non-traditional students were labeled during in focus groups as "PCP students": Parking lot – Classroom – Parking lot

- Students feel a lack of need and desire to stay on campus

- The campus has limited activity on weekends and evenings

3. On-Campus Housing

- CVA

  - Pros: individual leases; all-inclusive pricing that qualifies for financial aid; proximity to light-rail; opportunity to meet other students as a first-year student

  - Cons: current location feels detached from the campus; meal plan requirement (and lack of transferability to other campus food venues); lack of community spaces and socialization; restrictive policies for upper division students; safety concerns due to isolation and its pathway to campus

- General Housing Notes

  - Room and board is expensive especially for students who support themselves financially

- A residency requirement would cause some students to consider other institutions (Metropolitan State University of Denver) due to the added cost and their preference to live with parents in the area

- New housing options, if considered, should be closer to academic buildings and the downtown area

4. Student Life Spaces

- Tivoli Student Union

  - Limited lounge, study or hang-out space due to current layout

  - Multiple tenants/universities sharing the building creates a crowded and confusing experience for CU Denver students

  - Wayfinding issues: services are scattered and difficult to locate

  - Not viewed as the central gathering space for CU Denver

  - Most students prefer to stay within their respective academic buildings

- General Student Life Comments

  - 24 hour spaces or expanded hours to provide students with a place to go for late night studying

- Study and central gathering spaces

  - Academic building lounges and hallways are used out of convenience and necessity

  - No true "see and be seen" spaces on campus

- A lack of these spaces contributes to an incomplete CU Denver identity

STUDENT SURVEY ANALYSIS

An internet-based survey was conducted targeting CU Denver students enrolled during the 2016 fall semester. The survey questions were designed to assess current housing preferences, housing selection criteria, unit preferences, student life preferences and a variety of other topics.

The response options were structured to maximize the quality of information received to project desirable facility characteristics and demand for specific housing amenities. Demographic questions helped organize the responses and analyze demand based on different student characteristics.

A total of 1,347 students responded to the survey between November 11, 2016, and November 28, 2016. The survey, distributed to 15,210 students, had a margin of error of +/-3.55 percent within a 95 percent confidence level.

Figure 5-19 represents student survey respondent demographics versus the overall CU Denver population. The breadth of survey respondents by enrollment level was well-distributed and similar to current student demographics.
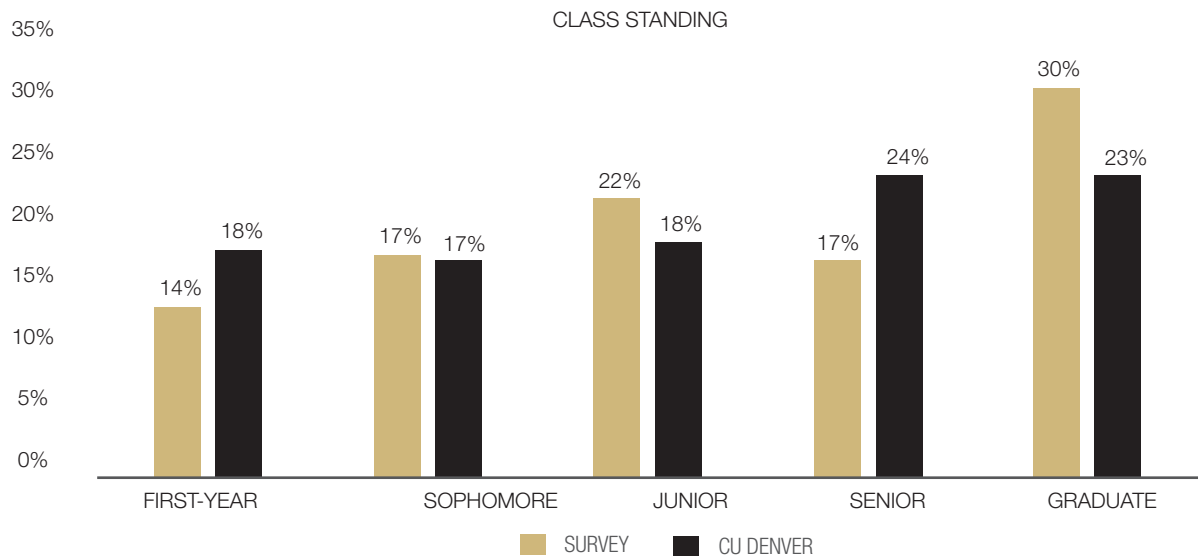

Figure 5-19: CU Denver vs. Survey Demographic Comparison

The survey asked students how important the availability of on-campus housing was in their decision to attend CU Denver to test housing in the context of CU Denver's current offering (CVA). Thirty-five percent of students indicated that the availability of on-campus housing was either important or very important regarding their decision to attend CU Denver. This importance is likely to increase as the institution continues to strive to attract a higher percentage of traditional first-year students from outside the Denver metropolitan area.
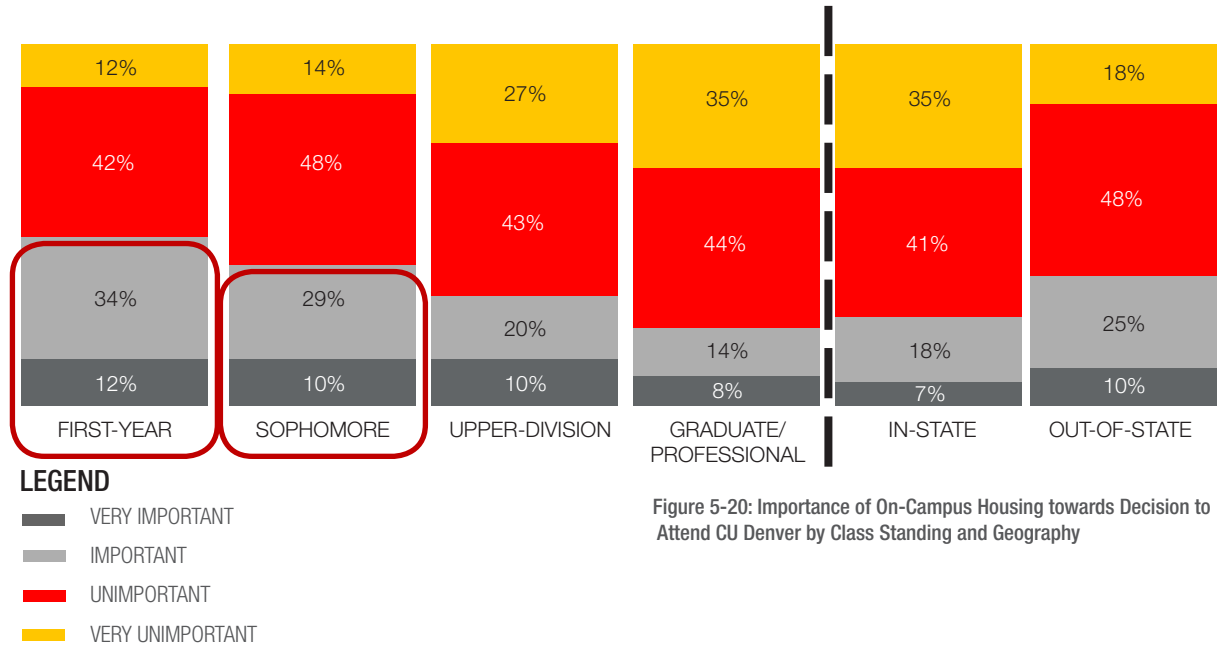

	FIRST-YEAR	SOPHOMORE	UPPER-DIVISION	GRADUATE/ PROFESSIONAL	IN-STATE	OUT-OF-STATE
VERY UNIMPORTANT	12%	14%	27%	35%	35%	18%
UNIMPORTANT	42%	48%	43%	44%	41%	48%
IMPORTANT	34%	29%	20%	14%	18%	25%
VERY IMPORTANT	12%	10%	10%	8%	7%	10%

LEGEND

- ▉ VERY IMPORTANT
- ▉ IMPORTANT
- ▉ UNIMPORTANT
- ▉ VERY UNIMPORTANT

Figure 5-20: Importance of On-Campus Housing towards Decision to Attend CU Denver by Class Standing and Geography

Student respondents indicated their preferred housing locations near the campus. Students could select up to three options from the map shown in Figure 5-21.

Students indicated they were most interested in living within:

- Area B (54 percent)

- Area C (49 percent)

- Area D (47 percent)

- Area E (46 percent)

Overall, students were least interested in:

- Area G (3 percent)

- Area H (5 percent)

- Area F (21 percent), the current CVA location

The results by academic year show that first-year, sophomore, and upper-division students were most interested in Areas B and E, while graduate students were most interested in residing on the east side of Speer Boulevard within Areas C and D.
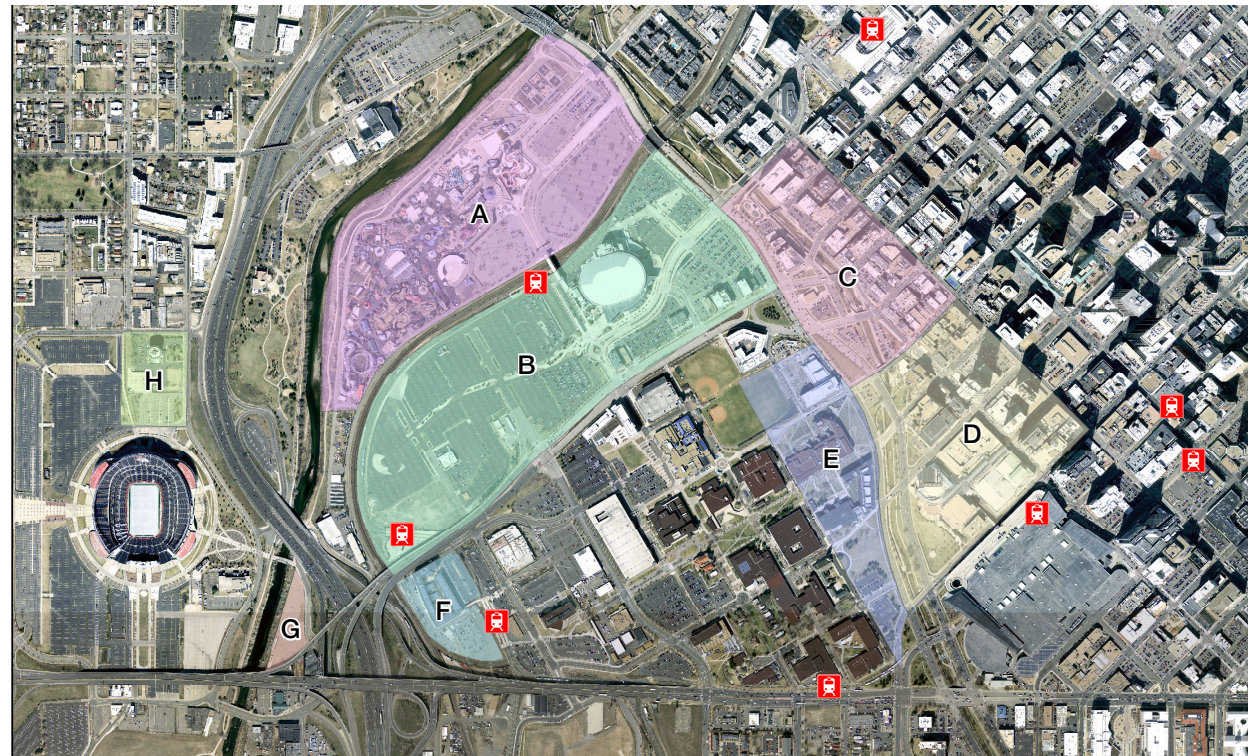

Figure 5-21 Areas Provided to Gauge Preferred Housing Location

PERCENTAGE OF STUDENTS THAT SELECTED A SITE BASED ON THE LISTED OPTIONS (UP TO 3)

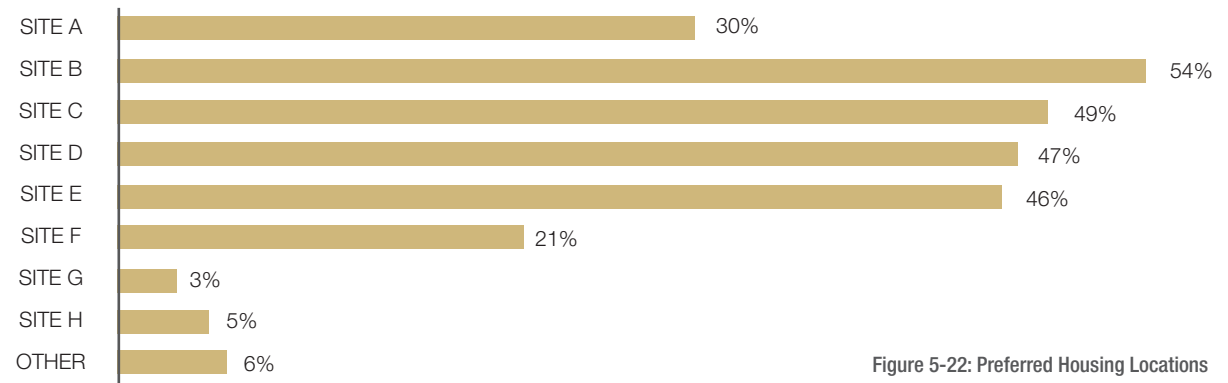| Site	Percentage
SITE A	30%
SITE B	54%
SITE C	49%
SITE D	47%
SITE E	46%
SITE F	21%
SITE G	3%
SITE H	5%
OTHER	6%

Figure 5-22: Preferred Housing Locations

Student respondents living off-campus identified their current housing situation from a list of options. Of the respondents, 52 percent reported they lived away from family in off-campus housing (see Figure 5-23). Overall, nearly half of off-campus students are renters (49 percent) who represent a potential target market for new on-campus housing. Of these renters, the most common off-campus housing options were renting an apartment (34 percent), renting a house or room in a house (11 percent), and owning a house or condo (3 percent).
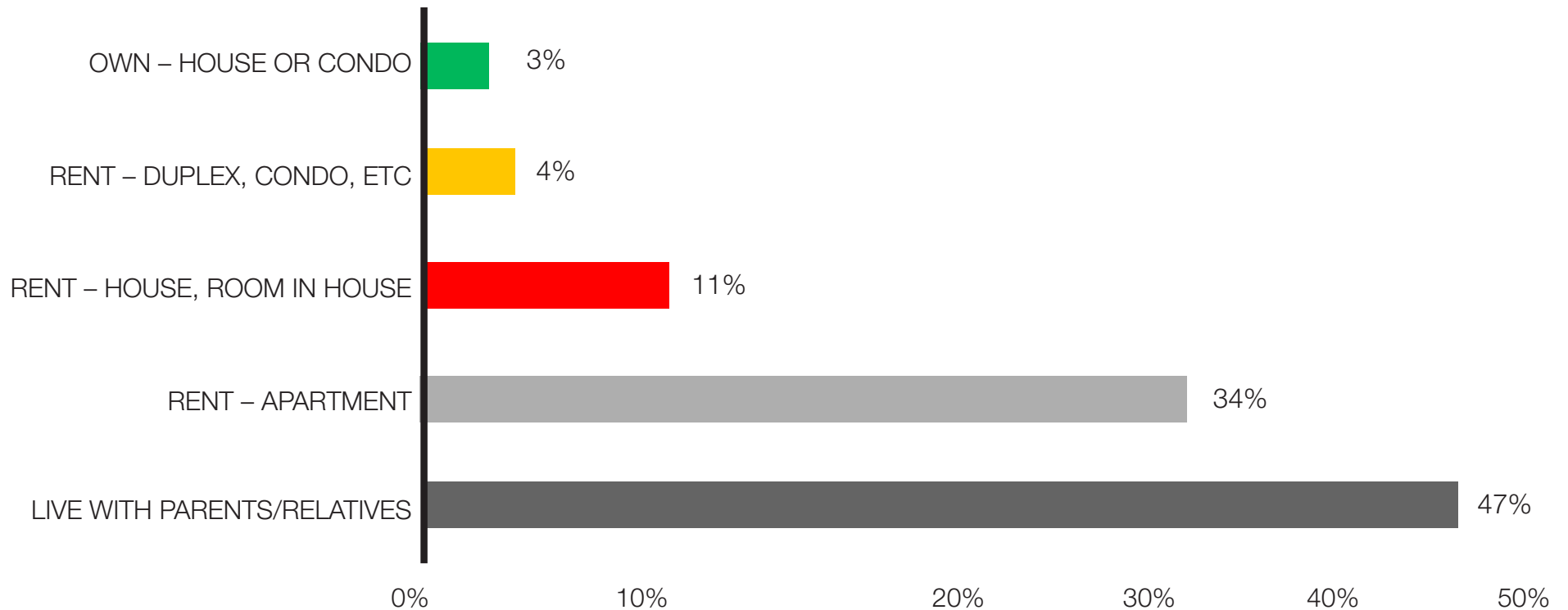

Figure 5-23: Current Off-Campus Housing Arrangement

Respondents renting off-campus also provided their monthly costs for rent and utilities to better analyze the entire cost associated with living off-campus. Most students who attend CU Denver spend between $500 and $1,000 per month on rent, excluding utilities. Figure 5-25 shows the weighted average rental costs, excluding utility costs, were $785 per person per month while the weighted average utility costs were $106 per person per month for a combined monthly housing cost of $891. It is worth noting that these rental rates represent a 12-month lease term.
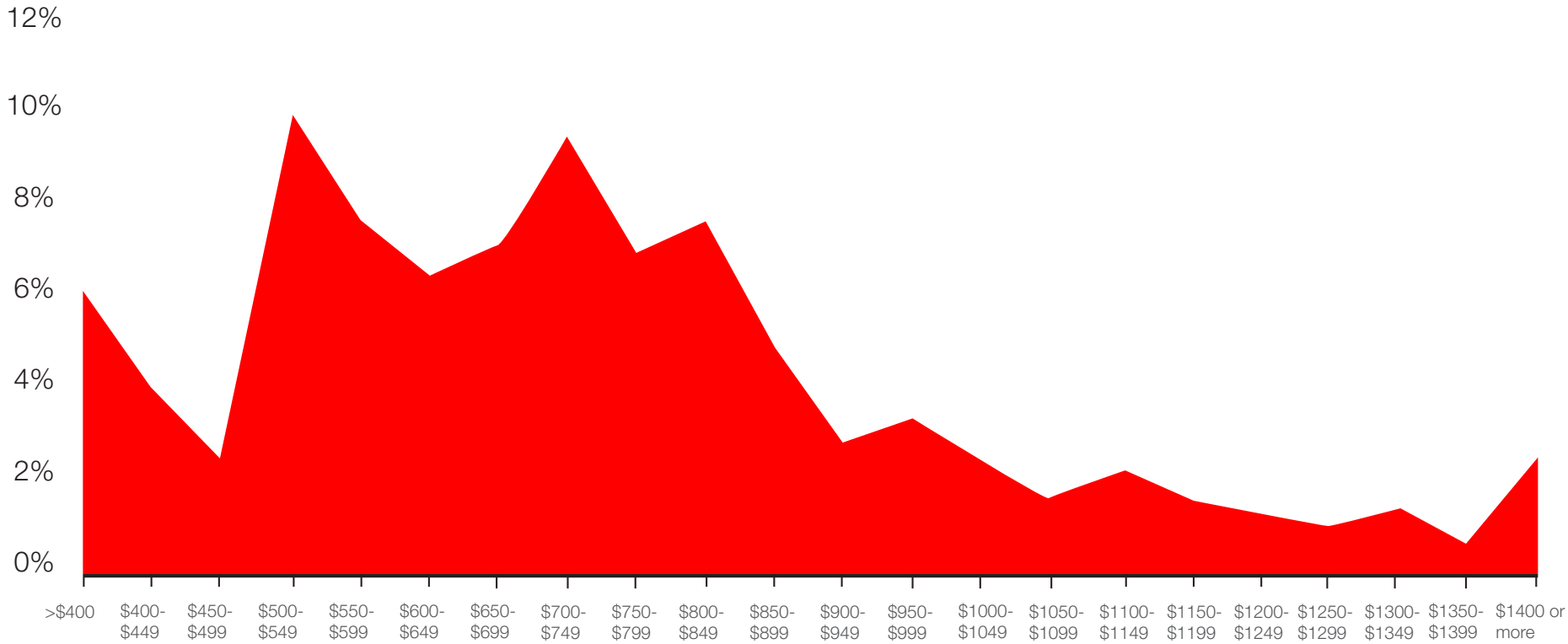

Figure 5-24: Personal Share of Off-Campus Rent

The survey also asked students a series of questions related to student life, and their on-campus experience, specifically related to the Tivoli Student Union. The three main reasons students indicated they visit the Tivoli were to:
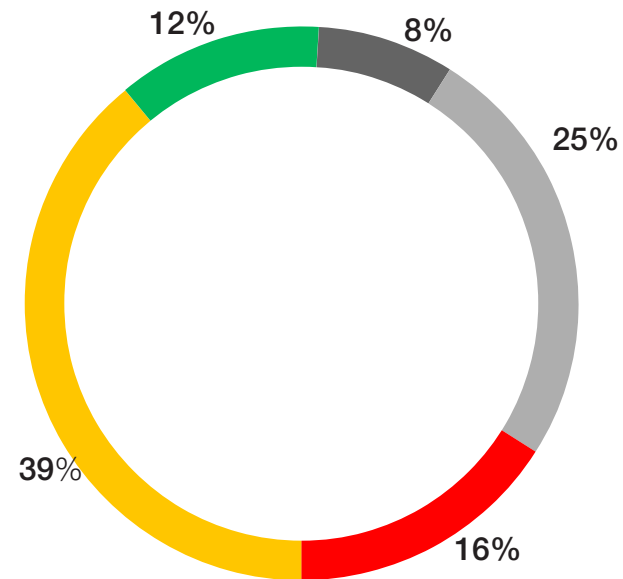
• Get something to eat;

• Visit the bookstore (Tivoli Station); or,

• Attend an event.

The three main reasons why students do not more frequently visit the Tivoli Student Union are because the building:

• Is too crowded;

• Lacks comfortable places to relax; and,

• Does not contain features or services that appeal to them.

Finally, the survey asked students how often they visit the Tivoli Student Union. Of the respondents, 39 percent said they sometimes visit, whereas only eight (8) percent visit five or more times per week (see Figure 5-25).

The low frequency of student visits is consistent with feedback received during focus group sessions. Students discussed the lack of open spaces within the building to relax, study and converse with friends. The tri-institution shared-building situation greatly inhibits its ability to serve as a distinct gathering space for CU Denver students.

12% **8%**

25%

39% **16%**

LEGEND

■ 5 OR MORE TIMES A WEEK

■ 2-4 TIMES A WEEK

■ ONCE A WEEK

■ SOMETIMES

■ NEVER

Figure 5-25: Frequency of Tivoli Visits

HOUSING DEMAND ANALYSIS

Brailsford & Dunlavey developed a student housing demand model utilizing proprietary demand-based programming methodology to quantify the student demand for various bed types. The target market methodology was also utilized, which filters raw survey responses to ensure that projections incorporate only students with a high probability of living on-campus based on their current demographic and financial situation.

The two primary target markets for new housing are:

- Target Market A – current CVA residents who are single, without children and are full-time students.

- Target Market B – students who are off-campus renters, individually pay over $700 in monthly rent, are single or married without children and are full-time students.

Unit types and price points (Figure 5-27) were presented to students in the survey to gauge their interest in new on-campus housing.

Based on Fall 2016 enrollment, current total demand for on-campus housing is 1,271 beds. The demand would increase to 1,795 beds in 2025 in response to enrollment growth. When compared to the existing on-campus bed count, there is an existing deficit of 701 beds (Figures 5-27 and 5-28), which will increase to

Semi-Suite Double
$3,800/semester*

Semi-Suite Single
$4,650/semester*

Full Suite Double
$4,395/semester*

Full Suite Single
$5,055/semester*

Studio Apartment
$6,510/semester

2BR Apartment Double
$4,795/semester

2BR Apartment Single
$5,745/semester

4BR Apartment
Single: $5,335/semester
Double: $4,600/semester

Figure 5-26: Survey Tested Unit Types

a deficit of 1,225 beds in 2025, provided the university achieves its 2025 enrollment targets.

An additional layer of analysis was included to ensure placement of students was in appropriate housing based on their respective enrollment levels. The addition of this layer was in response to Brailsford & Dunlavey's *Strategic Asset Value* session with the Master Plan Advisory Committee and other key stakeholders that resulted in:

- Reallocating surplus demand from first-time students who indicated a preference to live in full-suite and apartment units to more appropriate community-oriented double- and single-occupancy semi suite units; and,

- Placing upper-division and graduate students who indicated they would live in semi-suite units in full-suites and apartments.

This policy overlay adjusts the overall demand numbers to 410 beds within semi-suite arrangements for first-time, first-year students and 1,130 beds in apartments or full-suites for upper division and graduate students.

ENROLLMENT CLASSIFICATION	ENROLLMENT	CAPTURE RATE	MAXIMUM POTENTIAL DEMAND
First Time First-year	1,464	26%	386
Sophomore	2,874	11%	321
Junior	2,304	6%	145
Senior/Other	2,989	7%	207
Graduate/Other	3,375	6%	212
TOTAL	13,006	10%	1,271
Existing Bed Count (CU Denver Occupied CVA Beds)			570
NET DEMAND (SURPLUS/(DEFICIT))			(701)

Figure 5-27: Maximum Potential Demand based on Fall 2016 Enrollment

ENROLLMENT CLASSIFICATION	ENROLLMENT	CAPTURE RATE	MAXIMUM POTENTIAL DEMAND
First Time First-year	2,119	26%	559
Sophomore	4,159	11%	465
Junior	3,334	6%	209
Senior/Other	4,326	7%	299
Graduate/Other	4,121	6%	259
TOTAL	18,059	10%	1,795
Existing Bed Count (CU Denver Occupied CVA Beds)			570
NET DEMAND (SURPLUS/(DEFICIT))			(1,225)

Figure 5-28: Projected Housing Demand for Fall 2025 Enrollment

5.4 SUMMARY OF FUTURE SPACE NEEDS

To provide sufficient space for increased student enrollment and to meet research growth targets, the university will need to construct new facilities over the 10-year horizon of the 2017 Facilities Master Plan. The university should also continue to address deferred maintenance issues and renovate existing spaces to improve their quality, effectiveness, and efficiency. Summarized below (Figure 5-29) is the space need for CU Denver, by space type, to 2025. These needs assume that CU Denver will achieve the enrollment and research targets outlined in this 2017 Facilities Master Plan.

SPACE TYPE	ACTUAL 2015	TARGET 2025	SURPLUS/(DEFICIT)
Academic Space	358,458 ASF	611,379 ASF	(201,214 ASF)
Administrative Space	441,823 ASF	556,601 ASF	(114,778 ASF)
Research Laboratories and Support Space	63,629 ASF	83,629 ASF	(20,000 ASF)
On-Campus Residential Beds	570 beds	1,795 beds	(1,225 beds)

Figure 5-29: Summary of Future Space Needs

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