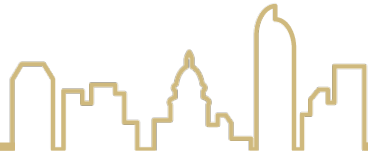




University of Colorado **Denver**

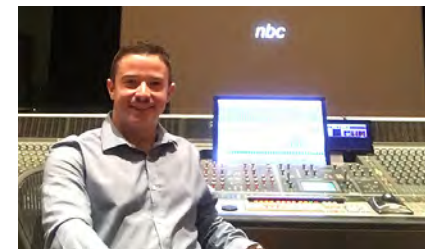
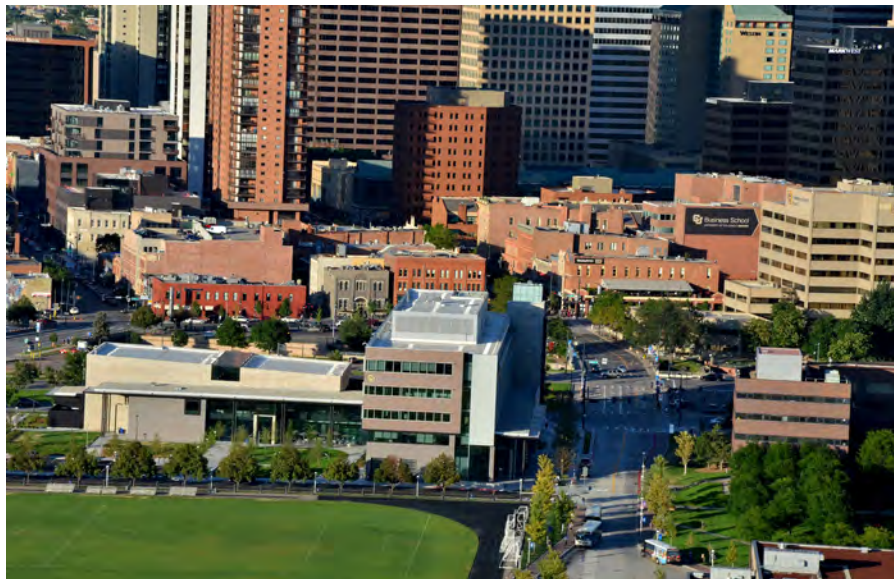


CU IN THE CITY

November 2017



2017 FACILITIES MASTER PLAN



GRADUATES
85,000+
ALUMNI

Two-thirds of whom remain
in Colorado, shaping the
economy and culture.



EXPERIENCE
900

**highly coveted student
internships** awarded
every year.

As Colorado's only public urban research university, the University of Colorado Denver provides an excellent, accessible education in a supportive, inclusive environment. Our location in the heart of one of America's most dynamic cities gives our students unmatched access to internships and jobs as well as a thriving cultural scene. Through academically rigorous coursework and real-world learning experiences, CU Denver graduates become leaders in the community, effecting change and innovation across industries and fields.

After more than 40 years of steady growth, the combination of our urban setting, increasingly diverse student body and shared campus presents a unique set of challenges and opportunities. I am honored to present the first comprehensive visioning document focused solely on CU Denver's facilities. The following pages detail the evolution of our university in its urban context and provide a valuable roadmap to guide our physical development in the coming years as we continue our work toward becoming an undisputed top asset in the city of Denver.

This Master Plan addresses a number of goals articulated by CU Denver's faculty, staff and students. These include a strong desire for physical improvements that ultimately reinforce the campus' sense of place: high-quality classrooms, laboratories and studios; enhanced connections within and between our facilities on the Auraria Campus and across Speer Boulevard; attractive student housing options; and adaptable office spaces. In the next decade, as both our institution and our city evolve and ascend, we must employ effective, efficient and thoughtful development strategies to accomplish our aim.

I want to thank the CU Denver faculty, staff and students who have invested their time and talent in shaping this Master Plan. In these pages, you will find the promise that lies ahead of us. While our potential will be realized through our university community, we expect our impact to extend well beyond our campus, fueling the future of Denver and the greater metropolitan region.



A handwritten signature in black ink that reads "Anasthya A. Howell". The signature is written in a cursive, flowing style.

APPROVAL

The CU Denver 2017 Facilities Master Plan was approved by the University of Colorado Board of Regents on November 16, 2017.



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ACRONYMS + ABBREVIATIONS

ABOD	Auraria Board of Directors	FTE	Full-Time Equivalent
AHEC	Auraria Higher Education Center	GSA	General Services Administration
ASF	Assignable Square Feet	GSF	Gross Square Feet
BOR	Board of Regents	LoDo	Lower Downtown
BRT	Bus Rapid Transit	OIP	Office of Institutional Planning
CAFM	Computer-Aided Facilities Management	OIRE	Office of Institutional Research and Effectiveness
CAM	College of Arts and Media	OIT	Office of Information Technology
CAP	College of Architecture and Planning	PI	Principal Investigator
CDHE	Colorado Department of Higher Education	RTD	Regional Transportation District
CEAS	College of Engineering and Applied Science	SEHD	School of Education and Human Development
CLAS	College of Liberal Arts and Sciences	SPA	School of Public Affairs
CUPCO	University of Colorado Property Corporation	SSO	Student Station Occupancy
DRB	University of Colorado Design Review Board	STEM	Science, Technology, Engineering and Math
EHS	Environmental Health and Safety	WRH	Weekly Room Hours
FC	Finance Committee		

TERMS + DEFINITIONS

University of Colorado

The University of Colorado System is comprised of four distinct campuses: CU Denver, CU Boulder, CU Anschutz Medical Campus, and University of Colorado Colorado Springs (UCCS).

University of Colorado Denver

The **legal name** of CU's consolidated campuses at Denver and Aurora. For the purposes of this document CU Denver will refer only to the Denver campus.

CU Denver is the only public urban research university in the state. Located in downtown Denver, the university offers students extensive business, professional and cultural opportunities. Approved short-form names are:

- CU Denver
- the university

University of Colorado Board of Regents

The Board of Regents consists of nine members serving staggered six-year terms, one elected from each of Colorado's seven congressional districts and two elected from the state at-large. The board is charged constitutionally with the general supervision of the university and the exclusive control and direction of all funds of and appropriations to the university, unless otherwise provided by law.

Auraria Higher Education Center

The Auraria Higher Education Center is a separate state entity whose role is to provide and manage shared services, facilities, and property to support three prominent institutions - CU Denver, Community College of Denver and Metropolitan State University of Denver - in achieving their goals. The collective student population is approximately 42,000, with an additional 5,000 faculty and staff.

Facilities Master Plan

The CU Board of Regents requires that each campus prepare a long-range facilities master plan for a 10-year period that provides direction for the physical development of the campus based on current conditions, future trends, and institutional priorities.

The completed document is submitted to the CU System President and CU BOR for approval. The Colorado Department of Higher Education established detailed guidelines for long-range facilities master plans that focus on examining institutional goals as set by campus leadership, assessing the needs of campus users, and analyzing current campus conditions.

Full-Time Equivalent (FTE)

A unit that makes calculating employees and students comparable across various contexts: An FTE of 1.0 means that the person is equivalent to one full-time worker or student.

Headcount

Headcount is an unduplicated actual count of employees and/or students—literally the number of heads—counted only once, whether the individual works full- or part-time and the student is enrolled in one class or a full course load.

On-Campus

On-campus refers to students who attend at least one regularly scheduled class session on-campus, even if all other credit hours are received through off-campus or online instruction.

Off-Campus

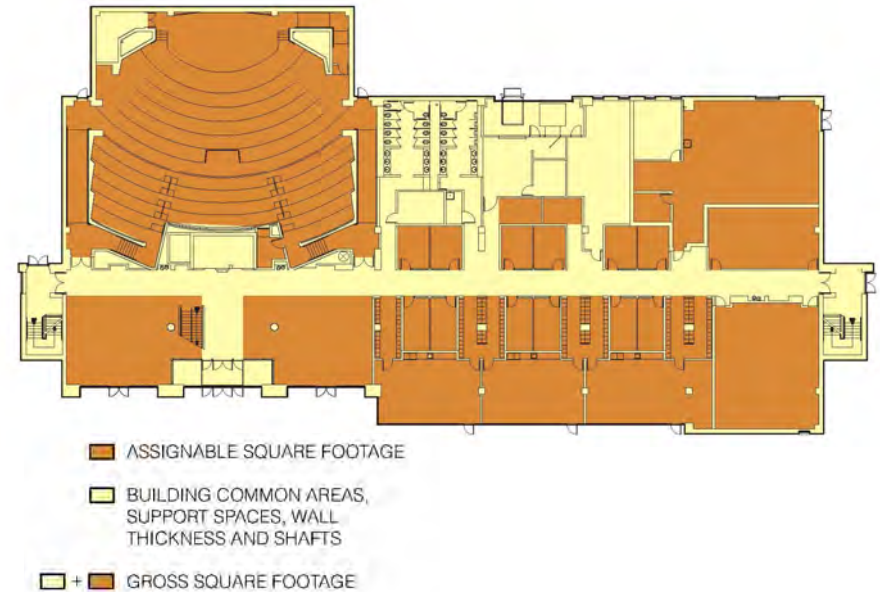
Off-campus refers to students whose instruction is received exclusively online or occurs off-campus.

Assignable Square Feet (ASF)

A term used to describe the space in a building that occurs within a room—from interior wall to interior wall—that can be assigned to an occupant. Excluded are building spaces such as restrooms and circulation corridors, stairs and elevators.

Gross Square Feet (GSF)

Gross square feet includes the total area of all floors of a building, including all areas within the exterior walls and floor penetrations. GSF also includes all space above and below grade, and building structural, mechanical, infrastructure systems, and all circulation, restrooms and support spaces.



The consultant team that assisted the university in preparation of the 2017 Facilities Master Plan included:

- SmithGroupJJR
- Paulien & Associates
- Brailsford & Dunlavey



EXECUTIVE SUMMARY 1



2007 Auraria Master Plan: 5th Planning Principle:

“Enhance the identity of the individual institutions without undermining the shared identity of the Auraria Campus. AHEC students, faculty, administrators, and alumni associate with their individual school more than the physical campus.

Senior administrators of the three institutions believe that the allegiances of students and alumni will be enhanced through campus growth that strengthens the identity of the individual institutions relative to the campus. In turn, this is expected to generate greater success in alumni financial support and a greater sense of pride in the larger campus.”

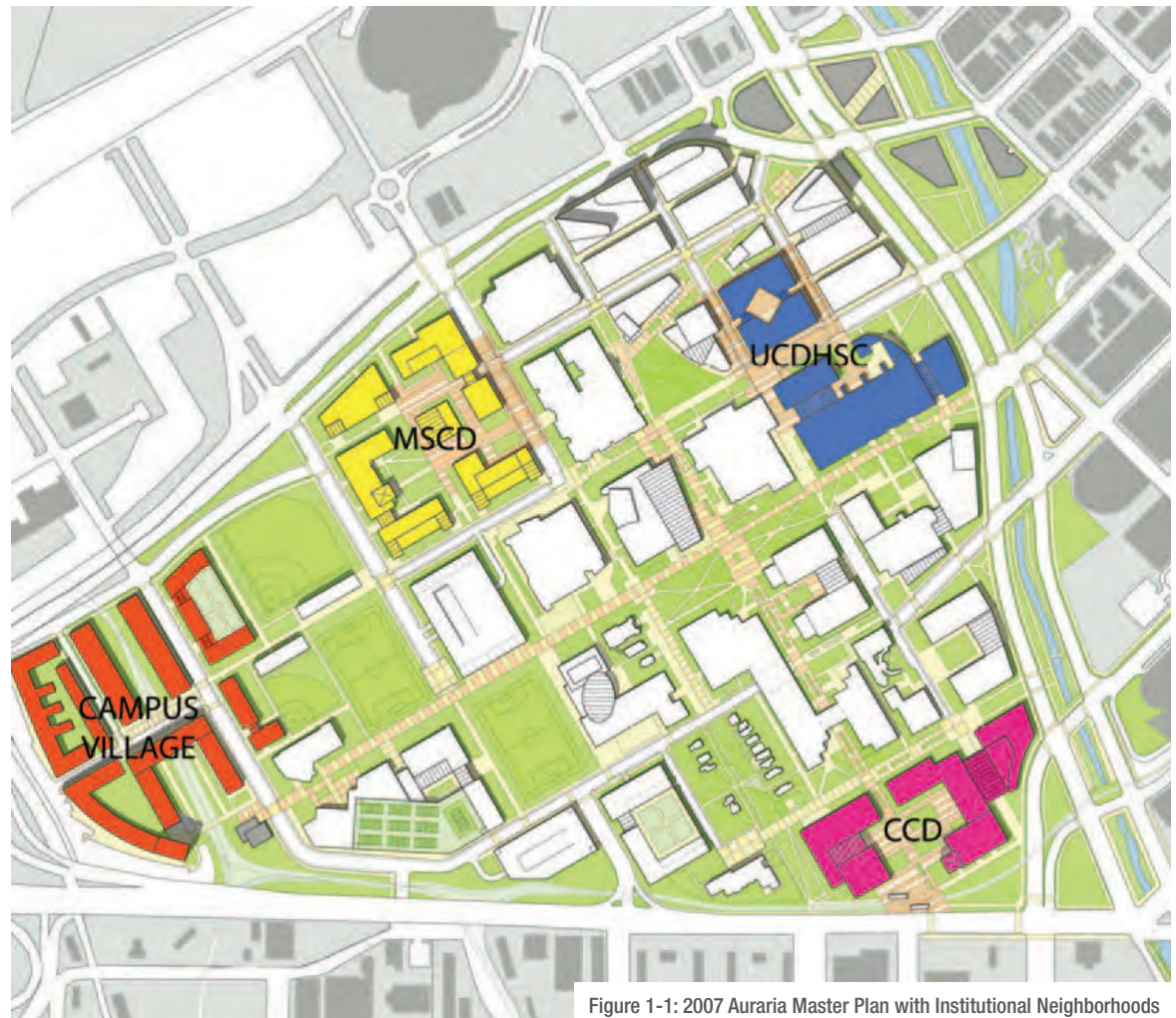


Figure 1-1: 2007 Auraria Master Plan with Institutional Neighborhoods

EXECUTIVE SUMMARY

The University of Colorado Denver is a dynamic institution with a strong history of seizing opportunities. Innovative and adaptive, CU Denver has for decades provided a quality education to undergraduate and graduate students who seek to learn in a diverse and engaging urban environment.

CU Denver originated in 1912 as an extension of the University of Colorado Boulder. In 1973, it gained independence within the CU System and, soon after, became one of three institutions to share the campus known as the Auraria Higher Education Center.

Today, CU Denver enrolls more than 15,000 students. While the Auraria institutions are valued partners, substantial growth over the last decade has enabled CU Denver to create a distinctive identity and gain a measure of autonomy.

- In 2007, the **Auraria Master Plan** ushered in the concept of institutional neighborhoods on the Auraria Campus and designated the area along Speer Boulevard, directly adjacent to Denver's central business district, as the CU Denver Neighborhood.
- CU Denver acquired three buildings in downtown Denver. The **CU Denver Building**, purchased in 2006, is home to the College of Architecture and Planning and lies directly adjacent to Larimer Square. The **Lawrence Street Center**, also purchased in 2006, houses the School of Public Affairs, the School of Education & Human Development, and many administrative units. The **Business School**, which reaches into the heart of downtown, was purchased

in 2008 and renovated to accommodate and consolidate the school's various programs, departments and centers.

- The **Campus Village Apartments** opened in 2006. For the first time, CU Denver students could live on campus and have a traditional, residential college experience. The Campus Village Apartments are managed by CU Denver.
- **Student Commons** was built in 2014 and consolidated student services into one location. As the first CU Denver-owned building constructed on the Auraria Campus, Student Commons anchors the CU Denver neighborhood.
- **North Classroom**, home to much of the College of Liberal Arts and Sciences and the College of Engineering and Applied Science, underwent a significant renovation that updated nearly 1/3 of the classrooms used institution-wide by CU Denver. This project will be completed in 2018.
- A number of recent initiatives are contributing to a distinct CU Denver character and a more robust student community. In 2011, students voted to create a CU Denver-specific mascot and Milo the Lynx was introduced in 2013. In 2015, they initiated and led a referendum to construct the **Student Wellness Center**, a facility devoted to enriching all dimensions of wellness for CU Denver students. It will open in 2018. Club sports are also expanding and now include 14 teams.

This master plan, the first one ever undertaken specifically for CU Denver, sets its sights on the next ten years. The plan is guided by three principles, which have informed its physical recommendations (see Figure 1-2 for a map of the project recommendations).

1. CU Denver will grow over the next ten years, and the university must take steps to accommodate that growth.

The Facilities Master Plan establishes 2025 enrollment targets for overall student headcount of 25,000, and on-campus headcount enrollment of 18,060. These are increases from the fall 2015 headcounts of 19,046 overall students and 12,873 on-campus students.

The Engineering and Physical Sciences Building (1), the Instructional Lab Wing (5), CU Denver Building Renovation (9), and Business School Phase II (2) have been long-standing priorities of the institution. These projects all address critical needs for high-quality instructional lab and research space, state-of-the-art classrooms, and adaptable office space.

2. CU Denver will enhance student life for current and future students. This includes elevating student success and providing more and better housing options for students.

A survey conducted as part of the Facilities Master Plan identified a current demand for 1,271 beds (701 including the 570 beds occupied by CU Denver students in Campus Village). If the 10-year enrollment targets are met, that demand will increase to 1,795 beds (1,225 including the 570 beds occupied by CU Denver students in Campus Village).

The First Year Residence Hall with Dining (3) will provide additional housing options, and renovations to the Tivoli Student Union (8) and Student Commons (11) will result in more efficient and seamless student services.

3. CU Denver will embrace its role as a significant contributor to the economic, social and cultural vitality of the metropolitan Denver region.

Representatives on the master plan committees overwhelmingly recommended a strategy of development that looks beyond the sites available to CU Denver on the Auraria Campus.

The development of the Nexus Site (4) represents an opportunity for additional housing on a highly-visible site that will connect the CU Denver downtown and Auraria neighborhoods. The redevelopment of the CU Denver Building Annex (6) seeks to maximize an under-developed asset and strengthen the Larimer Street corridor leading into the CU Denver neighborhood.

The next ten years are ripe with opportunity for the University of Colorado Denver. With this Facilities Master Plan as a guide, the university is well-positioned to build upon the successes of the recent past and set a pathway for a bold future for **CU in the City**.



NEW FACILITIES

- 1** ENGINEERING AND PHYSICAL SCIENCES BUILDING, PHASES I AND II
- 2** BUSINESS SCHOOL, PHASE II
- 3** FIRST-YEAR RESIDENCE HALL WITH DINING
- 4** NEXUS PARCEL MIXED-USE RESIDENTIAL BUILDING
- 5** INSTRUCTIONAL LAB WING AND SCIENCE BUILDING ADDITION
- 6** CU DENVER BUILDING ANNEX TOWER

RENOVATIONS OF EXISTING SPACES

- 7** NORTH CLASSROOM BUILDING (PHASE I OF PROJECT 1)
- 8** TIVOLI STUDENT UNION BUILDING RENOVATIONS
- 9** CU DENVER BUILDING RENOVATION
- 10** LAWRENCE STREET CENTER RENOVATIONS
- 11** STUDENT COMMONS REPURPOSING

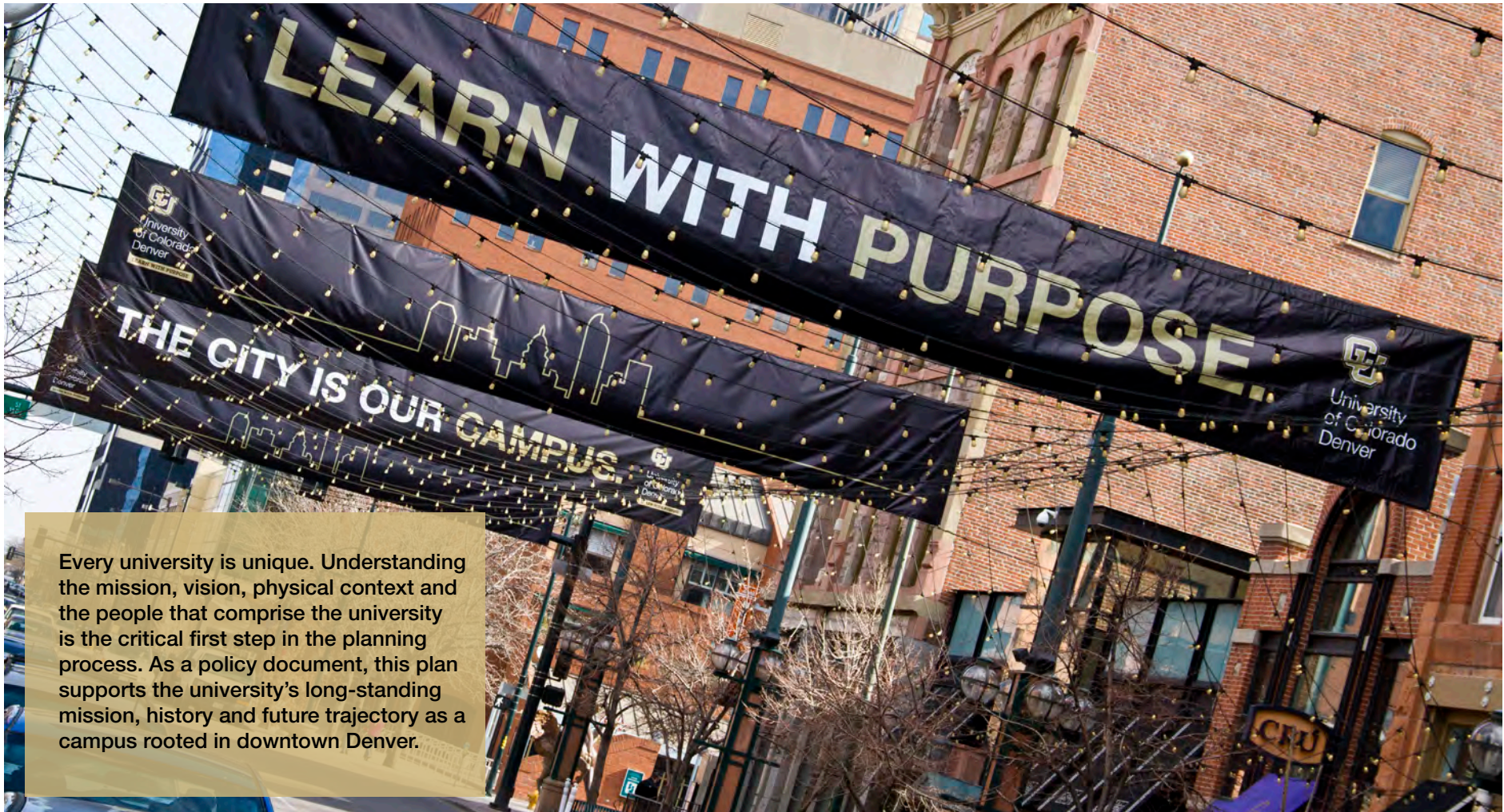
Figure 1-2: Recommended New Facilities and Renovations

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PLANNING FRAMEWORK 2





Every university is unique. Understanding the mission, vision, physical context and the people that comprise the university is the critical first step in the planning process. As a policy document, this plan supports the university's long-standing mission, history and future trajectory as a campus rooted in downtown Denver.

2.1 PURPOSE

The Colorado Department of Higher Education (CDHE) guidelines for long-range facilities master planning recommends that institutions prepare a new plan every ten years, with a five-year update. It has the authority to prescribe uniform policies, procedures and standards of space utilization and to review master plans and program plans for all higher education capital construction projects in Colorado. The ability to review master plans for state institutions of higher education allows CDHE and state-elected officials to attain a better understanding of educational facilities' needs and priorities.

The University of Colorado System (CU System) has a clear review and adoption process for all facility master plans that includes approvals by the campus chancellor, system president, and the CU Board of Regents (BOR). Also, plans should be consistent with CDHE guidelines. The CU BOR is charged constitutionally with the general supervision of all four CU campuses and the exclusive control and direction of all funds of and appropriations to the university unless otherwise provided by law. The CU BOR Finance Committee reviews all building and master planning projects before they go to the full board for formal approval. The CU BOR Finance Committee must approve CU Denver's 2017 Facilities Master Plan before it can be submitted for approval to the full board, which is necessary for university adoption of the plan.

The 2017 Facilities Master Plan (FMP) is the first comprehensive plan to address the specific needs of CU Denver. Previously, space needs of the university were identified within the context of planning efforts led by the Auraria Higher Education Center (AHEC), which is a state entity created to operate the tri-institutional Auraria Campus for the Community College

of Denver (CCD), Metropolitan State University of Denver (MSU Denver), and CU Denver.

This plan further builds upon the concepts first proposed in the 2007 Auraria Campus Master Plan and refined in the 2012 AHEC Master Plan Update. Also, the 2017 Facilities Master Plan will inform the 2017 Auraria Campus Master Plan so that AHEC can continue to provide the shared resources that support CU Denver and the other Auraria institutions.

This plan outlines the facilities that CU Denver will need to remain a leading public urban research university and to fulfill its promise as one of the city's most valued assets. The framework of land uses, building forms and open spaces described in this plan are intended to be flexible and adaptable.

The Facilities Master Plan will not only guide the planning and design of campus facilities, but it will also influence academic programming, existing and future space scheduling and appropriate building and open space uses. The Facilities Master Plan should serve as a guide, not as a set of binding prescriptive actions, and the specific recommendations should be modified as additional requirements and needs arise. However, such revisions should follow and support the plan's guiding principles.

Therefore, this Facilities Master Plan is a living document that will be periodically re-examined and updated as the campus continues to evolve.

2.2 INSTITUTIONAL OVERVIEW

CU Denver is Colorado's only public urban research university. It combines academic rigor with immersive real-world experiences to educate students through quality academics, relevant research, creative work and civic engagement in the heart of Denver. Today more than 19,000 on- and off-campus students thrive in a diverse cultural, professional and experiential setting, benefitting from CU Denver's unparalleled internship, career and networking opportunities. All of these opportunities are within easy reach of the central business district, lower downtown (LoDo), the state capitol, and the global and regional headquarters of major companies, high-tech start ups, non-profits and cultural organizations.

CU Denver now extends into the heart of the city, reaching from the Auraria Campus into downtown Denver's thriving theatre and business districts. CU Denver's ongoing efforts to build bridges between industry and academia have resulted in a unique "learning laboratory" for students, faculty, researchers and partners.

Part of the state's largest public university system, CU Denver is also a major contributor to the Colorado economy, with a direct impact of more than \$800 million annually.

The CU System has four academic campuses – CU Denver, the University of Colorado Anschutz Medical Campus (CU Anschutz), the University of Colorado Boulder (CU Boulder) and the University of Colorado Colorado Springs (UCCS). The new CU South Denver facility located in Lone Tree, Colorado, managed by the University of Colorado Denver, offers courses and programs from all four campuses.

Of these four, CU Denver and CU Anschutz, located approximately nine miles to the east, are legally a consolidated university. However, each campus operates independently, though several functions—such as facilities, information technology, academic and student affairs, administration and finance, and human resources—are provided through consolidated units. This plan will focus exclusively on the space needs of the academic, research, administration, staff, student, and support functions of CU Denver.

2.3 STRATEGIC PLAN, MISSION AND VISION

The 2008 University of Colorado Denver Strategic Plan established a 15-year Mission and Vision for the university that is still relevant and, as such, informed decision-making throughout the master planning process. The appointment of Chancellor Dorothy Horrell in 2016 led to a series of initiatives to engage the campus community, its partners and its affiliates in provocative and inspiring conversations about CU Denver. Chancellor Horrell's "Reach Out and Listen Tour," and the subsequent Strategic Plan Statement of 2017 helped establish: 1) five campus priorities; 2) the reclaiming of the much beloved "CU in the City" brand; and, 3) embracing and celebrating CU Denver's singular role as the state's only public urban research university.

The tour launched a dialogue around the university's potential and impact. Five priorities emerged from the listening tour:

1. Elevate student success;
2. Advance excellence and innovation in teaching, research, and creative work;
3. Strengthen the university's position as a vital community asset;
4. Create a more cohesive, collaborative and inclusive CU Denver culture; and,
5. Achieve long-term financial stability and sustainability.

The tour demonstrated that the CU Denver community was and is ready to lift the university to the next level. The "CU in the City" rebranding will help further define CU Denver and propel the university toward its goals of being a valued knowledge partner, vital contributor to the civic, cultural, and economic future of Denver and the metropolitan region, and be acknowledged as one of the top assets of the city and state by CU Denver's 50th anniversary in 2023.

The Mission and Vision of the University of Colorado Denver, as defined in the 2008 Strategic Plan, are:

MISSION

The University of Colorado Denver is a diverse teaching and learning community that creates, discovers and applies knowledge to improve the health and well-being of Colorado and the world.

VISION

By 2020, the University of Colorado Denver will be a leading public university with a global reputation for excellence in learning, research and creativity, community engagement and clinical care.

Located in the heart of the state's dynamic, vibrant and growing capital city, CU Denver is within the Auraria Campus, and is bounded by Speer Boulevard to the east, Auraria Parkway to the north, Colfax Avenue to the south and US Interstate 25 to the west. The CU Denver designated "neighborhood" extends outside the Auraria Campus boundaries and into the downtown business district. CU Denver also operates the Campus Village Apartments (CVA) located along the west edge of the Auraria Campus.



2.4 GUIDING PRINCIPLES

Three guiding principles for this plan emerged from the initial master planning meetings, interviews and surveys, and align with the university's mission and vision.

GROWTH IN ACADEMICS AND RESEARCH

The primary areas of focus for any university are teaching, and research and creative activities. Campus facilities must support these activities and adapt and expand to meet growth needs and changing trends. Within the context of a growing Colorado economy, the need for an educated and skilled workforce will continue to increase, and enrollment growth is anticipated to accelerate over the next decade. CU Denver's research and creative activities will also increase and broaden as researchers continue to develop insightful solutions to society's challenges. In particular, CU Denver will strive to strengthen and expand industry and civic partnerships to tackle issues of particular concern in the greater Denver area.

EMPHASIS ON STUDENT LIFE

Historically, CU Denver has attracted and served non-traditional students base, most of who don't live on or near the campus. Many CU Denver students work, are older than traditional undergraduate students, and some have families. Recently, several ideas emerged regarding the role of student life spaces and the way those spaces can better meet the needs of CU Denver's diverse student population.

The first is the recognition that while students might be commuting to attend classes, they are no less in need of on-campus student life

space. Commuting students often arrive before class, have significant time between classes, and many stay after class to study or interact with instructors or classmates.

Secondly, students have expressed a strong desire to create a specific CU Denver culture. Students voted to create the university's first mascot in 2011 and to fund, through increased fees, their own Wellness Center in 2015. Students also encouraged the university to accept and promote club sports. CU Denver now boasts over 15 club teams that compete against other colleges and universities.

Lastly, CU Denver has strengthened its commitment to improving student success. A student's connection to their institution, campus, peers and instructors has a strong effect on whether they graduate in a timely fashion, or even at all. The university seeks to provide additional student life offerings and on-campus housing opportunities to meet these growing demands.

IMPROVE PHYSICAL CONNECTIONS

As Colorado's only public urban research university, CU Denver is committed to strengthening its integration into the City's urban environment, with increased development density and scale, signature facilities, and improved, safe multi-modal access within the urban grid.

LEGEND

- CU DENVER NEIGHBORHOOD
- CU DENVER OWNED BUILDING
- AURARIA BUILDING WITH CU USE
- BUILDING WITH NO CU USE
- AURARIA SHARED CAMPUS
- MSU DENVER NEIGHBORHOOD
- CCD NEIGHBORHOOD
- CAMPUS VILLAGE – CUPCO

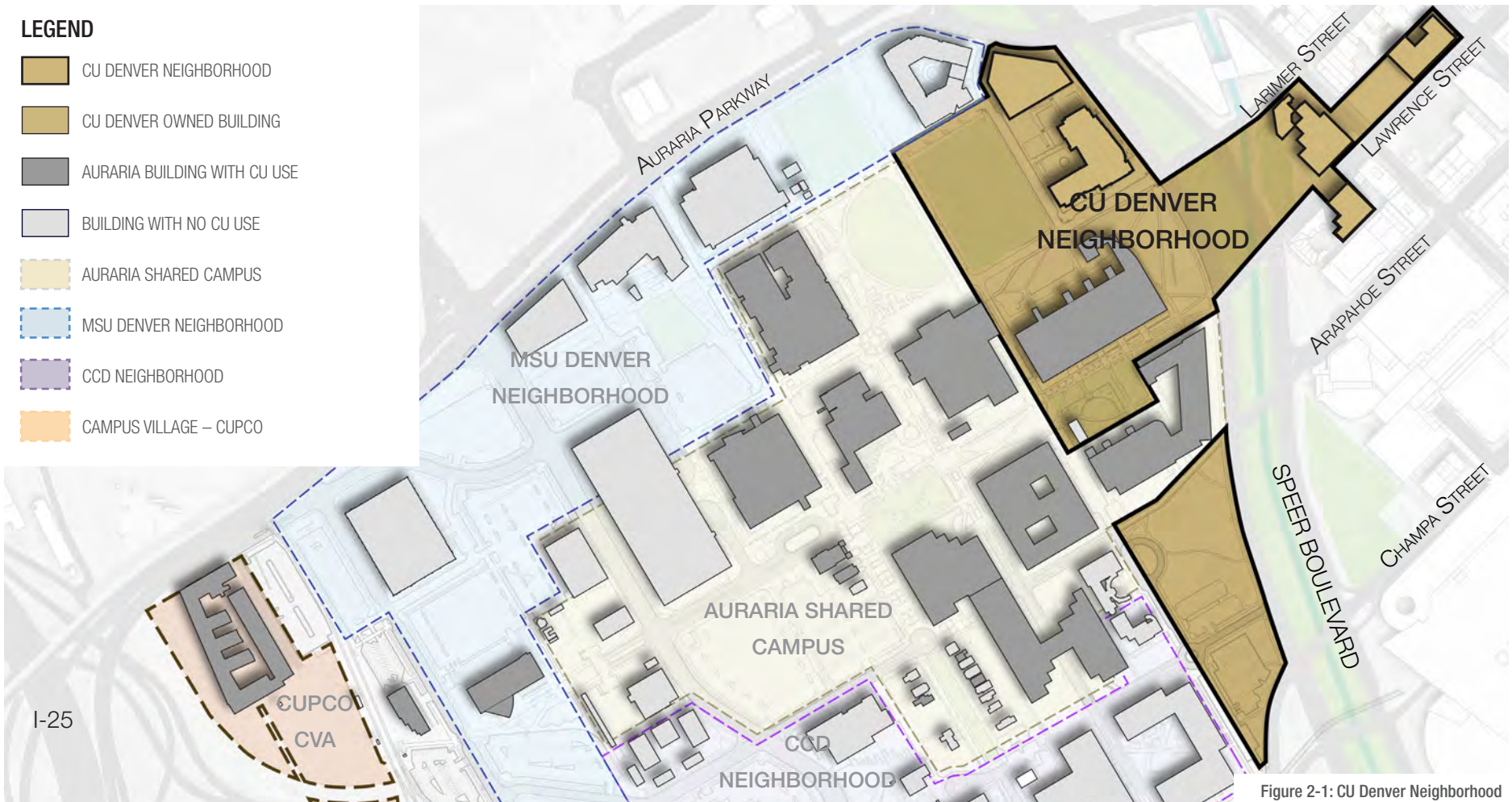


Figure 2-1: CU Denver Neighborhood

2.5 PHYSICAL CONTEXT

CU Denver shares the Auraria Campus with two other public higher education institutions, MSU Denver and CCD. The CU Denver designated “neighborhood” (see Figure 2-1) extends outside the Auraria Campus boundaries and into the downtown business district, east of Speer Boulevard. Also, CU Denver operates the Campus Village Apartments (CVA) located along the west edge of the Auraria Campus. The University of Colorado Property Corporation (CUPCO) owns CVA and several adjacent vacant properties.

CAMPUS SUB-AREAS

CU Denver and CUPCO facilities are located within three distinct areas:

- **CU Denver Neighborhood on Auraria:** This area, located between 11th Street and Speer Boulevard, is comprised of mid-rise facilities of four- to five-stories interspersed by green spaces and campus streets. The recently opened Student Commons and soon-to-open Student Wellness Center are the first buildings specifically constructed for CU Denver on the Auraria Campus and differ architecturally from the older North Classroom Building. The neighborhood provides a transition from the low-rise suburban character of the larger Auraria Campus to its west and the denser high-rise development downtown to the east.

Although some of the Auraria Campus functions and buildings continue to be shared by all three institutions, the 2007 Auraria Master Plan introduced the concept of campus “neighborhoods,” or areas within which each institution could develop their facilities and

create a distinct institutional culture. The CU Denver Neighborhood aligns with Speer Boulevard as shown in Figure 2-1.

- **CU Denver Neighborhood in Downtown:** The area east of Speer Boulevard and within downtown Denver includes three buildings that CU Denver purchased and repurposed for academic use – the Business School, the Lawrence Street Center and the CU Denver Building. These 8- to 14-story buildings contain a mixture of learning spaces and school, college and administrative offices.
- **Campus Village Apartments – CUPCO:** The area west of 5th Street includes CVA and several vacant parcels of land totaling 3.16 acres, all of which is owned by CUPCO. CVA includes 685 beds (of which 570 beds are currently occupied by CU Denver), 220 parking spaces, dining facilities and other residential amenities.

CAMPUS CHARACTERISTICS

CU Denver's neighborhood is compact and quite varied. Below are some of its defining characteristics:

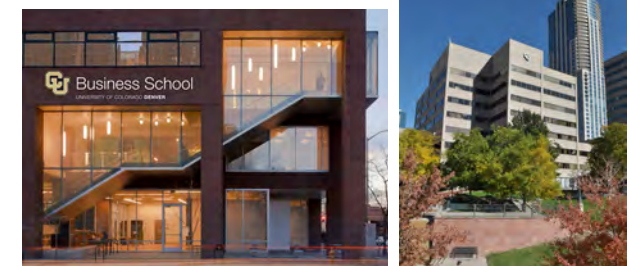
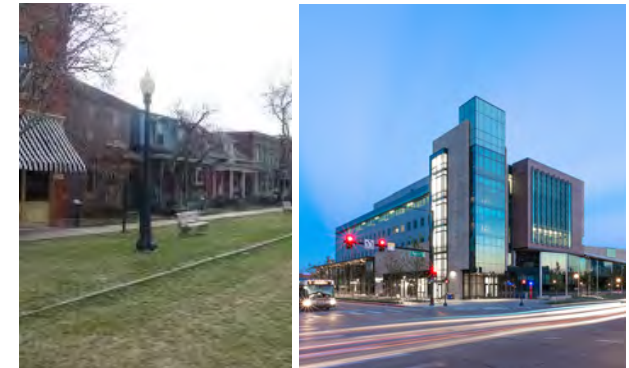
- The campus lies on both sides of Speer Boulevard and the Cherry Creek.
- It consists of buildings owned and operated by CU Denver and space occupied in buildings owned and operated by AHEC.
- Some of its buildings are low-rise, purpose-built academic buildings, while others are repurposed downtown office towers.
- Most CU Denver facilities are within 1,000 feet of the corner of Larimer Street and Speer Boulevard.
- However, the CU Denver Campus stretches nearly a mile between its two most distant facilities – CVA and the Business School.
- Clustered around the Tivoli Quad and the CU Denver Recreation Field are student services in the Tivoli Student Union, Student Commons Building, and the in-development Student Wellness Center.
- The distance between CVA and most student amenities and services is much greater than the half-mile distance would indicate, due to the existing circuitous pedestrian circulation routes through or around parking lots, parking structures, and the Tivoli Student Union.



- Downtown Denver provides additional food, entertainment and lodging options for those on the Auraria Campus. CU Denver also serves as a gateway to Larimer Square, an historic and renowned urban shopping and dining district.
- Schools and colleges located in the downtown section of CU Denver’s neighborhood are typically housed as a unit in a single building. Conversely, each school and college located in the university’s neighborhood on the Auraria Campus has departments and functions scattered across the campus in multiple facilities.

CU DENVER NEIGHBORHOOD ON AURARIA

COLLEGES/SCHOOLS	BUILDINGS
College of Engineering and Applied Science (CEAS)	North Classroom Building, 5th Street Hub, Administration Building, Boulder Creek, Lawrence Street Center
College of Liberal Arts and Sciences (CLAS)	Science Building, North Classroom Building, Plaza Building, 9th Street Park, Student Commons Building, Lawrence Street Center
College of Arts and Media (CAM)	Arts Building, King Center, Emmanuel Gallery, Tivoli Student Union, Boulder Creek, CU Denver Building



CU DENVER NEIGHBORHOOD IN DOWNTOWN

COLLEGES/SCHOOLS	BUILDINGS
College of Architecture and Planning (CAP)	CU Denver Building
Business School	Business School
School of Education and Human Development (SEHD)	Lawrence Street Center
School of Public Affairs (SPA)	Lawrence Street Center

- Open spaces within and adjacent to the CU Denver sub-areas vary in purpose and quality.
 - The CU Denver Recreation Field is a space that welcomes student play but lacks trees and seating.
 - The Tivoli Quad project, completed in late 2016, created a signature landscaped area in front of the Tivoli Student Union that serves as the heart of the campus. Before completion, it was an underutilized, unprogrammed turf area.
 - Speer Boulevard Open Spaces. These include the areas in front of the Science and North Classroom buildings and a city-owned triangular park parcel in the Speer Boulevard median. The lack of a designed visual and noise buffer at Speer Boulevard makes the green spaces largely unusable.
 - Cherry Creek/CU Denver Building. The open space that lies between the CU Denver Building and the Cherry Creek is not well maintained and feels unsafe due to limited site distances and multiple levels. This open space is on land owned by the City and County of Denver.



Speer Boulevard Open Spaces



Tivoli Quad

Intentionally Blank



PROCESS 3



A wide-range of campus constituents guided the development of the 2017 Facilities Master Plan. During the eight-month process, individuals participated as members of one of four standing committees, attended open houses and focus group sessions or provided information to the project team. This section of the Facilities Master Plan will outline the overall process used to create the plan.



3.1 PLANNING PHASES

The planning process included four sequential phases – Discovery, Analysis, Planning, and Documentation. This rigorous process identified pressing campus and urban issues, analyzed facility assets and conducted campus-wide qualitative and quantitative analyses.

- During the **Discovery** phase, the project team visited the campus, conducted interviews with key stakeholders, and met with the four CU Denver committees tasked with assisting the plan’s development. Through these efforts the team became familiar with CU Denver, established planning objectives, investigated campus conditions and patterns, obtained related planning documents, and identified key issues for the plan.
- During the **Analysis** phase of the project, the project team met with the plan’s committees to evaluate the information gathered in the previous Discovery Phase. Through these efforts, the team completed a space analysis and utilization study, established student enrollment targets, conducted a spatial analysis, and distributed a student life survey. The information generated during this phase was used to identify the opportunities and constraints to guide the campus’ growth.
- The project team met with the plan’s committees in the **Planning** phase to develop and refine a set of “alternative future scenarios” to guide the campus’ change and growth.

- Finally, inspired by these scenarios, the project team and the committees drafted a consensus Facilities Master Plan during the **Documentation** phase. The resulting plan presents this integrated vision and includes project sequencing and a capital plan.



3.2 COMMITTEE STRUCTURE

EXECUTIVE COMMITTEE

The Executive Committee included the chancellor, provost, vice chancellors and other leaders. This committee oversaw development of the entire Campus Master Plan and was responsible for overall project direction and approval. It also provided administrative guidance, coordination of internal and external input, and final planning recommendations. (See Section 8.0 Acknowledgments for a full list of Executive Committee members.)

ADVISORY COMMITTEE

The Advisory Committee was established to advise the Executive Committee on overall planning direction and to review iterative proposals originating from the Steering Committee. This group consisted of associate vice chancellors, deans, various department directors, faculty, Student Government Association representatives and representatives from the Auraria Higher Education Center (AHEC).

The broad representation of this committee allowed it to provide perspectives on the plan's recommendations from many points of view, including those from outside the university. This deliberate mixing of expertise provided critical insight during the Facilities Master Plan development. (See Section 8.0 Acknowledgments for a full list of Advisory Committee members.)

STEERING COMMITTEE

The Steering Committee was established to assess, synthesize and confirm strategies from the Planning Oversight Committee. This committee consisted of representatives from Housing, Student Affairs, the Auraria Library, the Student Wellness Center and the AHEC Planning Office. This group provided the initial review of documents and planning data, brainstormed a wide range of opportunities and potential solutions, and provided valuable input into the Facilities Master Plan process. (See Section 8.0 Acknowledgments for a full list of Steering Committee members.)

PLANNING OVERSIGHT COMMITTEE

The Office of Institutional Planning (OIP) led the Planning Oversight Committee that was charged with data gathering, meeting coordination and overall project management. This committee regularly engaged the Finance Department, Facilities Management Department, the Office of Information Technology (OIT), and the Office of Institutional Research and Effectiveness (OIRE) for guidance and to respond to requests for information. (See Section 8.0 Acknowledgments for a full list of Planning Oversight Committee members.)

Further, this committee coordinated efforts to solicit targeted input from students, faculty, staff and subject matter experts on topics such as public-private partnership (P3) development, finance and advancement, housing and student life, and parking and transportation. Finally, committee members engaged and met with representatives from the University of Colorado Design Review Board (DRB), the Downtown Denver Partnership (DDP), and Denver Arts and Venues.

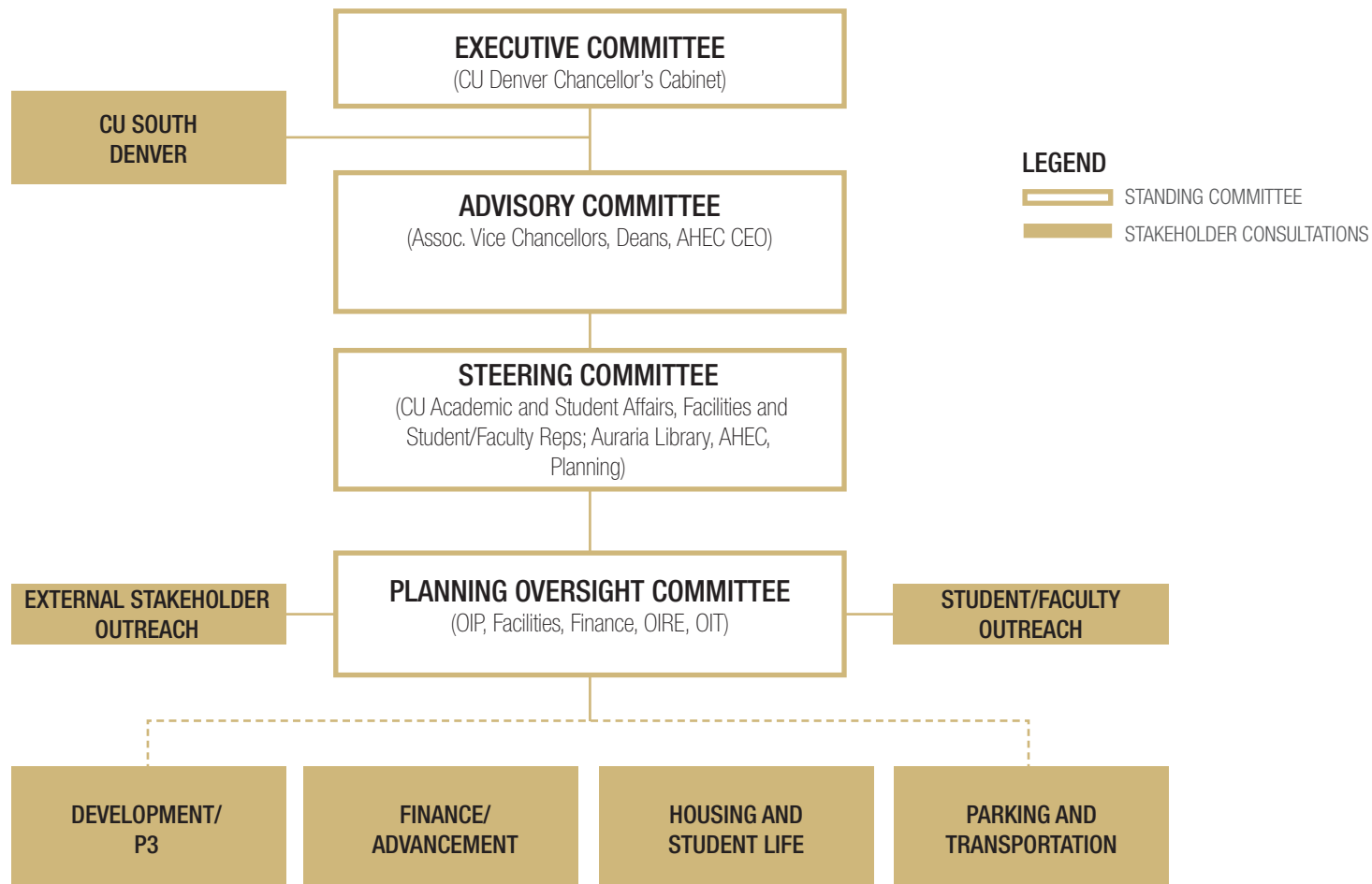


Figure 3-1: Decision-Making Structure

3.3 CAMPUS AND CIVIC ENGAGEMENT

The master planning process was consensus-based throughout all four phases of its development. This effort included interviews with campus and civic leaders. Faculty, staff and students participated in workshops, open houses and presentations to confirm campus analysis assumptions and provide input on future opportunities and next steps

The Facilities Master Plan aligns with the 2017 Auraria Campus Master Plan Update, which was being developed simultaneously with the CU Denver plan. Because of this collaborative process, the 2017 Facilities Master Plan has the support of the CU Denver community of students, faculty, administration and staff, and the support of AHEC and the Auraria Campus partner institutions.



3.4 PLAN ADOPTION



In addition to the committee meetings, the project team and CU Denver presented the plan to various agencies as part of the adoption process.

The University of Colorado Design Review Board (DRB) is the second-oldest established academic and higher education review board in the United States. Its mission is to review and advise parties charged with the design and development of proposed capital planning and development projects at all campus properties under the control of the CU Board of Regents.

The team presented the plan to the DRB three times. The initial project presentation occurred on December 8, 2016, and the DRB provided the team a list of general planning issues to address. The team presented its initial development scenarios for review and comment at the second meeting on March 10, 2017. The final plan was presented on May 11, 2017, to refine several aspects and to ensure the DRB provided its expertise to shape the plan's final development recommendations.

As a partner institution on the Auraria Campus, the team presented the plan to the Auraria Board of Directors (ABOD) on two occasions – March 22, and May 24, 2017. The plan was approved by the ABOD on June 28, 2017.

The plan will be presented to the University of Colorado Board of Regents Finance Committee for approval on October 25, 2017. The plan will then be presented to the full University of Colorado Board of Regents at its November 2017 meeting.

3.5 AMENDMENT CRITERIA



This plan may be amended at any time to address academic or strategic changes at CU Denver. Examples of issues that may require a plan amendment include:

- Sudden economic shifts that affect project financing and phasing;
- The adoption of new strategic goals and plans for the university;
- Adjustment to CU Denver Neighborhood boundaries;
- Updates to the Auraria Campus Master Plan; or,
- Enrollment growth exceeds the targets of this plan.

Any amended plan will need to be approved by the BOR Finance Committee and BOR as a new Facilities Master Plan. Both AHEC and CU Denver have been preparing master plan updates every five years to keep pace with the rapid growth in downtown Denver.

3.6 PROJECT TIMELINE

In the fall of 2016, CU Denver commissioned SmithGroupJJR to develop a Facilities Master Plan. The project kick-off meeting occurred on October 31, 2016. Over the course of the process, the project team visited CU Denver seven times. During each of those visits, the project team and the CU Denver Office of Institutional Planning team led committee meetings and hosted public forums and open houses. Some of the visits also included meetings with civic, institutional and community leaders. A project timeline is provided in Figure 3-2.

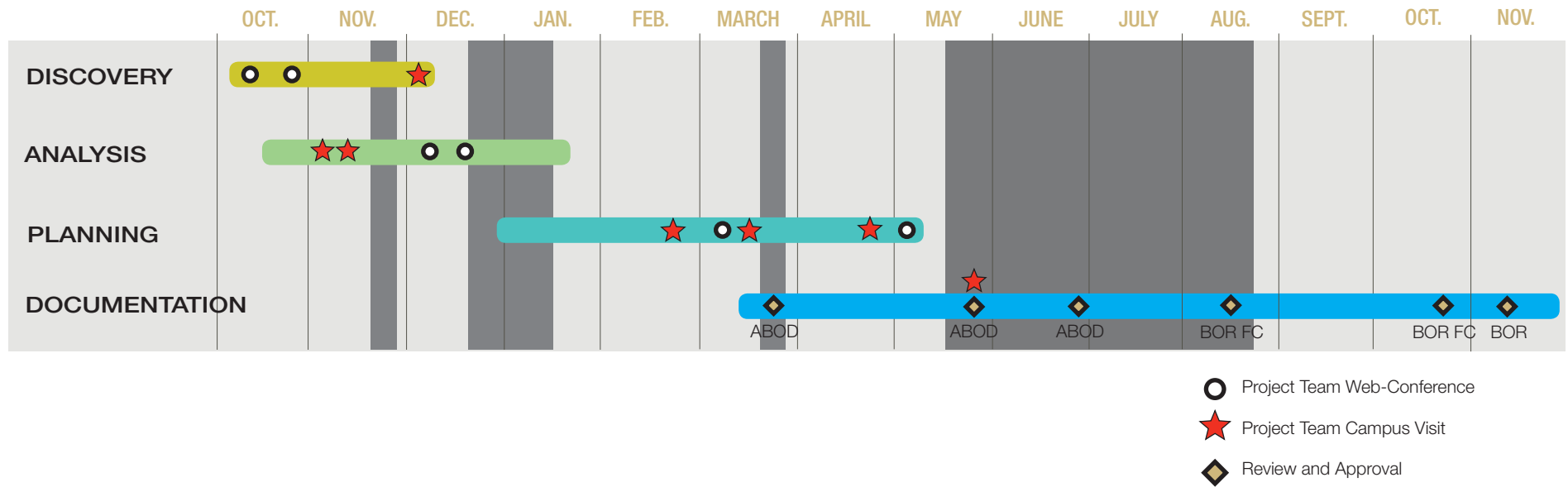


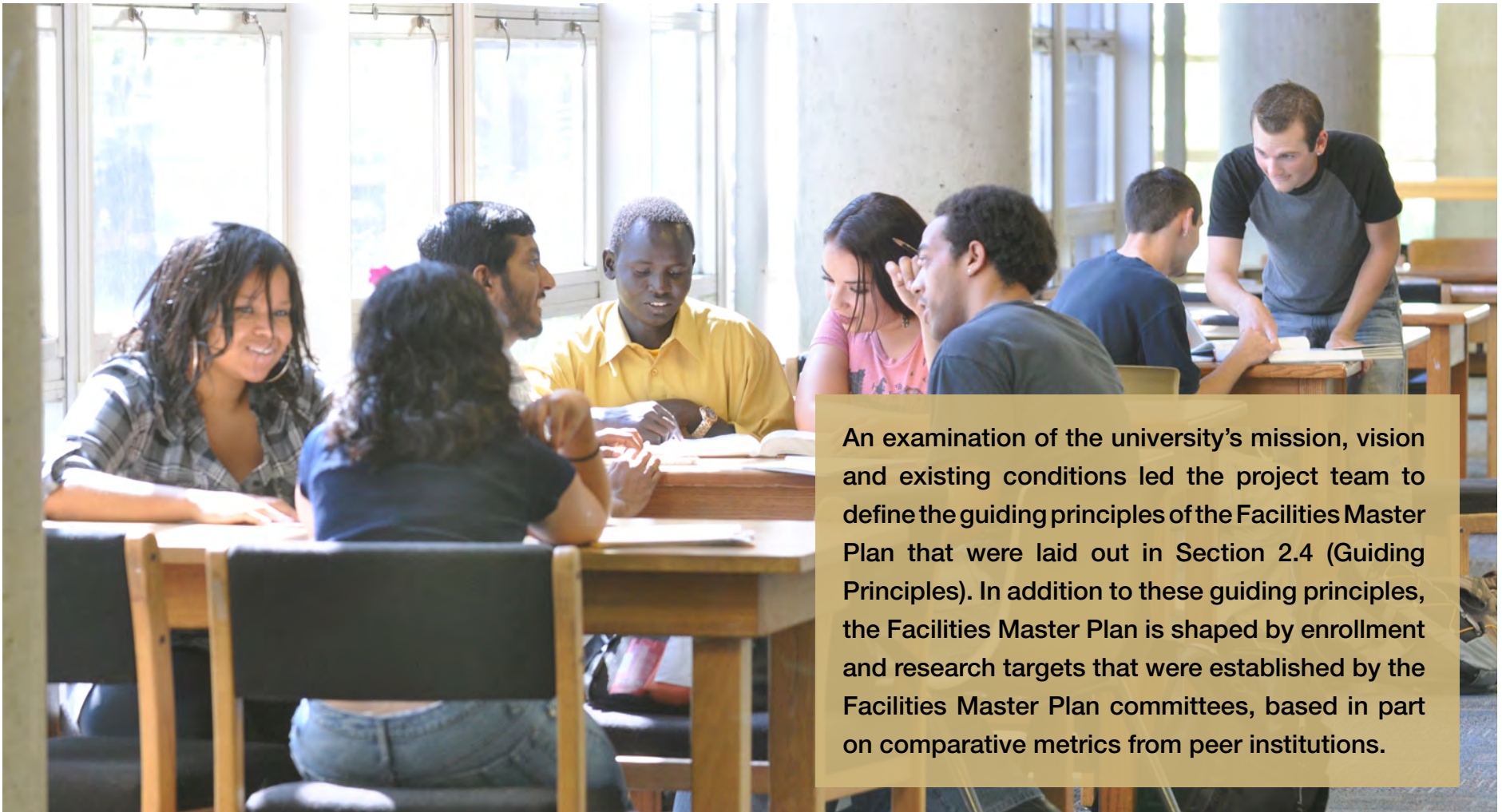
Figure 3-2: Project Schedule

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PARAMETERS AND DRIVERS 4





An examination of the university’s mission, vision and existing conditions led the project team to define the guiding principles of the Facilities Master Plan that were laid out in Section 2.4 (Guiding Principles). In addition to these guiding principles, the Facilities Master Plan is shaped by enrollment and research targets that were established by the Facilities Master Plan committees, based in part on comparative metrics from peer institutions.

4.1 PEER INSTITUTIONS

Useful and effective facilities master planning is evidence-based. Universities often compare themselves against other similar universities that feature characteristics they seek to emulate. In the realm of master planning, peer comparison can be helpful, and particularly as it relates to staffing, the use and assignment of space, and services provided to students.

CU Denver officially recognizes eleven peer institutions, with each selected due to particular shared traits. For this planning effort, three of these institutions were chosen for comparative purposes,

as each is, like CU Denver, a truly urban university located within a downtown area. The three selected were Cleveland State University, University of Memphis and Portland State University. The project team completed a comprehensive comparative analysis of benchmark data on enrollment, research, and space from each institution against similar CU Denver data. Also, data from other institutions were used to augment department- or unit-based analyses. Some of the characteristics of the peer institutions are listed below.



University of Colorado
Denver



	UNIVERSITY OF COLORADO DENVER	CLEVELAND STATE UNIVERSITY	UNIVERSITY OF MEMPHIS	PORTLAND STATE UNIVERSITY
Fall 2015 Student Headcount*	19,046	16,915	20,585	27,488
City Population**	600,158	396,815	646,889	583,776
City as Percent of Metropolitan Population	24%	19%	49%	26%

*Data source: IPEDS.

**Population data from the 2010 U.S. Census.

Figure 4-1: Peer Institutions

ACADEMIC AND ADMINISTRATIVE SPACE

The project team compared CU Denver's allotment of academic and administrative space to that of the selected peer institutions, based on assignable square feet (ASF) per student full-time equivalent (FTE). This type of comparison is most meaningful for space that directly or indirectly support students whereas research and office space align more closely with metrics related to levels of faculty and staff. Space data from Portland State University was not available, so the project team included data from the University of Missouri-Kansas

City (UMKC) and University of Missouri-St. Louis (UMSL) for this analysis.

The analysis revealed classroom utilization was on par with the peers while teaching lab utilization for CU Denver is below that of its peers. However, the amount of CU Denver open laboratory space, such as computer labs, project space, and maker spaces, is significantly lower than peers. Finally, there is a remarkable lack of recreational, student union and residential space for the campus in comparison with the other urban institutions.

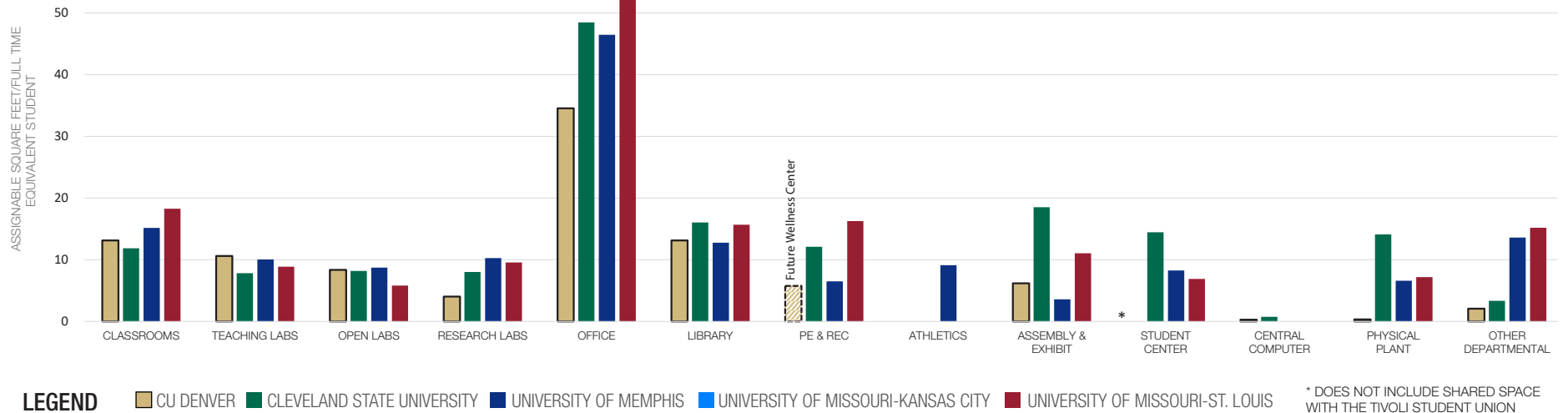
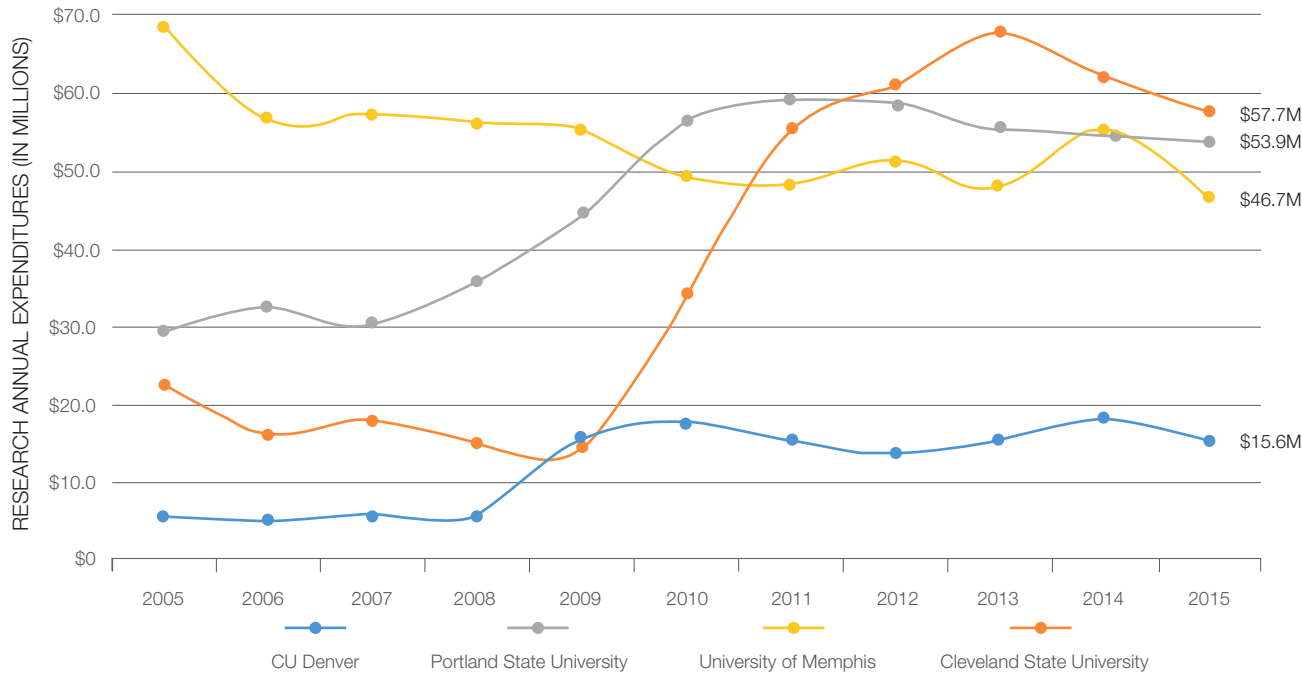


Figure 4-2: Benchmark Assignable Square Feet per Full Time Equivalent Student Enrollment

RESEARCH EXPENDITURES

The project team obtained and utilized National Science Foundation (NSF) data for externally funded research, to compare CU Denver's research activity to its identified peers. This data is as reported to NSF by each individual institution.

Relative to the peer institutions selected, CU Denver had a substantially lower level of research expenditures as shown in the following graph. Further examination of the data indicated that the university also lagged behind its peers regarding the numbers of Principal Investigators (PIs) and, more importantly, in research expenditures and ASF per PI.



SOURCE: NATIONAL SCIENCE FOUNDATION (NSF), ESTIMATE OF CU DENVER ACTIVITY ONLY

Figure 4-3: Benchmark Research Annual Expenditures, 2005-2015

STUDENT LIFE SPACE

Student life benchmarking focused on two key issues – student housing and on-campus outdoor recreation fields. A strategic goal of CU Denver is to offer more residential options. The benchmark analysis indicates a need to increase on-campus student life housing, support spaces, and experiences for the university to be successful. CU Denver is behind all identified peer institutions in both the percentage of students housed on-campus and the amount of outdoor recreation space provided. (See Figures 4-4 and 4-5.)

Housing

CU Denver currently offers fewer on-campus student housing beds than its peer institutions. In addition, the university’s only housing facility is located outside its campus neighborhood on the western edge of the Auraria Campus. Residents must traverse several poorly lit surface parking lots to reach the campus.

Cleveland State University offers a similar ratio of on-campus beds though in a city with much lower housing costs, which allows students to rent closer to campus. Portland State University houses 8 percent of its students on campus and, like CU Denver, is in a higher cost housing market. Although this assessment provides an interesting reference point for planning purposes, a more detailed discussion of the challenges posed by Denver’s unique housing market will be discussed later in this plan.

	UNIVERSITY OF COLORADO DENVER	CLEVELAND STATE UNIVERSITY	UNIVERSITY OF MEMPHIS	PORTLAND STATE UNIVERSITY
On-Campus Housing Rate	3% housed Enrollment: 19,046 students Housing Capacity: 570 beds (CU Denver occupancy. 685 total beds)	6% housed Enrollment: 16,915 students Housing Capacity: 1,039 beds	8% housed Enrollment: 27,488 students Housing Capacity: 2,232 beds	12% housed Enrollment: 20,585 students Housing Capacity: 2,850 beds
Notes	Owned CUPCO, managed by CU Denver	2 halls, both privately managed 9 complexes on campus edge	10 halls	All graduate housing located on separate campus
Recommendations from Peer Master Plans		off-campus private residential development (2015)	N/A	opportunity for an additional residence hall (2015)
Additional CU Denver Beds Needed		@ 6% current enrollment + 201 beds	@ 8% current enrollment +497 beds	@ 12% current enrollment + 1087 beds

Figure 4-4: Benchmark On-Campus Residential Facilities

Recreation

The project team researched outdoor recreation space offerings at CU Denver and peer institutions to complete a comparative analysis. It indicates that most peer institutions do not dedicate significant portions of their dense campuses to outdoor recreation fields. Figure 4-5 lists the inventory of outdoor recreation spaces by peer institution.

The project team added Marquette University, adjacent to downtown Milwaukee, Wisconsin, to provide another approach that some urban universities take to accommodate recreational needs. Cleveland State University provides no on-campus recreation fields, and the University of Memphis and Marquette University provide recreational fields, but they are off-campus. For comparison, CU Denver currently provides a single, on-campus recreational field.

	CU DENVER	CLEVELAND STATE UNIVERSITY	UNIVERSITY OF MEMPHIS	PORTLAND STATE UNIVERSITY	MARQUETTE UNIVERSITY
Outdoor Recreation	1 on-campus recreational field	No on-campus recreational fields	Two existing recreational fields One in central campus. One adjacent to student recreation center but separated by rail line	One on-campus recreational field	All outdoor recreation located off-campus, separated by an interstate, rail line, river, and 100 feet of grade change
Athletics	N/A	NCAA Division 1 Horizon League 8 men, 10 women	NCAA Division 1 American Athletic Conference 9 men, 9 women All athletic fields on separate campus	NCAA Division 1 Big Sky Conference 5 men, 8 women	NCAA Division 1 Big East Conference 7 men, 8 women All outdoor athletics located off-campus
Recommendations from Peer Master Plans	N/A	No new recreational fields (2015)	3 additional recreational fields (2015)	N/A	Roof top recreation, Expanded recreation complex, off-campus (2016)

Figure 4-5: Benchmark On-Campus Outdoor Recreation and Athletic Facilities

4.2 ENROLLMENT TARGETS

A collaborative and iterative process, with ongoing data verification, set 10-year enrollment targets. The inquiry began with a compilation and review of historical enrollment data at the university and school and college level, made available through the university's OIRE. Once examined, each college and school dean received the data for verification, revisions, and discussion in a follow-up meeting.

This information was shared with the deans of each college and school for verification of accuracy. The project team then sent a survey to all of the deans which, among other topics, asked them to provide their best estimate of enrollment growth for their school or college over the 10-year horizon of the plan. The project team compared the deans' projections of enrollment growth with historical trends for their school or college and with state and national trends in employment and higher education.

The result was a summary document that highlighted any discrepancies between projections provided by the deans, and projections that would be indicative of university historical trends, or state and national trends in employment or higher education. Based on the findings of this report, the project team and the Facilities Master Plan committees worked together to produce final enrollment targets for the overall university and each school and college. The Master Plan Executive Committee approved the targets on February 13, 2017.

Listed in Figure 4-6 are the enrollment targets compared with baseline data from the fall of 2015. Shown in Figure 4-7 are enrollment projections by school and college.

FALL 2015	FALL 2025
19,046 headcount	25,000 headcount
12,873 students on-campus (68%), and 6,173 students exclusively online or off-campus (32%)	18,060 students on-campus (72%), and 6,940 students exclusively online or off-campus (28%)
71% undergraduate students	73% undergraduate students

Figure 4-6: 2015 Student Headcounts and Enrollment Targets

The following assumptions and definitions apply to the enrollment targets:

- During enrollment target consultations between the project team and the Facilities Master Plan committees, the Business School, the College of Liberal Arts and Sciences (CLAS) and the College of Engineering and Applied Science (CEAS) were identified as growth leaders among the schools and colleges. While all schools and colleges are expected to grow, these three are expected to grow at a higher rate.
- Student enrollment is based on headcount and includes both main campus classes (D1) and extended study courses (D2).
- Excluded are non-credit bearing (D3) courses offered off-campus.
- “On-campus” students are those who attend at least one regularly scheduled class session on-campus, even if all other credit hours are received through off-campus or online instruction.
- Fall 2015 headcount enrollment was the baseline for this plan as final Fall 2016

academic census data were not available when the planning process began.

- Enrollment targets assume that undergraduate enrollment will continue to constitute roughly the same proportion of overall enrollment as in 2017.
- College/school level targets assume 12 percent growth in the number of off-campus students, but the share of off-campus students to total enrollment will decline from 32 percent to 28 percent.
- As the university’s largest college, on-campus enrollment in CLAS is targeted to grow by a significant 29 percent, with approximately 1,590 additional on-campus undergraduate students and 125 additional on-campus graduate students. The enrollment growth target reflects the national and CLAS trend lines of growth of the number of conferred degrees at both the undergraduate and graduate levels.
- Total enrollment for the Business School, the university’s second largest college or school, is targeted to grow by a moderate 21 percent, with approximately 550

additional on-campus undergraduate students. Graduate enrollment is expected to remain flat. The moderate growth target reflects the recently limited growth of conferred degrees of both the CU Denver Business School and business schools nationally and the dean’s anticipation of undergraduate enrollment growth.

- On-campus undergraduate and graduate targets for CEAS are significant but are in line with historical trends in CEAS and engineering programs nationally. Enrollment growth at this level will require additional academic and research space and considerably increased research productivity to support the projected number of engineering graduate students.
- The College of Architecture and Planning (CAP) established an undergraduate architecture program that now has a total enrollment that is comparable to the graduate program. Although enrollments in graduate programs are expected to grow, additional academic space is needed, or enrollment limits will be necessary.



- School of Education and Human Development (SEHD) enrollment targets for on-campus undergraduate students are in line with the college’s historical growth—but counter to national downward trends in education programs.
- School of Public Affairs (SPA) has targeted significant growth in on-campus and off-campus undergraduate enrollment. Recent enrollment trends within the college and local trends support this target.
- The College of Arts & Media (CAM) is almost exclusively an on-campus undergraduate program, and it is forecast to remain that way despite higher than average growth in the online-only and graduate programs. The college’s recent enrollment growth has mirrored national trends for similar programs. The targeted enrollment growth over the ten-year planning horizon of 2 percent will require additional facilities.

Enrollment targets by school and college are presented in Figure 4-7.

The projects and recommendations in the 2017 Facilities Master Plan support these 10-year enrollment targets.

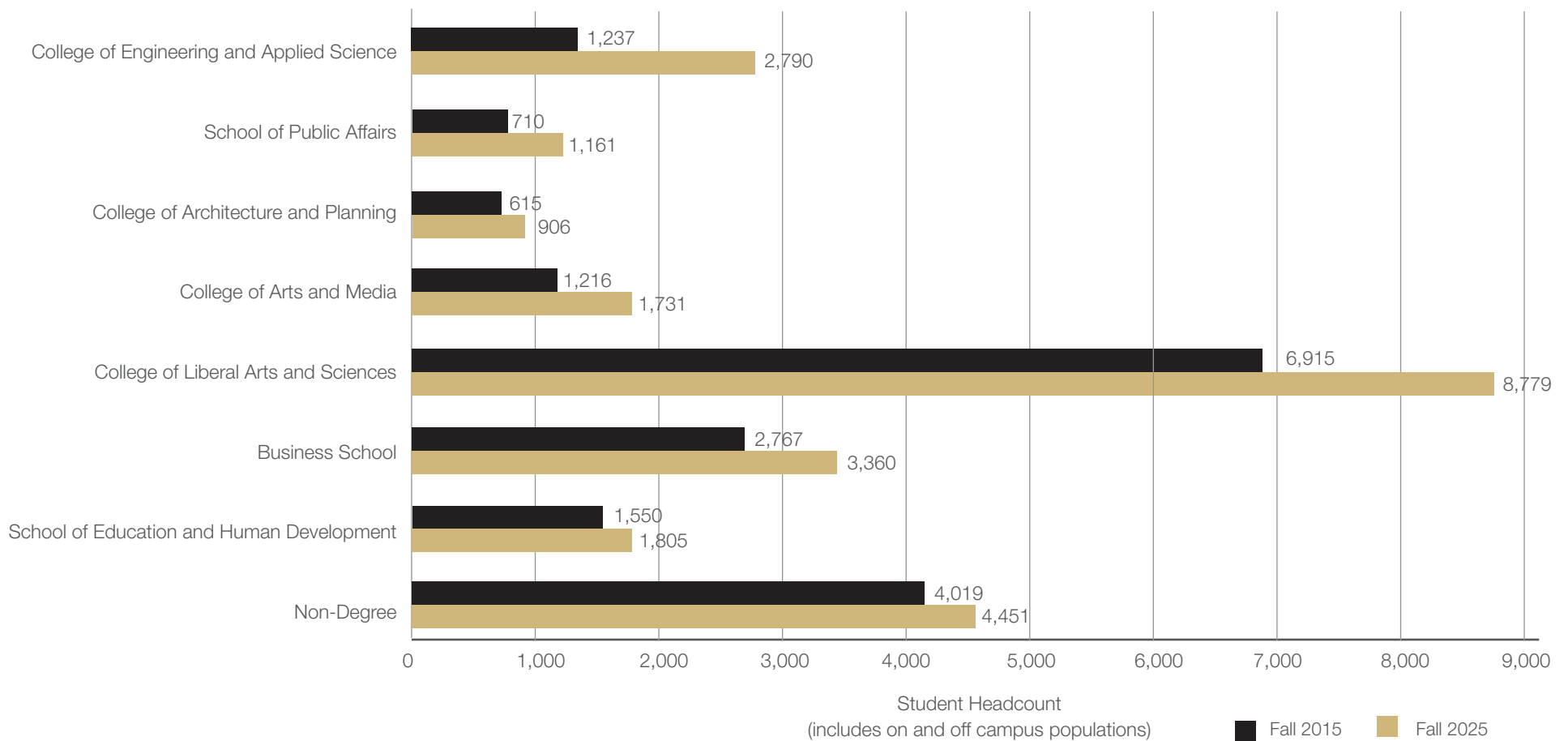


Figure 4-7: Total Student Enrollment Targets by College

4.3 RESEARCH TARGETS

As Colorado’s only public urban research university, research and creative activities represent a critical function at CU Denver. The university has made a commitment to grow funded research over the ten-year horizon of the Facilities Master Plan.

In FY2016, CU Denver researchers received \$25 million in funded awards. Consistent with a commitment to grow research, the planning committees and university leadership set a goal of \$30 million in funded research awards by 2025. This target equates to approximately \$27 million per year in expenditures, and annual growth of roughly two percent. As an interim step, the university will strive to reach \$27.2 million in awards by 2020, which was a target set in 2015 before the start of the Facilities Master Plan.

In addition to funded research, all tenure track faculty engage in research and creative activities. Figure 4-8 shows the number of tenure track faculty in 2015 and the number of tenure track faculty projected for 2025 based on the master plan enrollment targets

To achieve growth in funded research, CU Denver must accomplish the following over the next ten years:

- Recruit ten new, highly productive researchers each in CLAS and CEAS.
- Set higher funding and productivity expectations for existing and future researchers in all schools and colleges.
- Add 20,000 ASF in research and research support space to recruit new researchers and improve support of existing research faculty.

	TENURE TRACK FACULTY FISCAL YEAR 2015	PROJECTED TENURE TRACK FACULTY FISCAL YEAR 2025
Business School	49	54
College of Architecture and Planning	20	23
College of Arts & Media	30	34
School of Education & Human Development	38	40
College of Engineering & Applied Science	44	65
College of Liberal Arts & Sciences	172	190
School of Public Affairs	18	21
TOTAL	371	427

2015 Tenure track faculty data provided by OIRE. 2025 figures based on projected staff growth in the master plan.

Figure 4-8: Current and Projected Tenure Track Faculty by College

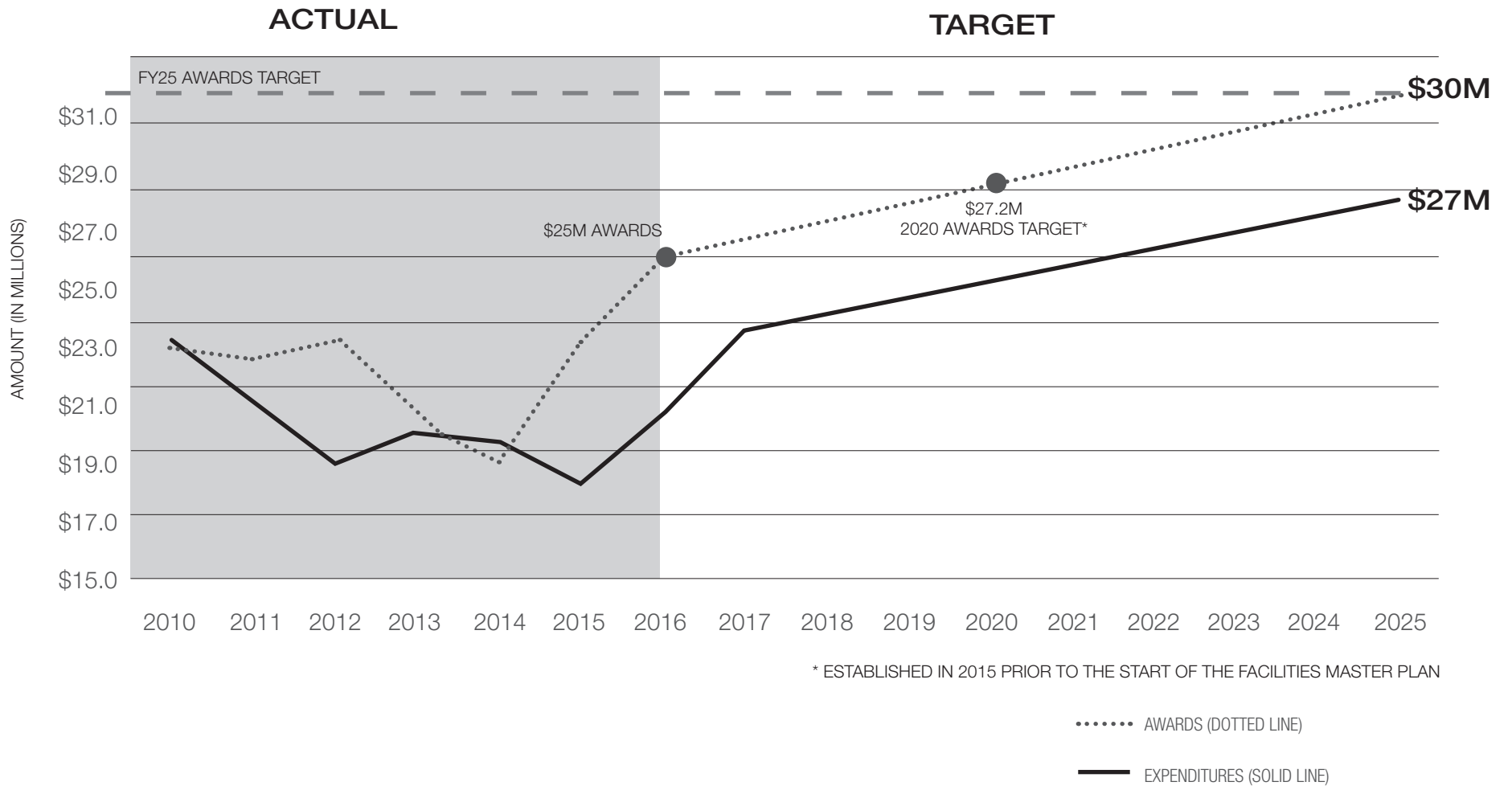


Figure 4-9: Funded Research Historical Trends and Targets

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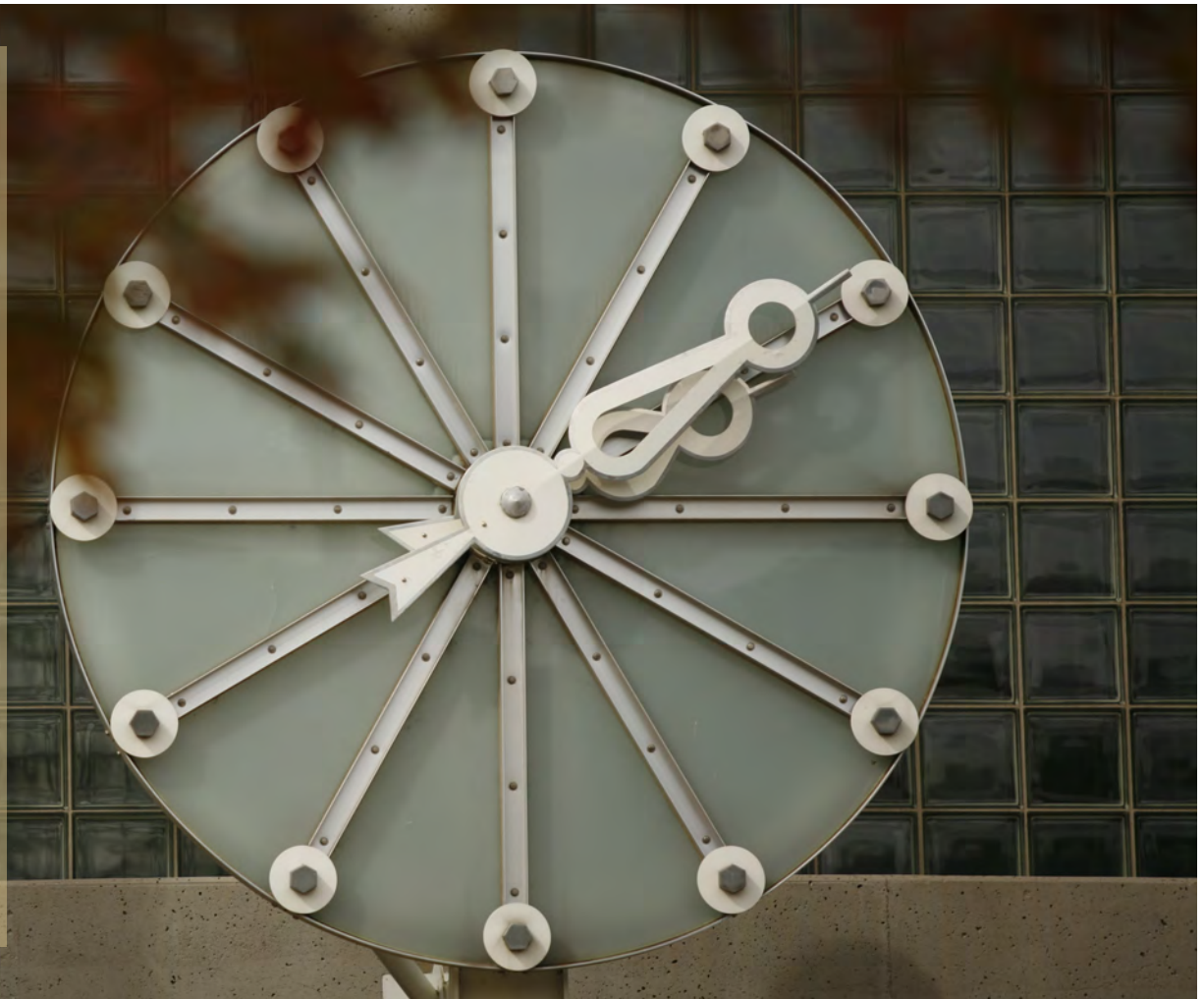
ANALYSIS 5



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?

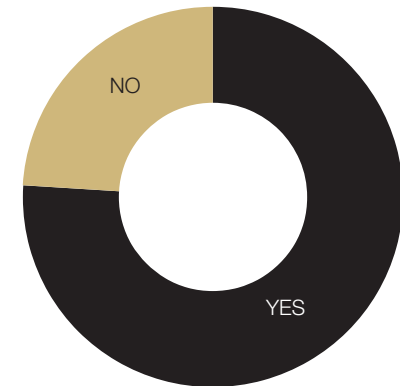


Figure 5-1: Academic Classroom Concerns

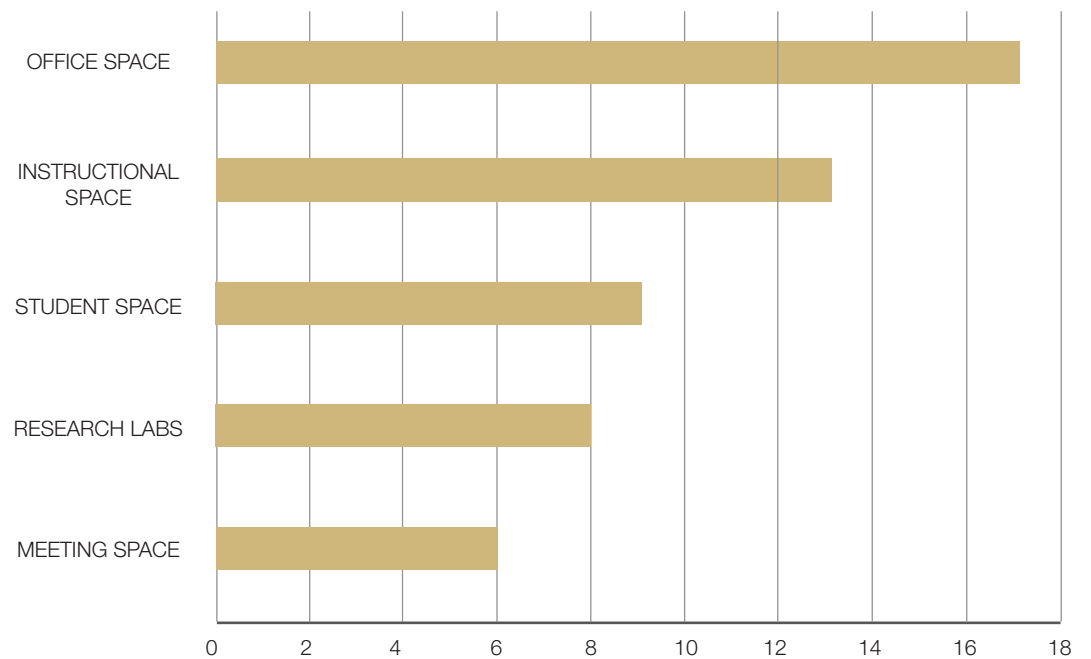


Figure 5-2: Top Space Concerns

**IS THERE SUFFICIENT COMMON SPACE
IN ACADEMIC AREAS?**

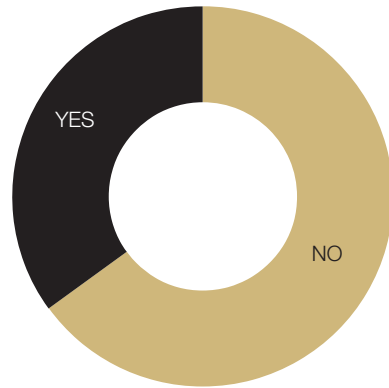


Figure 5-3: Common Space Concerns

HOW SHOULD ENROLLMENT INCREASES BE MANAGED?

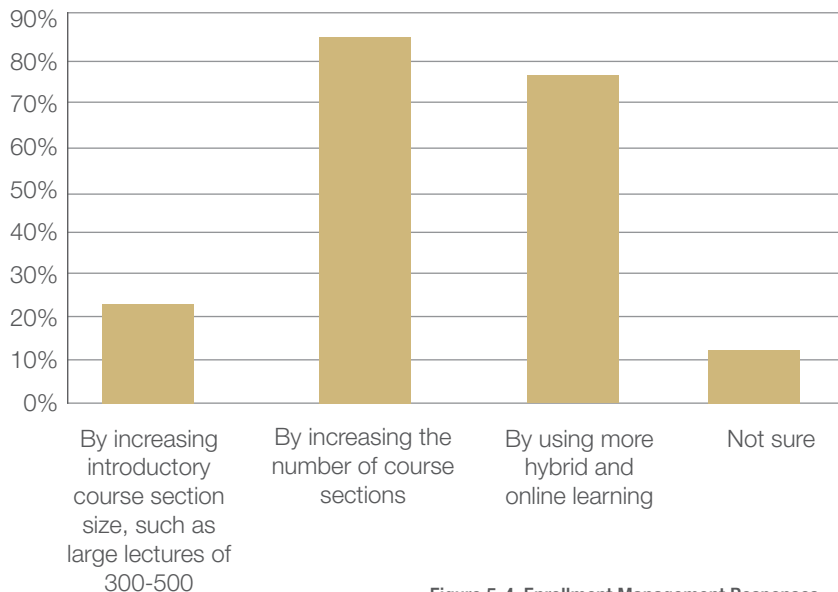


Figure 5-4: Enrollment Management Responses

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

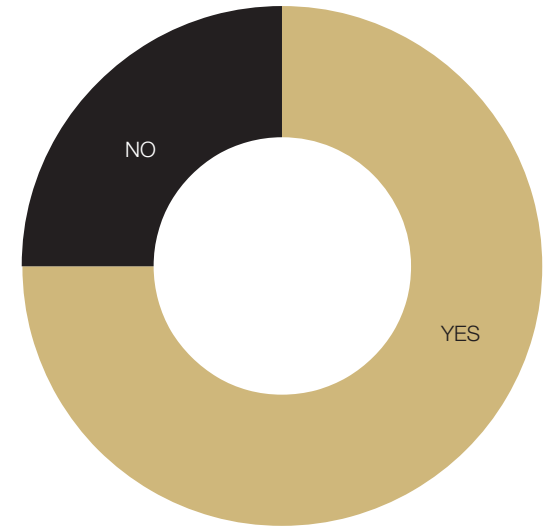
Of the 32 surveys distributed, administrative units returned 20 completed and 12 incomplete responses. The following units identified space needs related to anticipated growth:

- 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 CLASSROOMS

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.

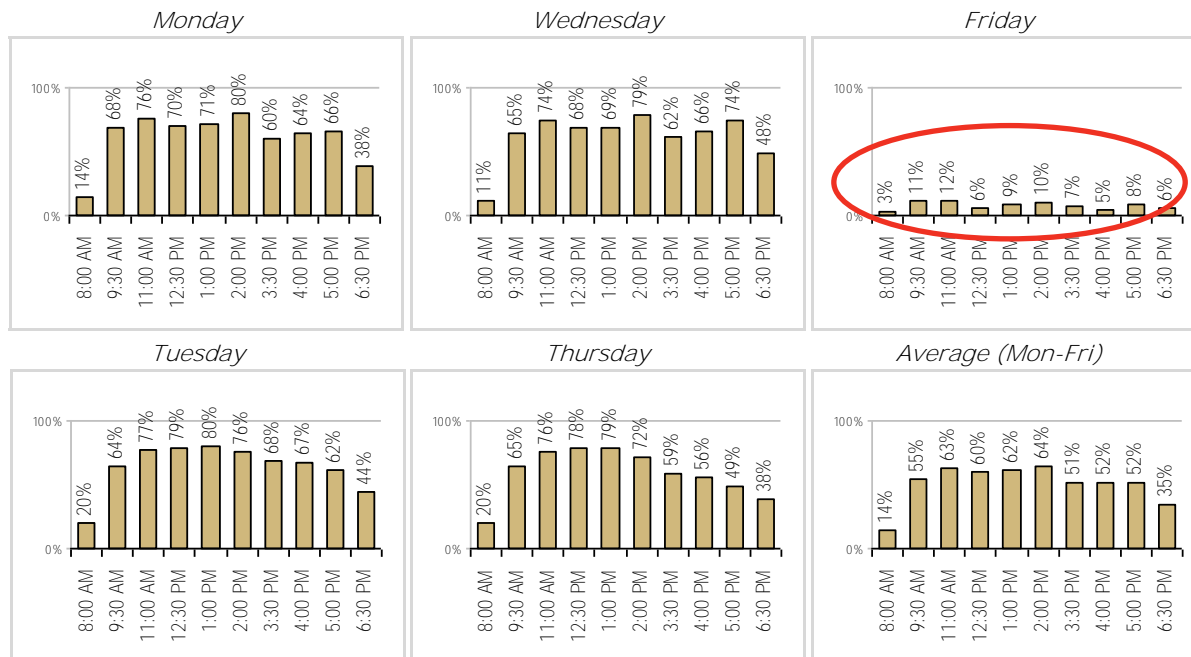
The current inventory of classrooms used by the university averages 20 ASF per student station (SS), which is at the lower range used for modern classrooms (20-30 ASF/SS). Most

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

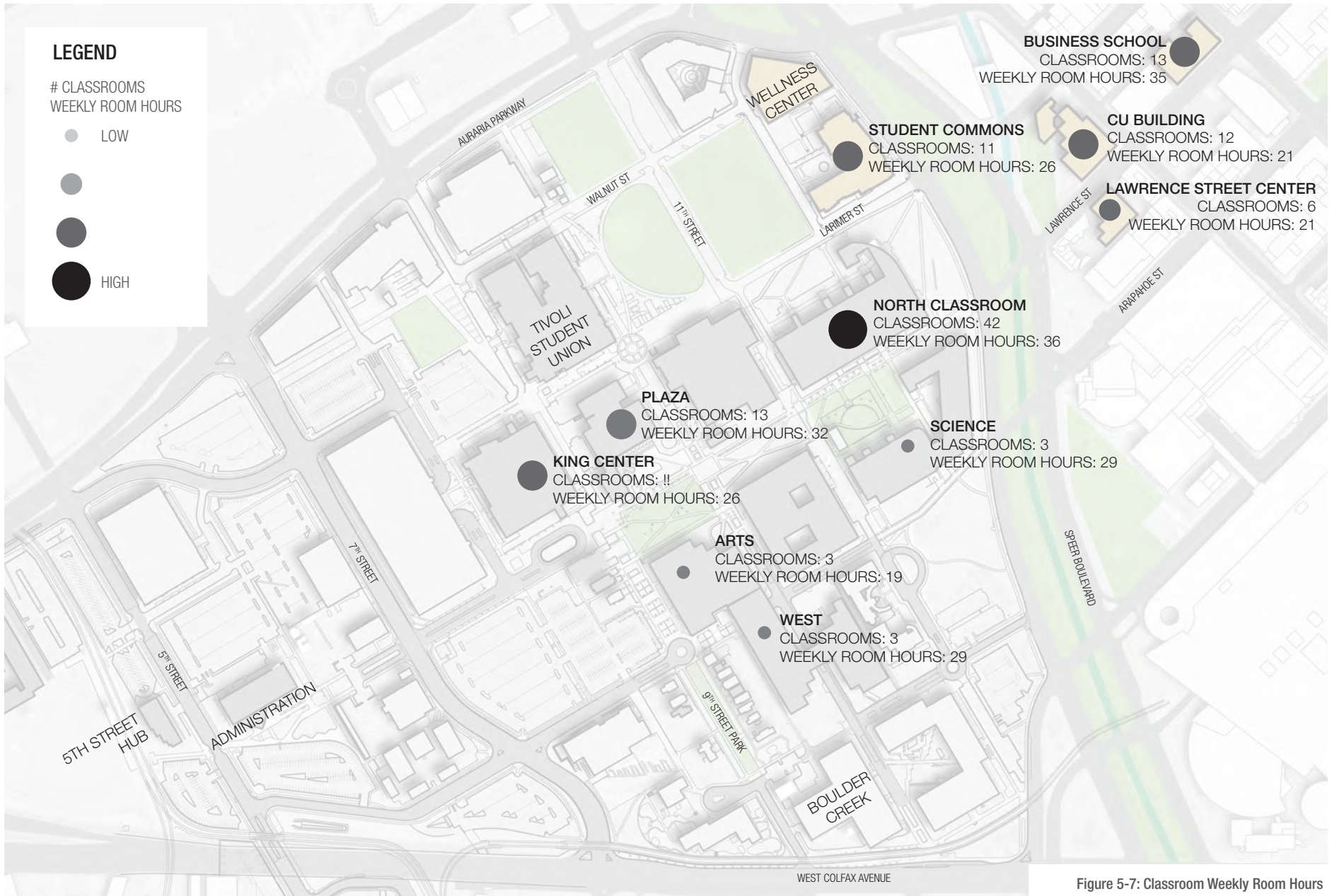


Figure 5-7: Classroom Weekly Room Hours

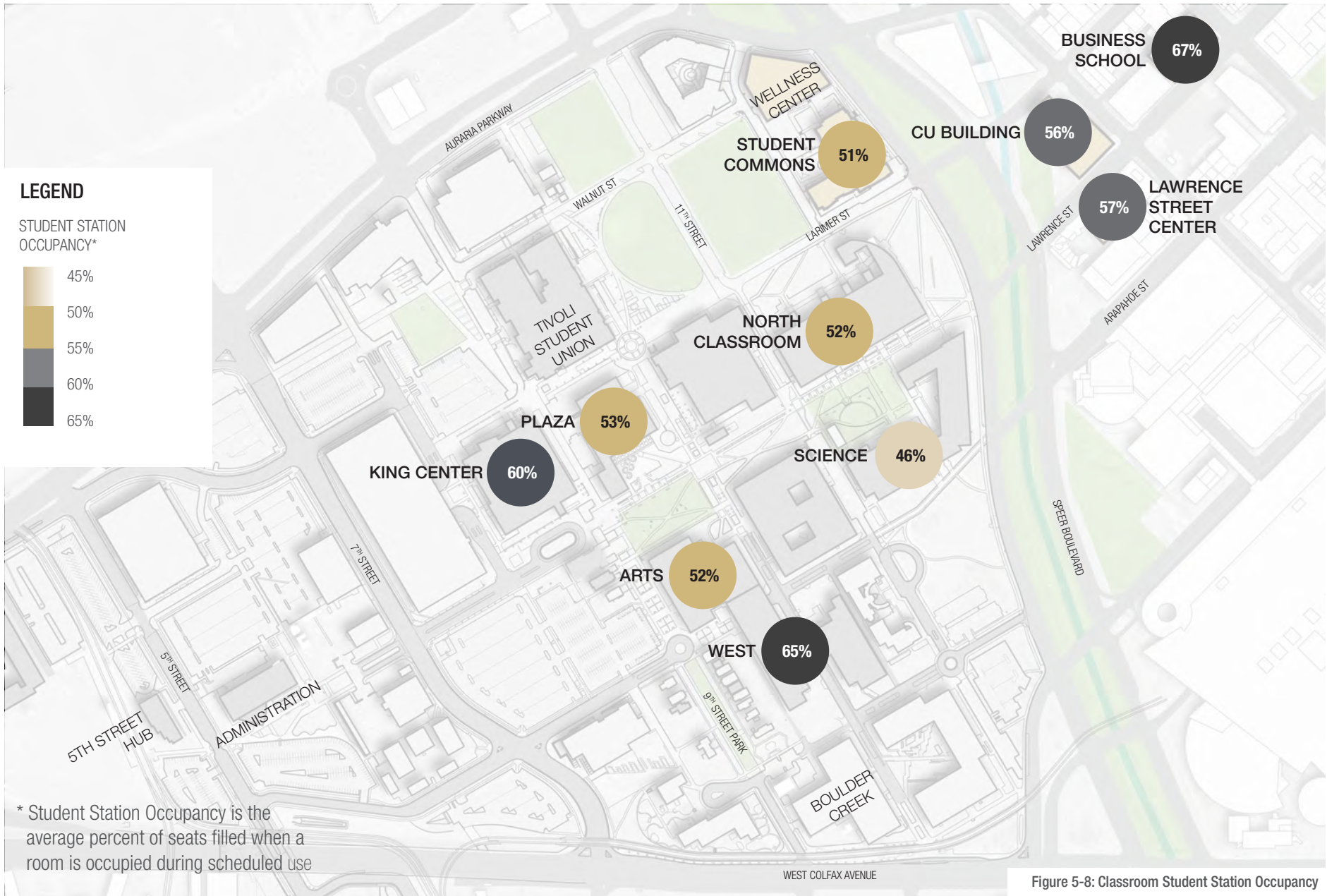


Figure 5-8: Classroom Student Station Occupancy

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.

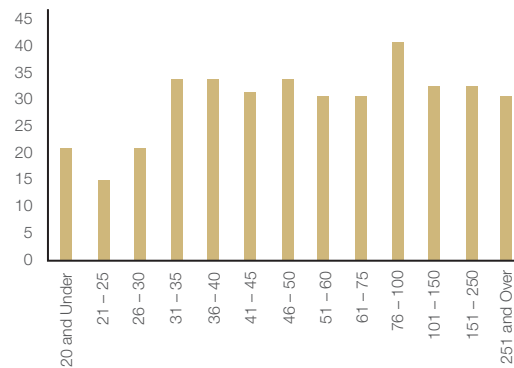
Departmentally controlled classrooms averaged 27 WRH at 59 percent SSO and 25 ASF/SS. Centrally scheduled classrooms averaged 33 WRH at 53 percent SSO and 17 ASF/SS. While the two categories had similar occupancy, scheduling of departmental classrooms was six fewer hours per week. Departmental classrooms 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.

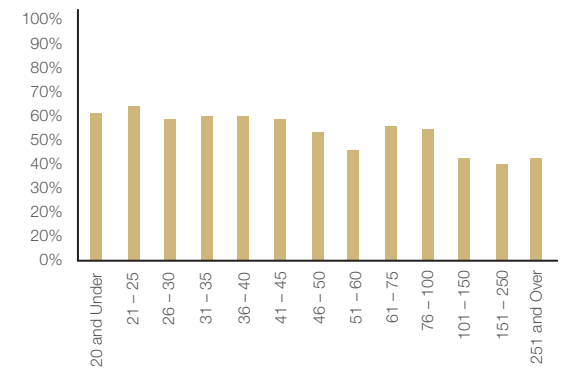
CLASSROOM CAPACITY GROUPING	NO. OF ROOMS	NO. OF SEATS	AVG ROOM SIZE	AVG ASF PER STATION	AVG SECTION SIZE	WEEKLY SEAT HOURS	AVG WEEKLY ROOM HOURS	HOURS IN USE STUDENT STATION OCCUPANCY %	
20 and Under	8	145	455	26	11	12.8	21	61%	
21-25	4	93	528	23	13	9.8	15	64%	
26-30	4	115	572	20	16	11.4	20	58%	
31-35	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.

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

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

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 with 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.



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

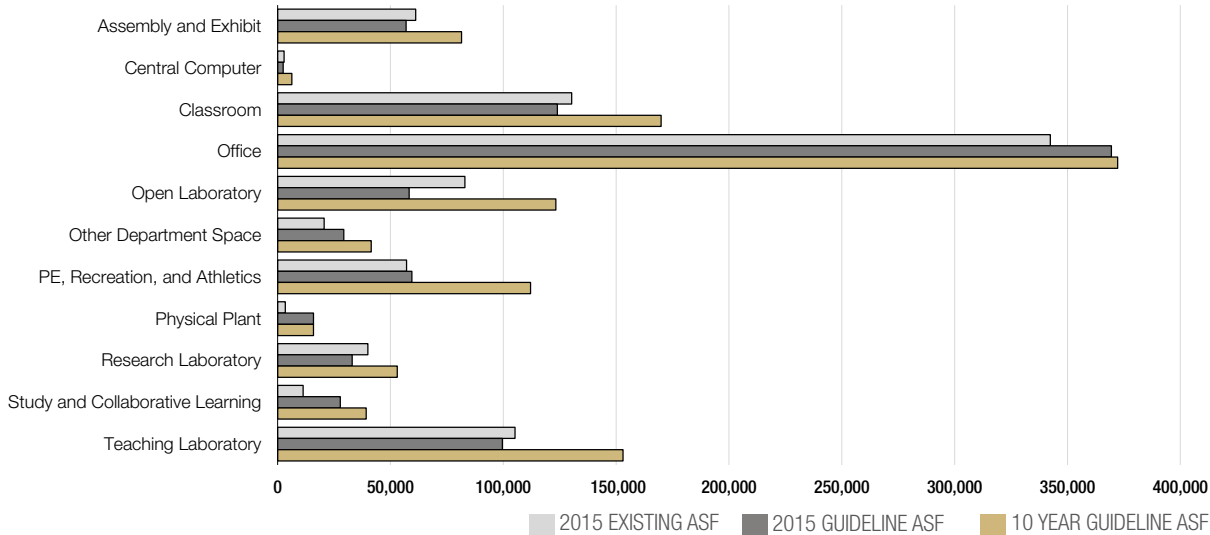


Figure 5-12: Space Needs Analysis by Space Category

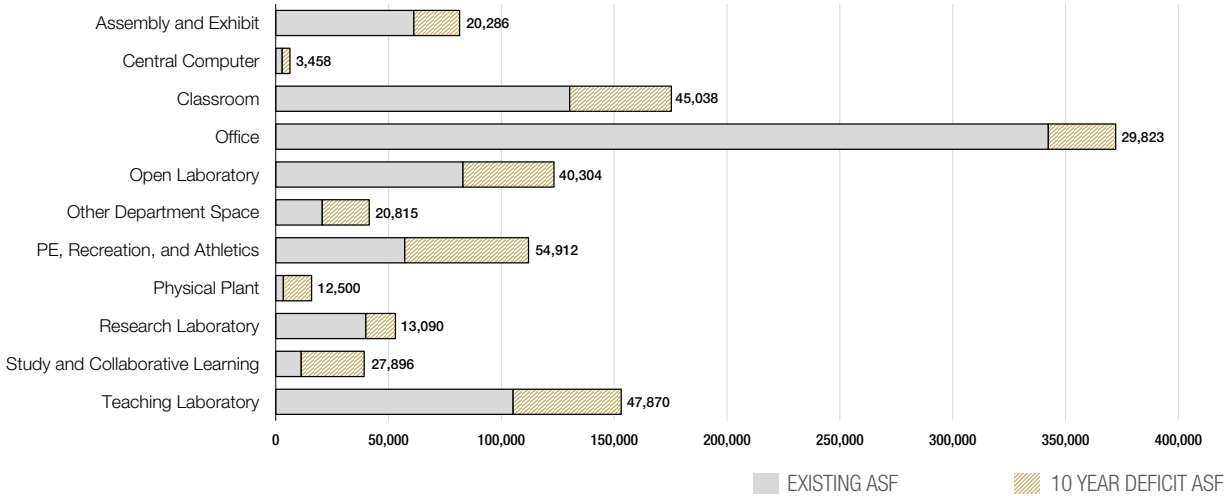


Figure 5-13: Space Needs Analysis Future Deficit by Space Category

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.

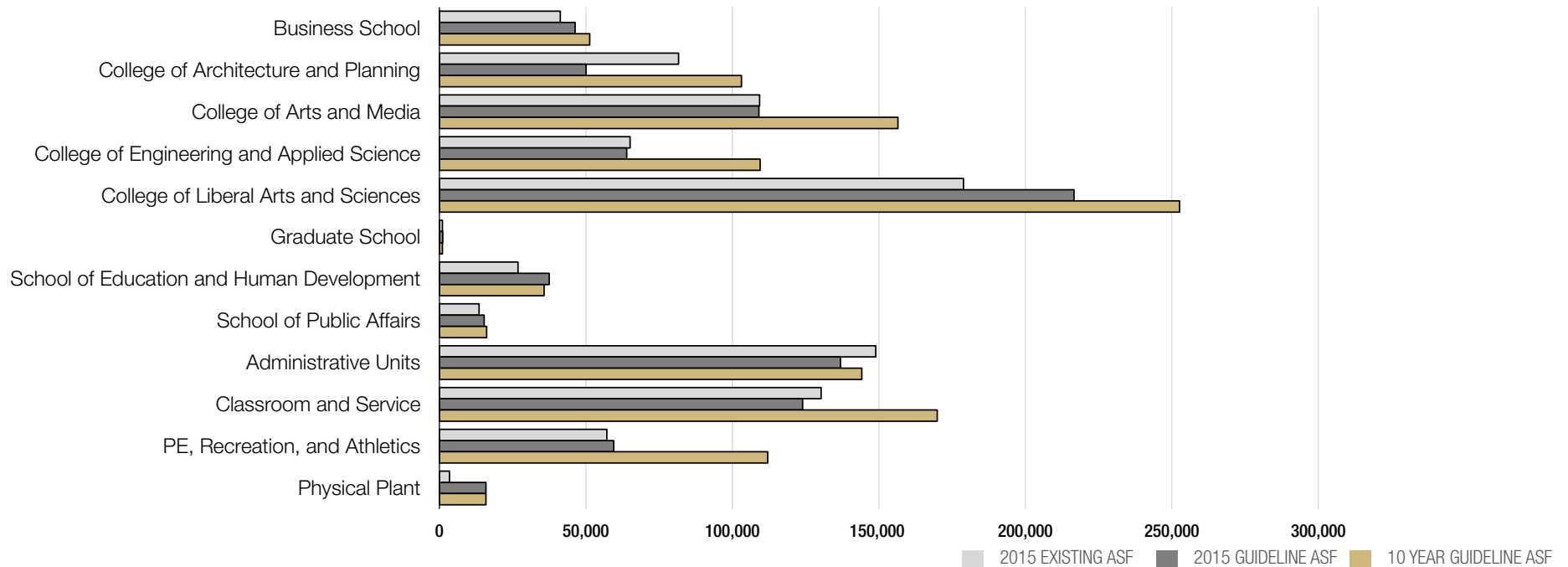


Figure 5-14: Space Needs Analysis by College/Unit

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.

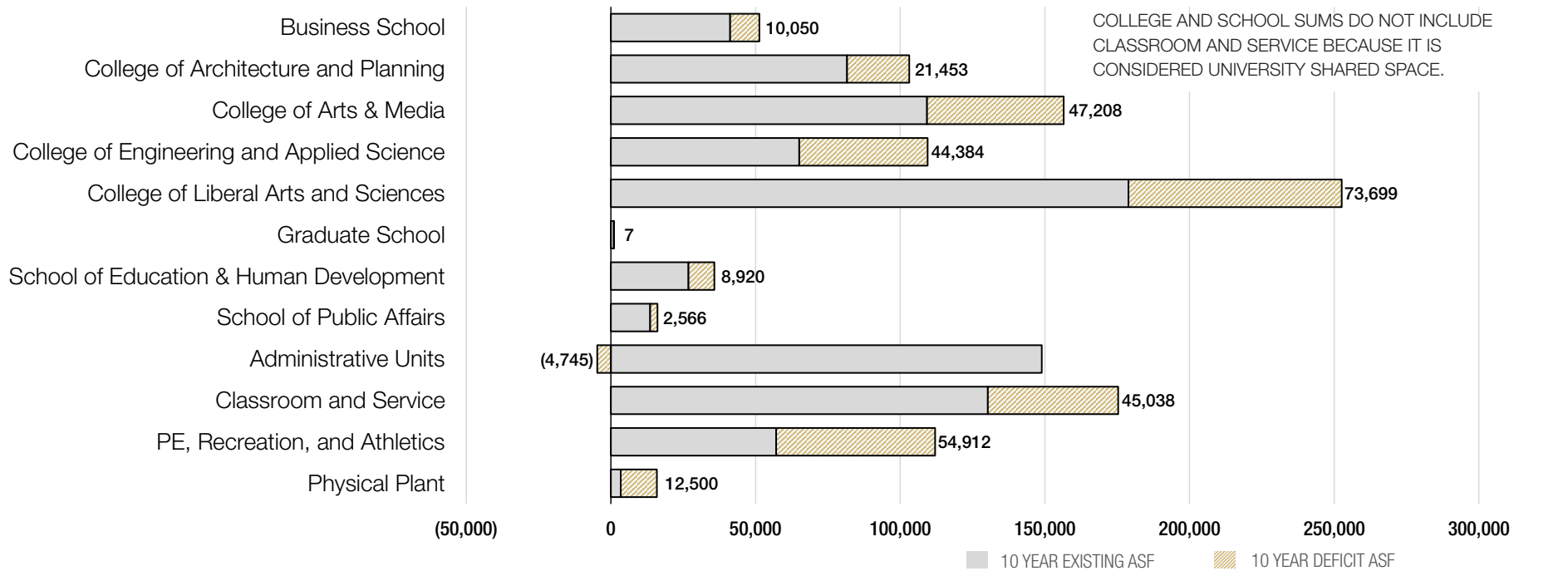


Figure 5-15: Space Needs Analysis Future Deficit by College/Unit

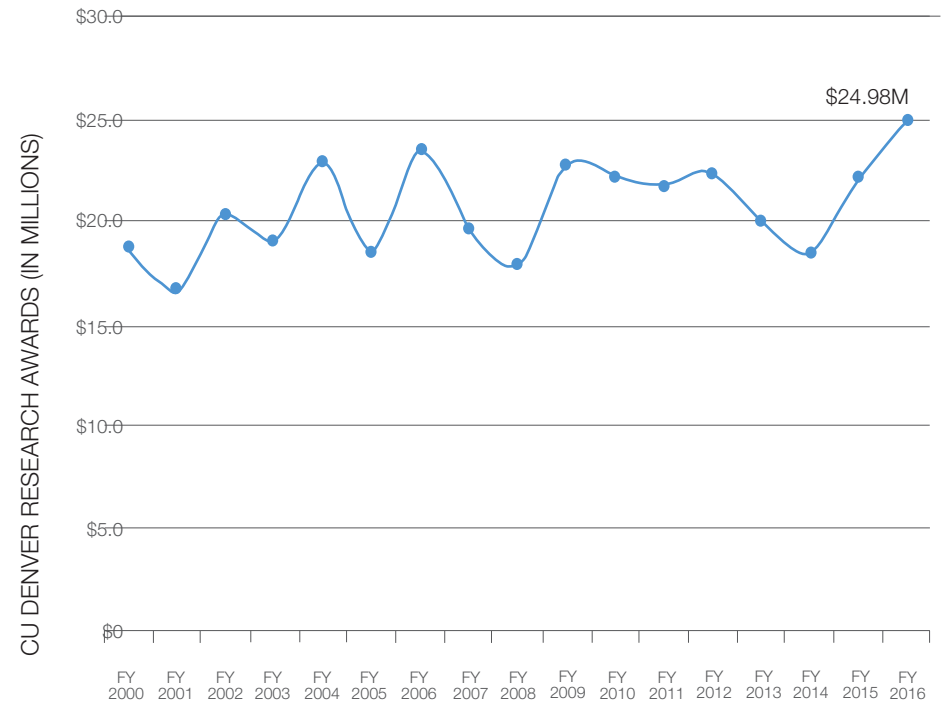
5.2 RESEARCH TRENDS

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:

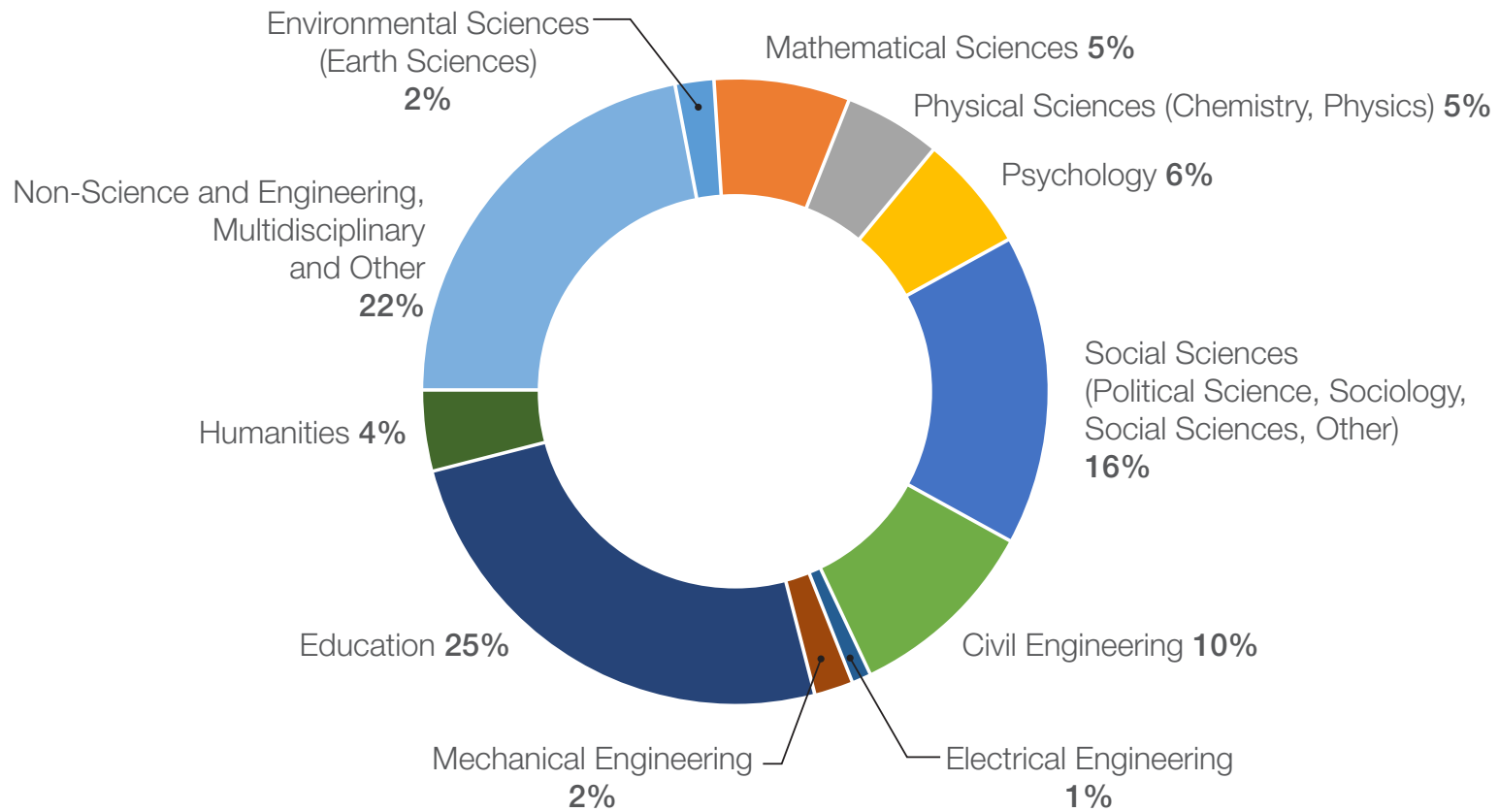
- SEHD ≈ 25 percent
- CLAS – Social Sciences (political science, sociology, social sciences) ≈ 16 percent
- CEAS – Civil Engineering ≈ 10 percent
- Other Non-Science and Engineering ≈ 22 percent



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

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

CU Denver Funded Research by Discipline



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.
- **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.
- **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).



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



Figure 5-18: Light-Rail Station Rental Analysis

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

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.

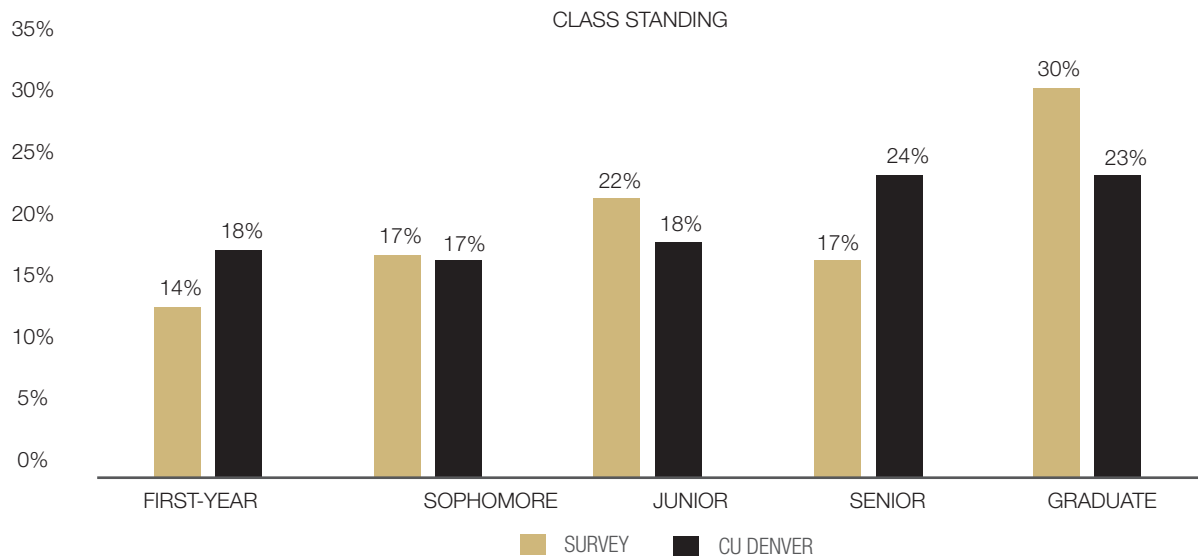


Figure 5-19: CU Denver vs. Survey Demographic Comparison

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.

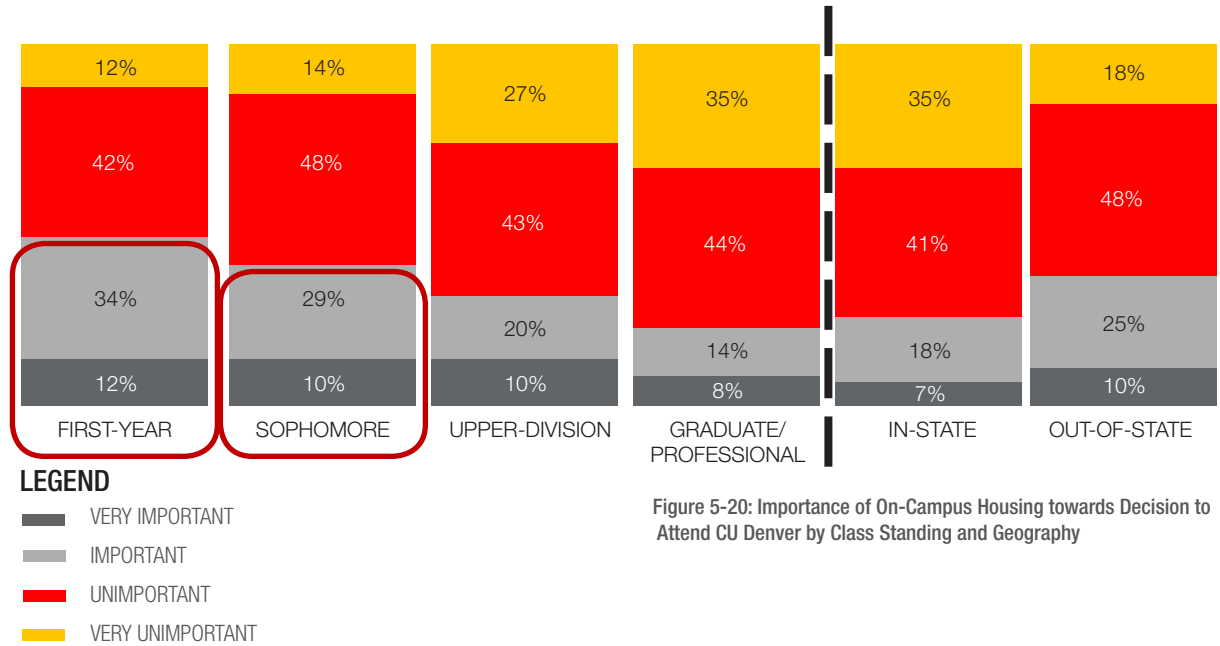


Figure 5-20: Importance of On-Campus Housing towards Decision to Attend CU Denver by Class Standing and Geography



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.

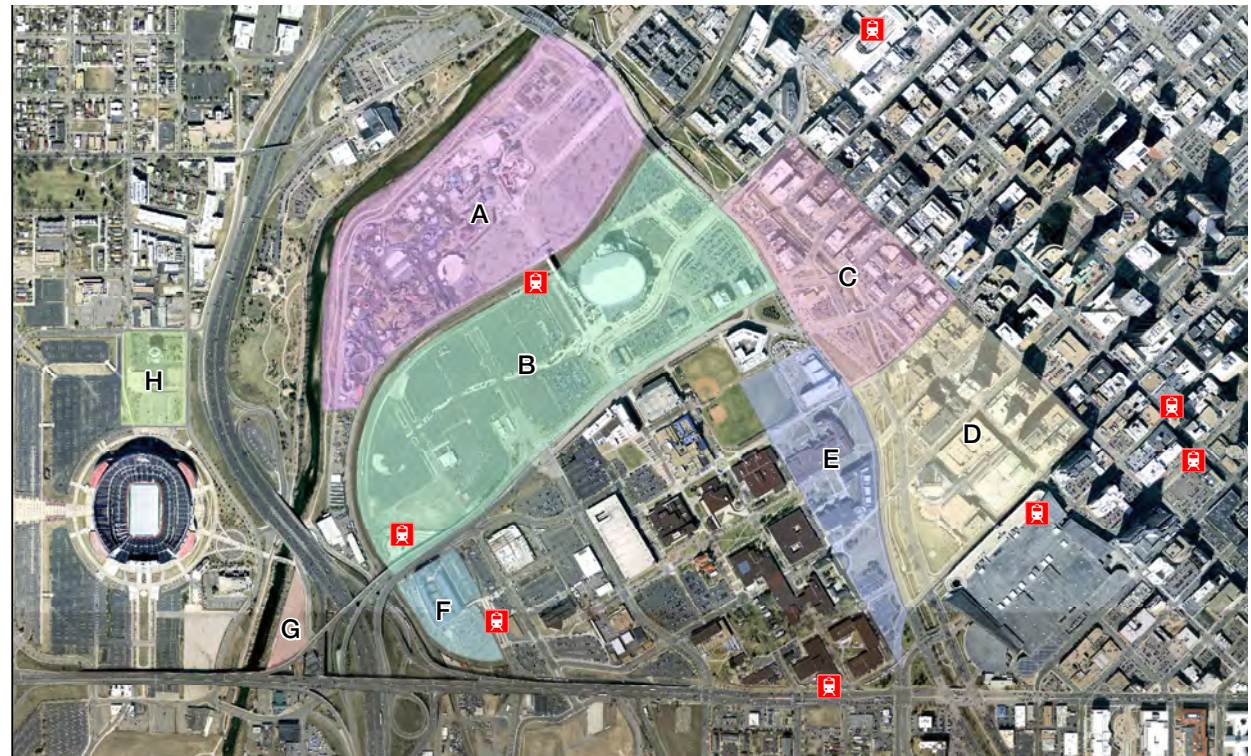


Figure 5-21 Areas Provided to Gauge Preferred Housing Location

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

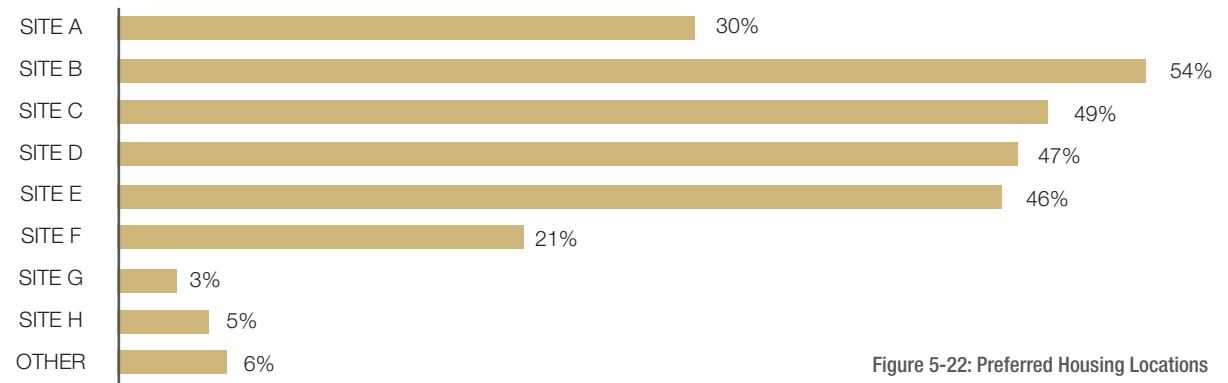


Figure 5-22: Preferred Housing Locations

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).

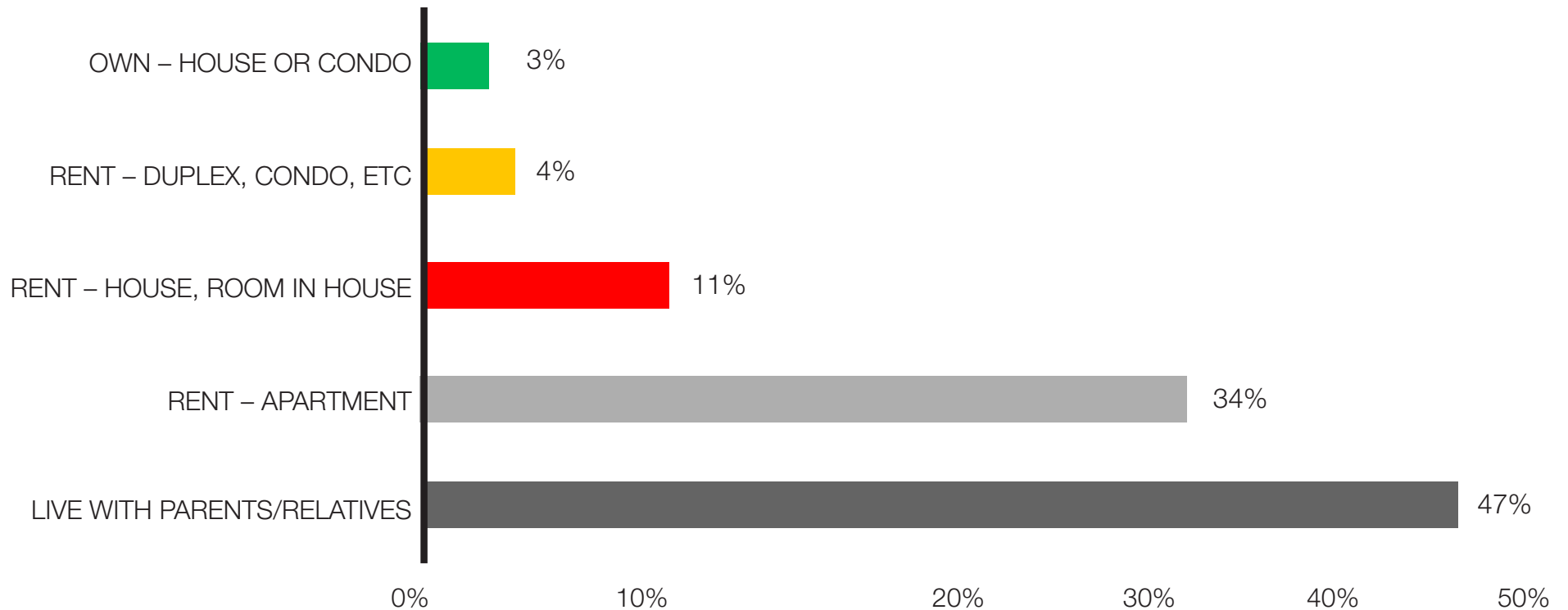


Figure 5-23: Current Off-Campus Housing Arrangement

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.

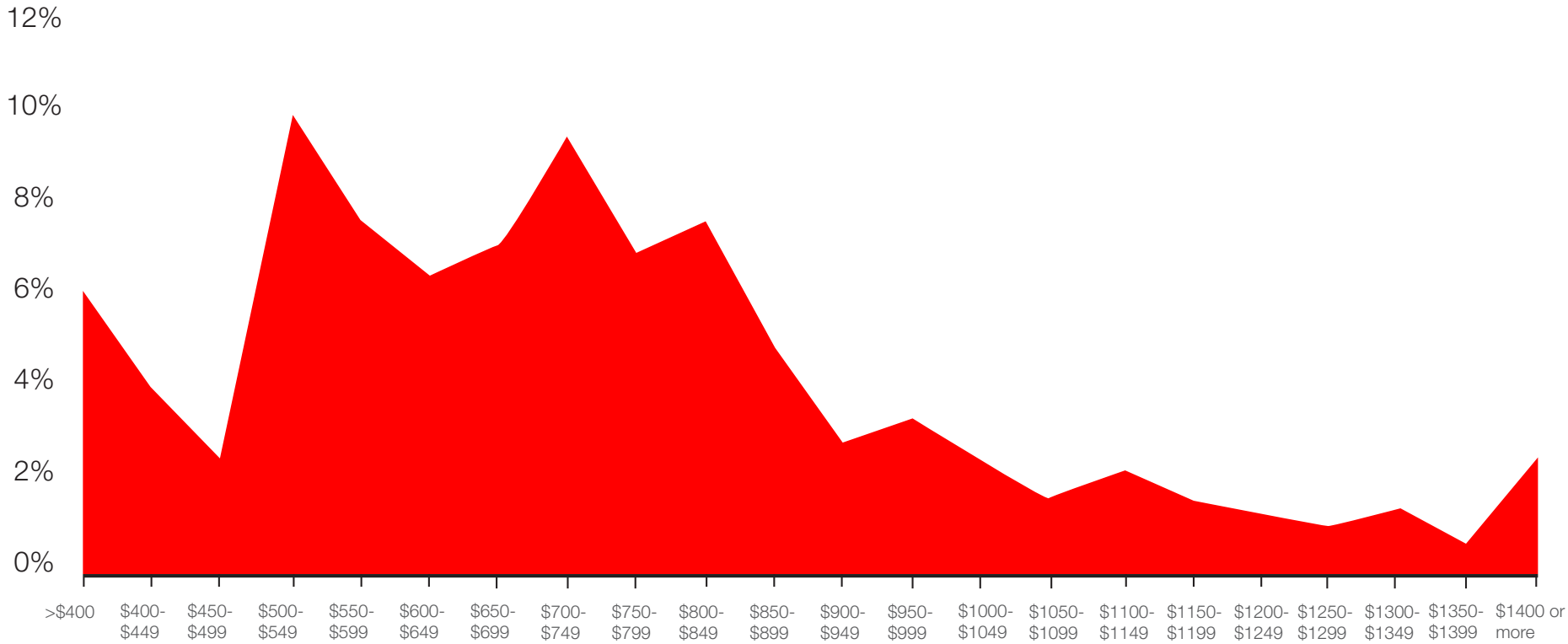


Figure 5-24: Personal Share of Off-Campus Rent

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:

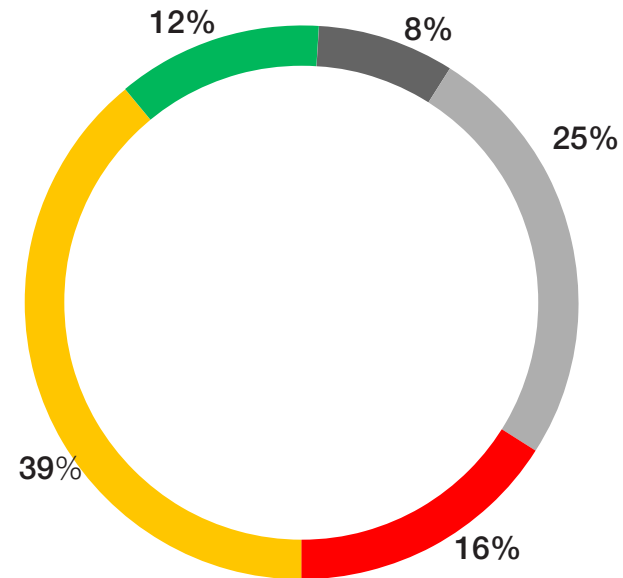
- Get something to eat;
- Visit the bookstore (Tivoli Station); or,
- Attend an event.

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.



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



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.

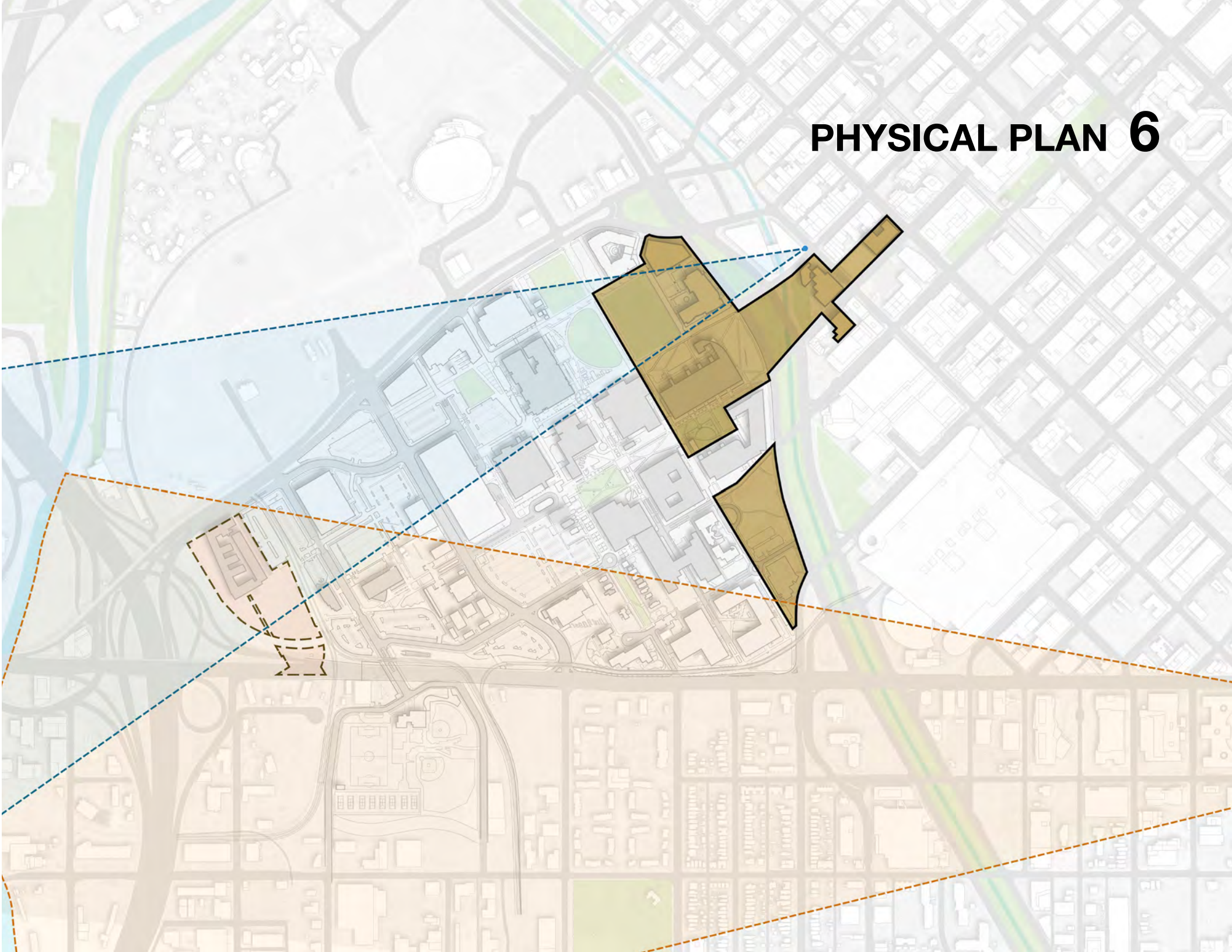
SPACE TYPE	ACTUAL 2015	TARGET 2025	SURPLUS/(DEFICIT)
Academic Space	358,458 ASF	611,379 ASF	(201,214 ASF)
Administrative Space	441,823 ASF	556,601 ASF	(114,778 ASF)
Research Laboratories and Support Space	63,629 ASF	83,629 ASF	(20,000 ASF)
On-Campus Residential Beds	570 beds	1,795 beds	(1,225 beds)

Figure 5-29: Summary of Future Space Needs

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PHYSICAL PLAN 6



The Physical Plan represents a **synthesis of numerous goals and objectives, ideas, concepts, and decisions** generated throughout the master planning process. The recommendations in Chapter 6 reflect the specific context and point-in-time in which the process occurred. As such, the document should serve as a flexible guide for future growth, improvement, and development that is updated periodically to address inevitable changes in issues, opportunities, and priorities of the university.

The projects recommended in the Physical Plan address the various space typology needs of the university over the next ten years. Included in this section are brief descriptions of each proposed project since more details will be forthcoming as the university initiates the required program plan for each project. **In realizing the projects proposed in the physical plan, the university will:**

- Expand capacity for cutting-edge learning, research, and discovery •
- Maximize utilization of existing instructional and workplace spaces •
 - Expand and better support student life opportunities •
- Significantly increase student housing within the CU Denver neighborhood •



6.1 EXISTING CONDITIONS

CONNECTIVITY

ACCESS TO DOWNTOWN & THE SURROUNDING CITY

Since its inception in the 1970s, the Auraria Campus has benefited greatly from its proximity to downtown Denver. More recently, the vigorous growth of Denver and the larger metropolitan region has required major roadway infrastructure improvements to address increased congestion, which has had a definite impact on the campus. What was once a new and aspiring higher education center linked to the city by urban streets is now a mature campus bordered by three regional arterial roadways and an Interstate Highway. The former urban streets balanced pedestrian and vehicle movement while the new roadways prioritize vehicle movement by design. The result is a vibrant campus disconnected, physically and perceptually, from the City's thriving downtown and surrounding neighborhoods.

- Auraria Parkway is an arterial roadway north of the campus that deters pedestrian and bicycle access to businesses and the Pepsi Center complex.
- Speer Boulevard is an arterial roadway east of the campus that deters access to CU Denver's downtown facilities, Denver Center for the Performing Arts (DCPA), the Convention Center, and the City's downtown business district.
- West Colfax Avenue is an arterial roadway south of the campus that deters access to Lincoln Park neighborhood.

- I-25 (and active freight trains) west of the campus virtually prohibits access to rapidly growing western neighborhoods and Mile High Stadium.

AHEC, CCD, MSU Denver, CU Denver, and the City of Denver have explored numerous strategies to overcome the infrastructure barriers to connectivity between the Auraria Campus and the surrounding city. As an urban research university, CU Denver understands that campus-city connectivity—physical, programmatic, and perceived—is vital to its strategic plan and mission.

PAST & ONGOING PLANNING

Over three decades AHEC and MSU Denver, CCD, and CU Denver have collaborated in the preparation of CDHE required Master Plans for AHEC. Each successive document has informed collective and individual institution decision-making. The City and County of Denver, Downtown Denver Partnership, Connect Auraria, and other entities have undertaken studies for downtown Denver that included the Auraria Campus. A few key studies are summarized below.

The **2001 AHEC Master Plan** retained some original guiding principles, such as improving the Commuter-Campus experience and one campus shared by three institutions working together. The 2001 plan prioritized physical campus organization around parking—its accessibility, quantity, and location relative to destinations. Both were then critical to the successful function of the campus.

However, a rapidly changing world was beginning to confront higher education: Will the combined impacts of innovations in technology

and communication, and the shifts in demographics, urbanism, transportation, economics, and globalism—redefine higher education and the campus?

The **2007 AHEC Master Plan Update** began to address these timely and important issues. One response was the new campus organizational concept that defined a shared core campus surrounded by agreed-upon CU Denver, MSU Denver, and CCD neighborhoods. The concept supported the growing need for each institution to create a distinct identity, to provide the institution-specific facilities and spaces needed to support current and new academic programs and research, and to improve student life and success. The neighborhood concept remains the defining organizational model for AHEC campus-wide master planning and for each institution undertaking individual planning studies in support of their strategic mission and vision.

The **Downtown Area Plan (DAP)** of 2007, led by the City and County of Denver, Denver Civic Ventures, Inc., and the Downtown Denver Partnership, Inc., was initiated. The planning process involved numerous government agencies, non-profit associations and organizations, business and industry leaders, local higher education institutions, and community/neighborhood organizations. The plan set downtown *Vision Elements—Prosperous, Walkable, Diverse, Distinctive and Green*—necessary to achieve a vibrant, economically healthy, growing and vital

downtown Denver. The plan also identified seven transformative projects seen as the most critical steps to advancing downtown and enhancing livability and economic health. While each project is equally important to transforming downtown, the following transformative projects would specifically impact and improve the Auraria Campus:

Energize Commercial Core: Bolster economic opportunities and enhance the pedestrian experience

Building on Transit: Local Denver-serving transportation

Grand Boulevards: Transform Speer, Colfax, and Auraria Parkway into memorable, multi-modal boulevards

Diverse City: Embrace Adjacent Neighborhoods

Distinctive City: Connecting Auraria - Lawrence and Larimer Streets as major pedestrian crossings

The **2009 CU Denver Micromaster Plan** was the first CU Denver-specific physical planning effort undertaken, and the study focused primarily on urban design issues and opportunities that would result in a more cohesive “neighborhood.” The study recommended an expansion of CU Denver’s neighborhood across Speer Boulevard to link its Auraria Campus neighborhood with the university’s buildings and urban spaces





downtown. The plan designated Lawrence and Larimer Streets as the primary multi-modal connectors across Speer Boulevard, which was consistent with several transformative projects identified in the DAP.

The **2012 AHEC Master Plan Update** reinforced the neighborhood organizational concept and explored planning and design strategies for the campus similar to transit oriented development (TOD) that creates vibrant, high-density, pedestrian-oriented environments centered around light rail stations. The plan maximized future campus development potential by taking full advantage of the allowable building massing and heights, especially along Speer Boulevard and West Colfax Avenue, to better integrate the campus into the surrounding urban fabric of downtown.

In 2014, the **Connecting Auraria Coalition** formed to study the crossings into the Auraria Campus along Speer Boulevard, Colfax Avenue, and Auraria Parkway. The Coalition worked with the consultancies Design Workshop and Felsburg Holt and Ullevig to develop recommendations for Lawrence and Larimer Streets at Speer Boulevard. The recommendations included creating more prominent crosswalks, widening sidewalks through lane closures and using lighting, banners, signage, and planters to improve the safety and attractiveness of these crossing points.

In 2016, AHEC, the Downtown Denver Partnership, the City and County of Denver and other partners commissioned H3 to study the Speer Boulevard crossing, with a particular focus on linking DCPA and the Auraria Campus. As described in “Ideas for Connecting the Auraria Campus + Downtown,” H3 came up with a concept that included both at-grade improvements (bike lanes, land closures, and widened sidewalks) and a pedestrian bridge that would span both the northbound and southbound lanes of Speer Boulevard.

The City of Denver considered the H3 recommendations for funding as part of a general obligation bond (GO Bond) that Denver voters will consider in the fall of 2017. As of the writing of this document, the city is no longer considering the pedestrian bridge for the GO Bond but is still considering the at-grade improvements that H3 recommended.

Planning for a **Downtown Loop** was recently announced by the Downtown Denver Partnership. The Downtown Loop will be an urban trail for pedestrians and cyclists that will form a ring around the central business district connecting neighborhoods, parks and other points of interest. The latest proposal shows the trail passing through the Auraria Campus along 11th Street and Curtis Street.

REGIONAL CONNECTIVITY

CU Denver is regionally accessible using many transportation options. Light rail stations surround the Auraria Campus, including stations adjacent to CVA and the Boulder Creek Building. The Theatre District-Convention Center Station is three blocks from the CU Denver Building. RTD bus service serves the edges of the CU Denver Neighborhood, with Routes 6 and 43 passing through the neighborhood on Larimer Street. CU Denver also provides a shuttle with hourly service between CU Denver and the CU Anschutz Medical Campus in the City of Aurora, with midway stops at the VA and National Jewish hospitals in Denver.

The 2017 Auraria Campus Master Plan supports a future transit shuttle operating on portions of Larimer Street, potentially between the 38th Street/Blake Street Light Rail Station and the Auraria West Station. Although this alignment through the Auraria Campus would directly serve CU Denver, the timing, operation, and ownership of the transit shuttle are not yet determined.

The proposed Bus Rapid Transit (BRT) on Colfax Avenue would provide a direct transit connection from CU Denver to CU Anschutz. BRT is an enhanced transit option that features upgraded vehicles, enhanced stations, and operation in a dedicated transit lane wherever possible. The proposed BRT system on Colfax would operate buses every five minutes; the

existing RTD Route 15 would continue to provide local bus service. Figure 6-1 on the following page shows all of the current and proposed transit options that serve CU Denver students, faculty, staff and visitors.

CIRCULATION

VEHICULAR CIRCULATION

The 2012 Auraria Master Plan Update and Implementation Study recommended, as mentioned previously, the continued reorganization of the Auraria Campus into a more compact pedestrian-friendly urban campus that better reflects the adjacent Central Business District (CBD). One recommendation was to reinforce, and where needed, reintroduce the historic street grid with urban roadway dimensions and on-street parking.

In 2016, AHEC successfully extended 11th Street from Larimer Street to Auraria Parkway. The new section accommodates CU Denver pedestrian, bicycle, and vehicular movement and creates a new campus ingress/egress point at Auraria Parkway and 11th Street. Also extended was Walnut Street from the Tivoli Parking Garage to 12th Street to improve the overall access and flow on the Auraria Campus. The expanded roadways enabled RTD to modify bus circulation patterns that improved access to the Auraria Campus. The 2017 Auraria Campus Master Plan does

not recommend any additional circulation changes that will directly impact the CU Denver Neighborhood on the Auraria Campus.

In the CU Denver Neighborhood in downtown Denver, the City of Denver does not have planned changes to vehicular or pedestrian circulation, other than those considered in the 2016 Ideas for Connecting the Auraria Campus + Downtown Concept Plan.

PEDESTRIAN CIRCULATION

Pedestrian circulation within the CU Denver Neighborhood on the Auraria Campus follows, for the most part, the historic urban block pattern of the former neighborhood that preceded AHEC. Streets accessible to private vehicles have sidewalks, while streets that now function as service corridors no longer have sidewalks. Pedestrian malls, such as Lawrence Way and 10th Street, are located within former street right-of-ways. Together these provide a network of pedestrian paths that connect the Auraria Campus to the downtown urban grid.

The section of Speer Boulevard that includes the intersections of Larimer, Lawrence, and Arapahoe streets in the CU Denver Neighborhood does not presently provide users a comfortable, pedestrian-friendly environment. The volume and excessive speed of vehicular traffic through this section of Speer Boulevard make it challenging to provide an adequate crossing environment in an urban education zone with large numbers of student, faculty, and staff pedestrians. Consistent with the

LEGEND

- CU DENVER OWNED BUILDING
- PROPOSED CU BUILDING
- AURARIA BUILDING WITH CU USE
- BUILDING WITH NO CU USE
- LIGHT RAIL
- BUS SERVICE
- PROPOSED COLFAX AVENUE BUS RAPID TRANSIT
- PROPOSED TRANSIT SHUTTLE
- DOWNTOWN LOOP CONCEPT
- NEIGHBORHOOD CONNECTOR
- DENVER B-CYCLE STATION

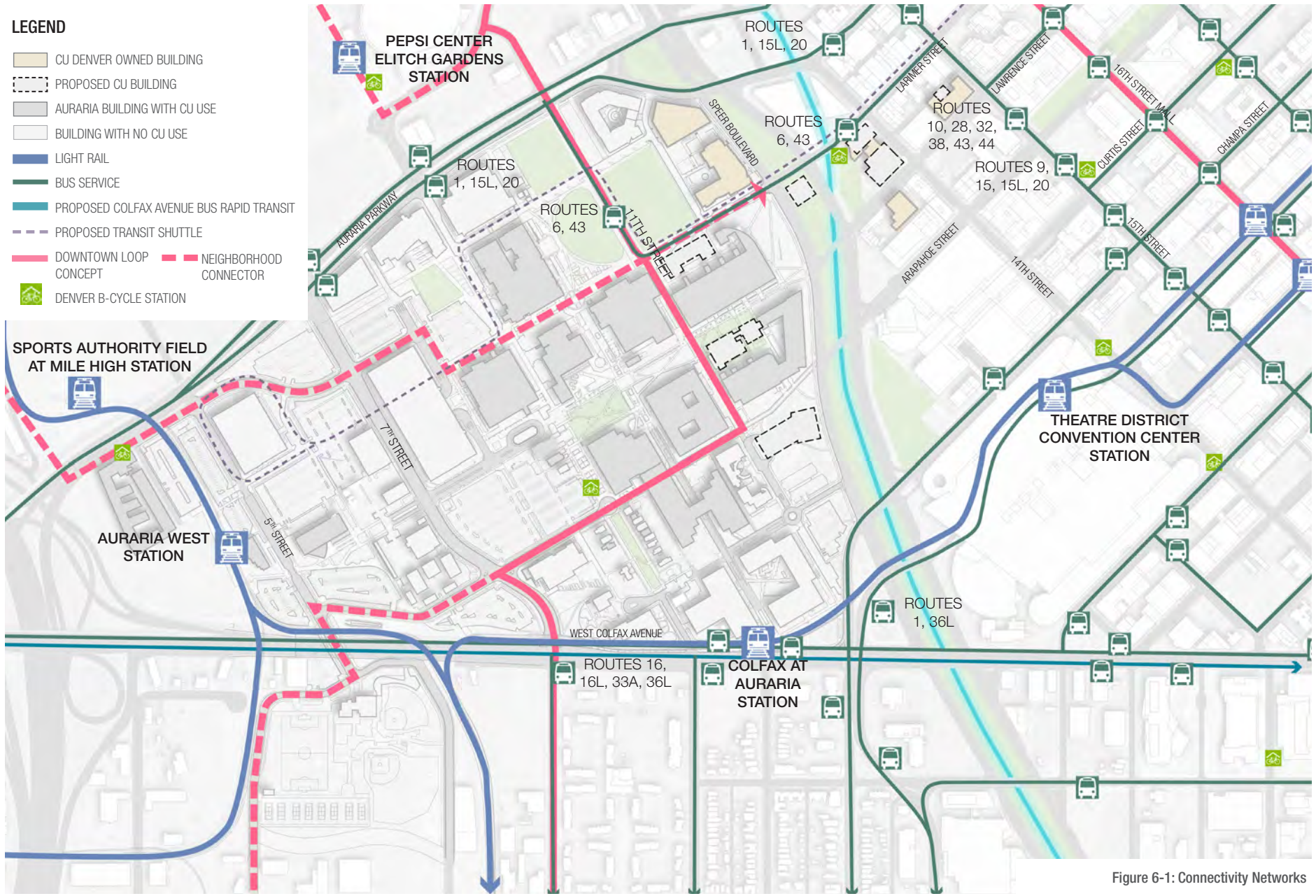


Figure 6-1: Connectivity Networks

Downtown Denver Area Plan strategy to create “A Walkable City Putting Pedestrians First,” the intersections should be redesigned to be safe and pedestrian-friendly with adequate timing to enable pedestrians to fully cross Speer Boulevard.

The western boundary of the CU Denver Neighborhood is 11th Street, which becomes St. Francis Way south of Arapahoe Street. The full roadway is one of only two extant streets that traverse the campus south/north, from West Colfax Avenue to Auraria Parkway. The other roadway, 7th Street, is in the western sector of the Auraria Campus.

Between Larimer and Arapahoe Streets, 11th is a service corridor that provides access to the North Classroom Building, the Science Building, and Auraria Library service areas. Nevertheless, students frequently use the service road—negotiating around service vehicles and dumpsters—due to its prime location and direct, continuous route. Pedestrian circulation on 11th Street is possible but not ideal.

Urban campuses across the country have similar conflicting-use corridors, and many have successfully transformed them into safe and welcoming multi-modal corridors without hampering service functions. Collaborating with AHEC, the university can achieve a similar outcome on 11th Street that repositions a largely neglected back-of-house street into a welcoming, safe and multi-modal corridor.

The CU Denver Neighborhood has another extant north/south pedestrian passageway on Auraria that evolved by chance, and subsequently design. The route alternates between external walkways and internal building atriums and corridors (Figure 6-2).

The university has worked to reinforce this unique passageway with each new renovation and construction project. Still, the lack of a coherent pattern and signage reduces its overall use, except by those in the community that are very familiar with the campus.

The north/south pedestrian axis should be intuitive, and it should extend from the Student Wellness Center to the proposed Engineering and Physical Sciences Building. As envisioned, it will have many components with varying characteristics:

1. From the Student Wellness Center front door, it will run down the 12th Street east side sidewalks, past the Student Commons Building west door.
2. After crossing Larimer Street, it will run through the North Classroom Building down the C1400 corridor.
3. It will cross Lawrence Way, between the Science Building and the future Instructional Lab Wing (as described in Section 6) through the Science Building down the C100C corridor.



CU Denver CAP Studio Transforming Urban Alleys



North Classroom Building



Science Building

4. From there it crosses Arapahoe Street and leads directly to a major entrance of the proposed Engineering and Physical Sciences Building.
5. The internal circulation of the proposed EPS Building should enable the continuation of the north-south pedestrian axis to future development sites on the Oak/Nutmeg and Maple Parking lots.

Two additional circulation changes and recommendations for the CU Denver Neighborhood in downtown are:

6. Work with the City, Larimer Associates, and DDP to revision and redevelop the “Larimer Alley” between Lawrence and Larimer streets.
7. If the university decides to redevelop the CU Denver Building Annex site, it should explore extending Larimer Alley between the CU Denver Building and the Annex to link the Business School to the Auraria Campus via a refurbished Creekfront Park.

Overall, the university hopes to work with AHEC, the City of Denver and its partner agencies to strengthen, enhance, and improve the safety of the existing network of pedestrian sidewalks, walkways, and malls within the CU Denver Neighborhood and larger Auraria Campus.

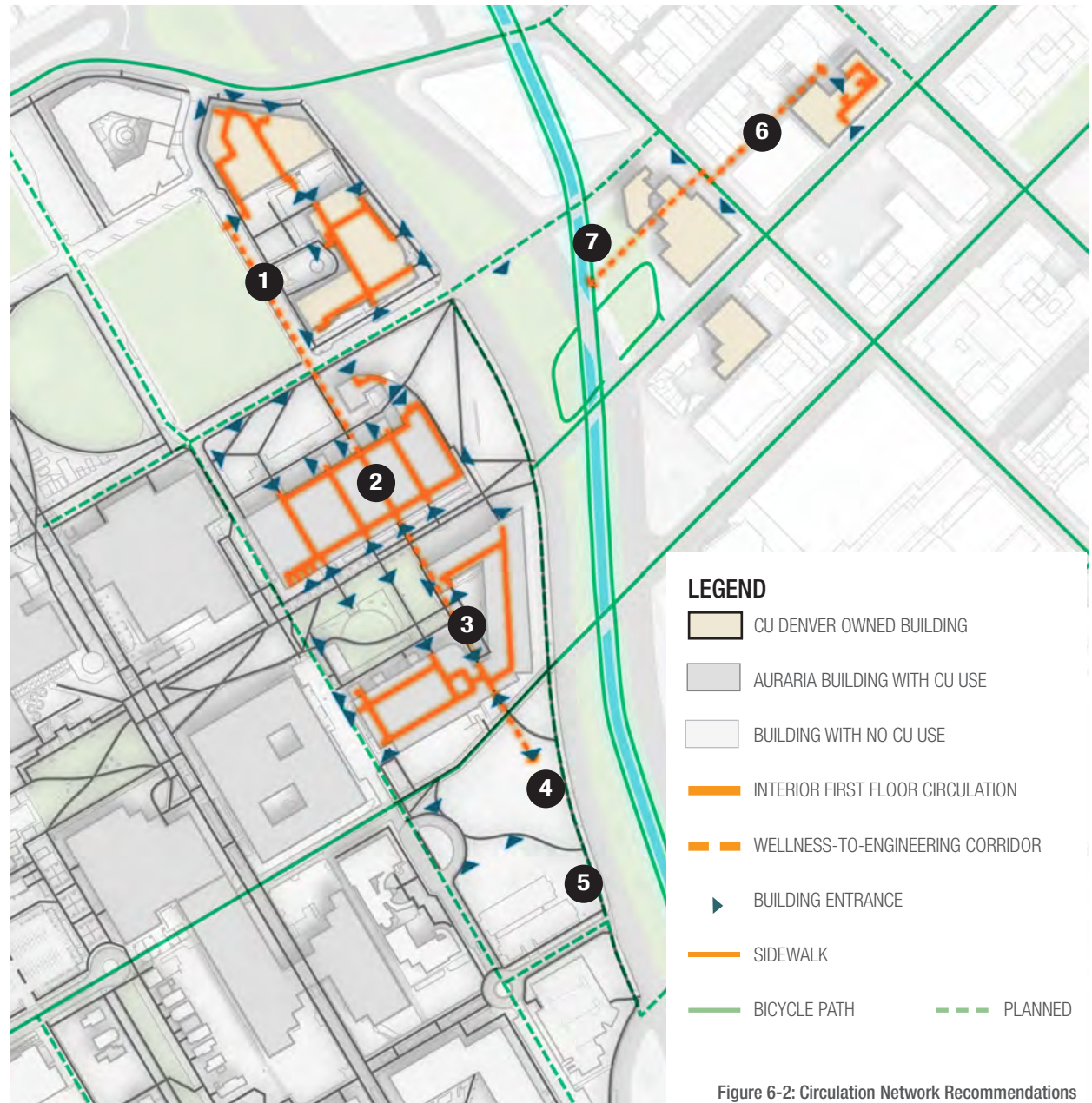


Figure 6-2: Circulation Network Recommendations

BICYCLE CIRCULATION AND PARKING

Many CU Denver students commute to class on bicycles. Often, bicycle-parking demand exceeds the capacity of the racks on campus.

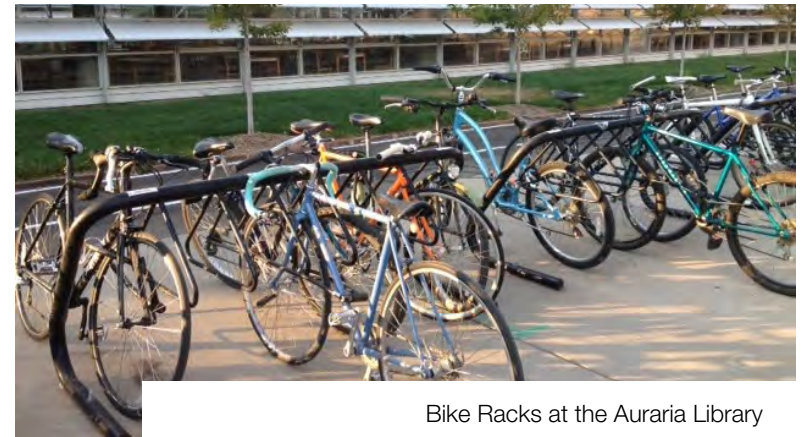
The Auraria Campus institutions have added many new bicycle racks and a new secure bicycle parking facility to meet growing demand. In particular, CU Denver added many bicycle racks to the campus inventory with the construction of Student Commons and will be adding more near the Student Wellness Center that opens in 2018. AHEC has plans for two additional secure bicycle-parking facilities, and CU Denver will continue to work with AHEC and the other Auraria Campus institutions to expand bicycle parking.

Currently, there are three B-Cycle stations conveniently located for CU Denver students near the CU Denver Building, the Arts Building, and CVA. B-Cycle is a bike-sharing program that allows a user to rent a bike by the hour or day and offers monthly or annual memberships.

The Auraria Campus has responded to increases over time in bicycle commuters by enhancing on-campus bicycle facilities and improving connections to off-campus facilities. The 2017 Auraria Campus Master Plan recommends additional bicycle lanes and street sharrow markings to strengthen the bicycle network on-campus and improve linkages to local and regional bicycle paths and trails.



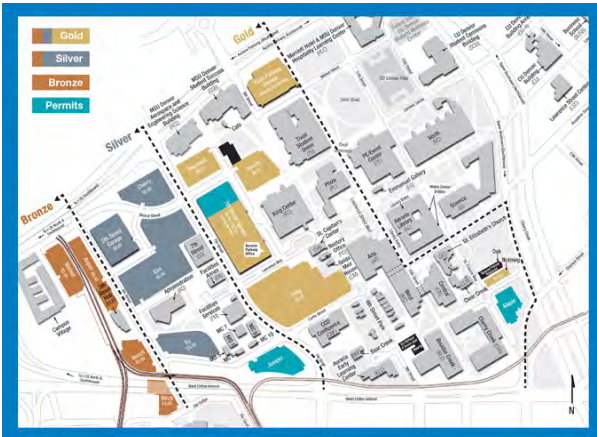
Sharrow Marking



Bike Racks at the Auraria Library



Cherry Creek Bike Path Behind the CU Denver Building



VEHICLE PARKING

AURARIA CAMPUS VEHICLE PARKING

AHEC manages the parking enterprise on the Auraria Campus for CU Denver and other Auraria institutions. Parking locations are strategically located to provide adequate inventory for each institutional neighborhood. Overall, AHEC provides 6,300 spaces in its managed facilities, which includes 137 spaces that meet Americans with Disabilities Act (ADA) requirements, 44 spaces for motorcycles, 142 spaces for service/loading, and 216 metered spaces.

The 2017 Auraria Campus Master Plan envisions a shift from mostly surface parking lots to structured parking. As a land-locked campus in a dense urban environment, all future development of facilities and other vital functions will need to occur on surface lots. The Auraria plan also recommends that all new parking structures include other uses such as retail, office, classrooms, etc., to create multi-functional facilities.

Except for the first two weeks of the spring and fall semesters when parking demand is at its peak, the current inventory of parking is adequate to meet campus demand. The 2017 Auraria Campus Master Plan proposes to maintain the current number of on-campus parking spaces while transitioning those spaces into structured parking. The long-term idea is to accommodate future enrollment

growth on the campus by encouraging and promoting more sustainable means of commuting to and from campus.

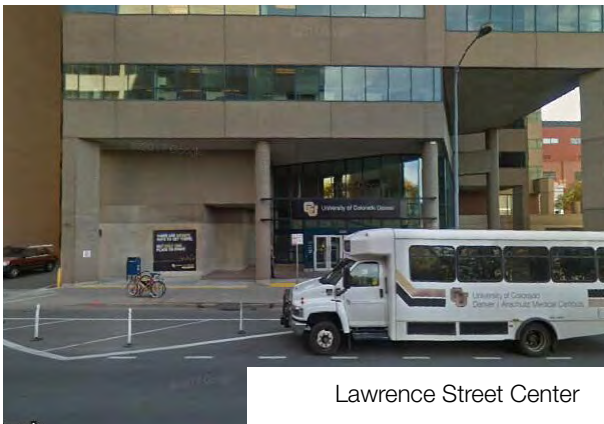
Recent trends on the Auraria Campus of decreased parking demand due to increased use of public transit validate this direction. Less than ten years ago, more than 75% of Auraria Campus students, faculty and staff drove to the campus, and parking demand exceeded supply. Today, nearly 30 percent of Auraria Campus students use transit to commute to the campus.

Wherever possible, AHEC will add on-street parking throughout the campus. Currently, on-street parking only exists on 11th Avenue/ St. Francis Way, with new on-street metered parking on 11th Avenue, Walnut Street, and Larimer Street.

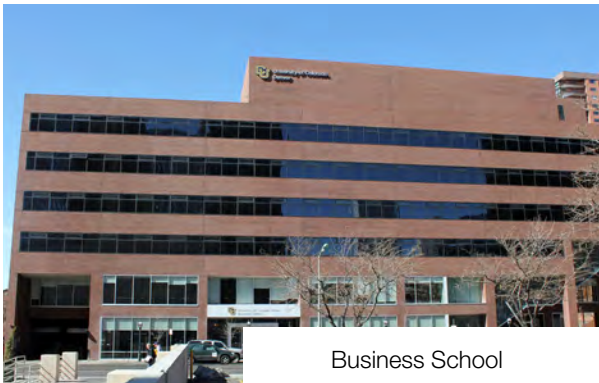




CU Denver Building



Lawrence Street Center



Business School

CU DENVER VEHICLE PARKING

The Parking and Transportation Department within Facilities Management oversees CU Denver Neighborhood parking in downtown, within three CU Denver facilities: Business School; Lawrence Street Center; and the CU Denver Building. The total number of spaces provided is 426.

The **CU Denver Building** parking garage has 155 spaces located on two levels. University faculty and staff rent, on a monthly basis, all the spaces in this garage, except for 40 spaces that the Hotel Teatro rents for its valet parking operation. Bicycle racks are on the upper level.

The **Lawrence Street Center** has a shared garage for the university and residents of the adjoining condominium building called the Residences at Lawrence Street. The garage includes 175 spaces on two levels. The residential building occupants own 58 spaces, and the remaining 117 spaces are available only to CU Denver faculty and staff for monthly rental. Bicycle racks are on the upper level of the garage.

The **Business School** garage includes 96 total spaces on two levels, all of which are available only to CU Denver faculty and staff for monthly rental.

There are no plans within the horizon of the 2017 Facilities Master Plan to alter the management of any of the three parking garages.

OPEN SPACE

As the Auraria Campus matures, it is incrementally transitioning from a commuter campus to a dense, urban campus. CU Denver is leading this transition with facilities in downtown, new buildings on the Auraria Campus—Science Building, Student Commons, and Wellness Center—that are urban in scale and massing without setbacks, and the dearth of large surface parking lots found throughout the campus. However, its on-campus neighborhood retains some older, low-density buildings with deep, turfed setbacks. Future CU Denver development of its available sites should be urban in character and density, with taller buildings, minimal setbacks, and smaller, highly programmed open spaces.

The following projects can help CU Denver maximize the use of its open spaces as future development occurs. Each project has a unique number that corresponds to a location shown on Figure 6-3.

CU DENVER NEIGHBORHOOD IN DOWNTOWN

East of Speer Boulevard, the campus is urban. The university does not control the public right-of-way at its buildings and nearby open spaces. However, the students, faculty, and staff utilize neighboring parks and plazas like Creekfront Park, Writers Square, 16th Street Mall, and Skyline Park.

1. With the redevelopment of the CU Denver Building Annex site, the university should collaborate with Denver Parks and Recreation to redesign and redevelop Creekfront Park. This public park should have greater visibility, safety, and accessibility from 14th Street. Pedestrians in the redeveloped alley between Lawrence Street and Larimer Street should be able to cross 14th Street and connect to the creek.
2. The triangular turfed area within the Speer Boulevard median between Market and Larimer Streets is currently un-programmed and underutilized, despite its prime location. CU Denver should work in partnership with the City, DDP and Connect Auraria to explore ways to improve the functionality and visual appeal of this important site.

CU DENVER NEIGHBORHOOD ON AURARIA

West of Speer Boulevard, the campus has a mix of different physical characteristics that speak to the different functions and design styles during its evolution. The range includes areas with traditional campus quads and malls edged by buildings, to a commuter-campus with solitary buildings surrounded by large parking lots, to the current urban approach of tightly-massed facilities interspersed with plazas and terraces. The CU Denver Student Commons and Student Wellness Center, as well as the MSU Denver Student Success Building, are examples of the latter.

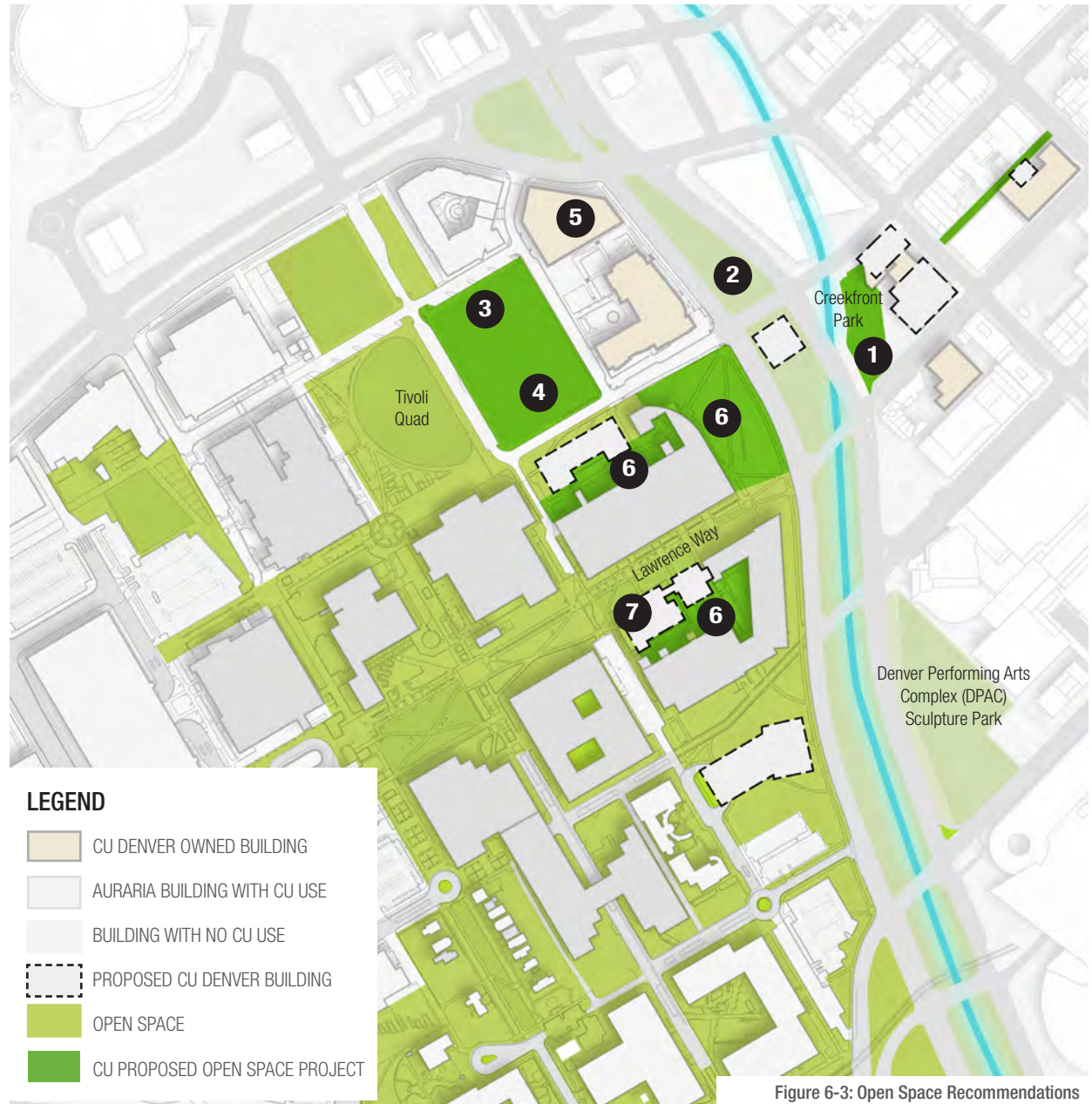


Figure 6-3: Open Space Recommendations

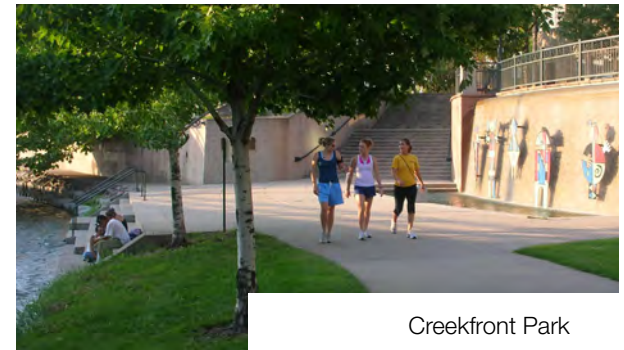
3. Over the 10-year horizon of this plan, the university will maintain the one recreation field located adjacent to the Student Commons Building and Student Wellness Center. The university will continue to use this field for club sports and recreational activities, particularly if demand rises due to increases in on-campus residents.
4. Beyond this 10-year planning horizon, this plan assumes that the field is a long-term land bank for vertical development as needed to accommodate program and enrollment growth. At that time, recreation facilities would need to be located off-campus, preferably in an area accessible by transit. Over the next decade, the university should make minor improvements to the field to increase its flexibility and use. However, it should avoid significant investments in the field given the uncertainty of its function beyond the 10-year horizon of the Facilities Master Plan.
5. Over the next ten years, not slated for development is the turf area that fronts North Classroom Building along Speer Boulevard. However, as all open space and surface parking is a land bank for future development, this open space may, when needed, become a new building site. In the interim, the university should better utilize the open space that is currently no more than a drainage ditch and unused “gap” space between academic buildings.

The site is also adjacent to the Larimer Street/Speer Boulevard intersection, which informally serves as the primary pedestrian gateway to CU Denver on Auraria. In spite of the heavy student, faculty and staff foot traffic, the intersection and the open space lacks a sense of arrival, branding and critical wayfinding. Students and the university have on occasion set up temporary banners and signage for events, which have briefly activated the site and created a vibrant and visual CU Denver presence seen by motorists and people in adjacent residential and office towers.

Transformation of the site into a CU Denver Neighborhood–Auraria Campus welcoming plaza would help enliven this campus edge, highlight activity in the North Classroom Building, and serve as a highly-adaptive event space for students and the university.

6. The university has designated open spaces adjacent to the North Classroom and Science Buildings as future development sites. When developed, site planning and design should integrate open spaces. Some options include:

- Plazas and courtyards with a mix of hardscape, planting and shaded seating opportunities.
- Green roofs.
- Green walls in highly visible locations in/on new and renovation of existing building.



Creekfront Park



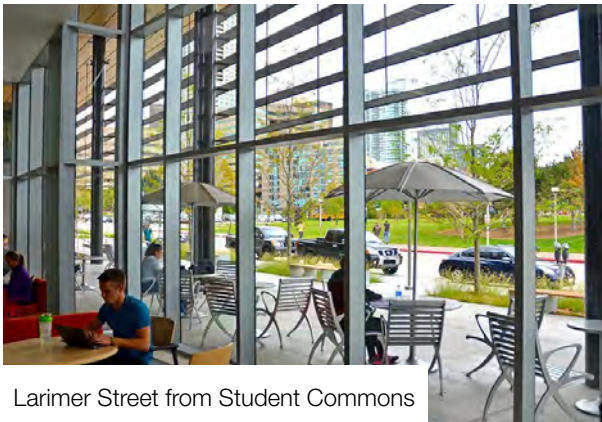
Recreation Field



Front of North Classroom



Larimer Street by Speer Boulevard



Larimer Street from Student Commons



Lawrence Way

7. Lawrence Way should remain a wide, landscaped and shaded pedestrian path. To accomplish this, the north facades of the proposed Instructional Lab Wing and Science Building addition projects should not extend any further into Lawrence Way than the north facade of the Auraria Science Building.

The university should work with AHEC and the City to ensure that the planning and design of streets, pedestrian ways, and bikeways are a meaningful part of the campus and downtown public realm. The design of neighborhood landscapes, plazas, malls, and courtyards should fit—in materials (soft/hard), scale, safety, lighting, and sustainability—an urban campus environment. Pedestrians and cyclists should feel comfortable transitioning from one mode to another. When designing open spaces within the CU Neighborhood, the university must closely coordinate with AHEC, which has design review authority of all on-campus projects.

When locating any new building or addition, the design team should consider solar orientation to provide outdoor spaces that provide shade in summer and warmth from the sun in the winter.

UTILITIES

AHEC either directly provides utility services or manages relationships with utility providers for the three institutions with facilities on the Auraria Campus. AHEC will continue to provide this service by its infrastructure master plan, prepared in 2012.

Utilities provided to the three CU Denver buildings in downtown include a combination of municipal and quasi-municipal providers, and the university's Office of Facilities Management oversees these relationships.

DEVELOPMENT CAPACITY

Several factors, including specific site conditions (such as soils and flood plains), City or AHEC parking requirements, funding, and market factors dictate the maximum development capacity of the parcels within the CU Denver Neighborhood. The two primary development constraints—maximum height and minimum setbacks—are determined by City of Denver zoning regulations that also include two city view plane protection overlays described below.

VIEW PLANE PROTECTION OVERLAYS

As a state entity, CU Denver is not bound to comply with municipal zoning requirements nor with view plane overlays such as the Old City Hall and State Capitol View Planes. These limit building heights to maintain views of the mountains from Bell Park (the Old City Hall site at Larimer Street and 14th Street), and from the front steps of the State Capitol respectively. See Figure 6-4 for the extents of both view planes.

CU Denver, however, seeks to engage and collaborate with the City of Denver, AHEC, and its partners within the downtown community to ensure that university development and improvements not only sustain and advance its strategic plan and mission, but also support the goals of AHEC, the City, and its partners.

As shown in Figure 6-4, the Old City Hall and State Capitol View Planes both effect at least

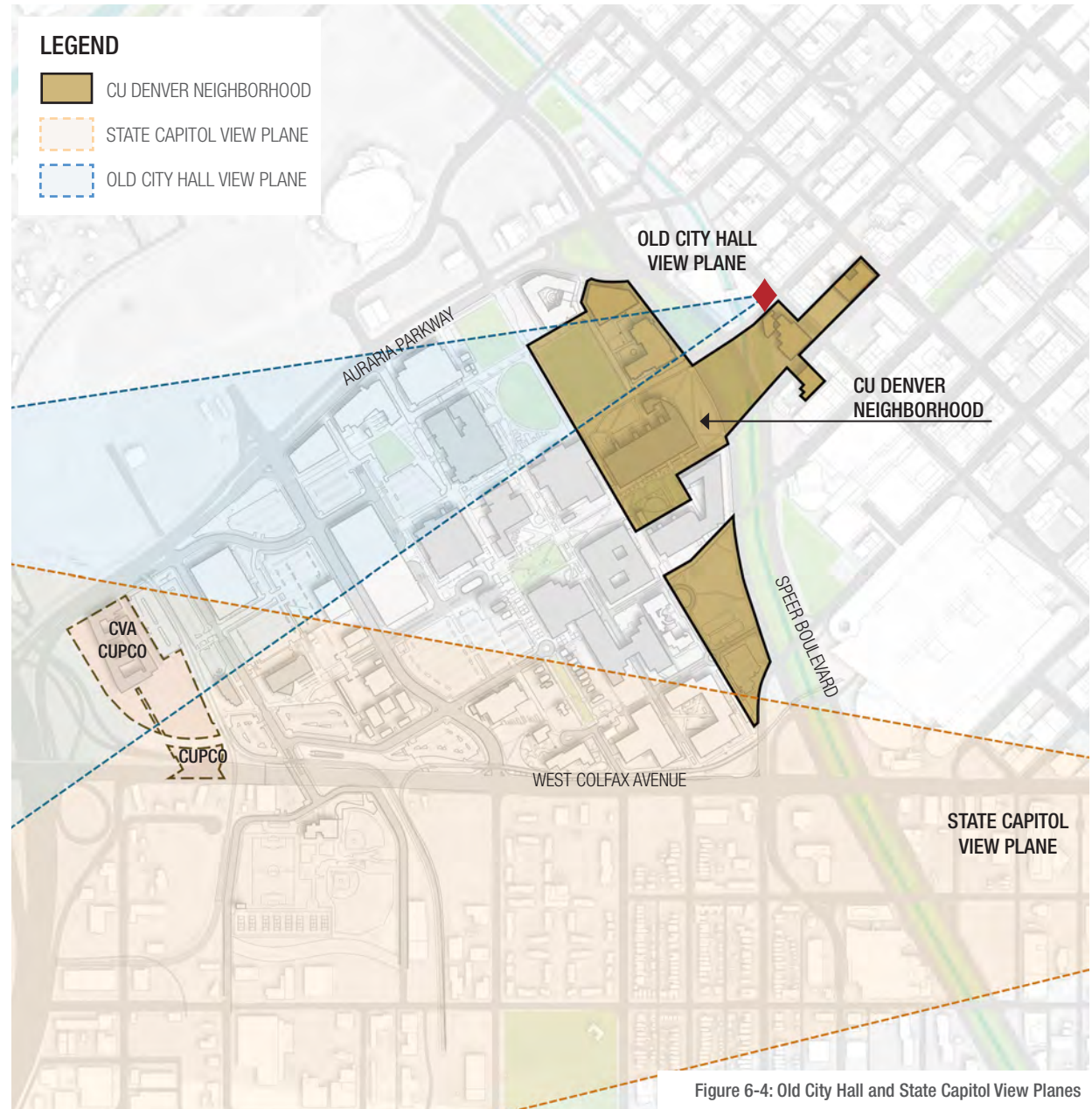


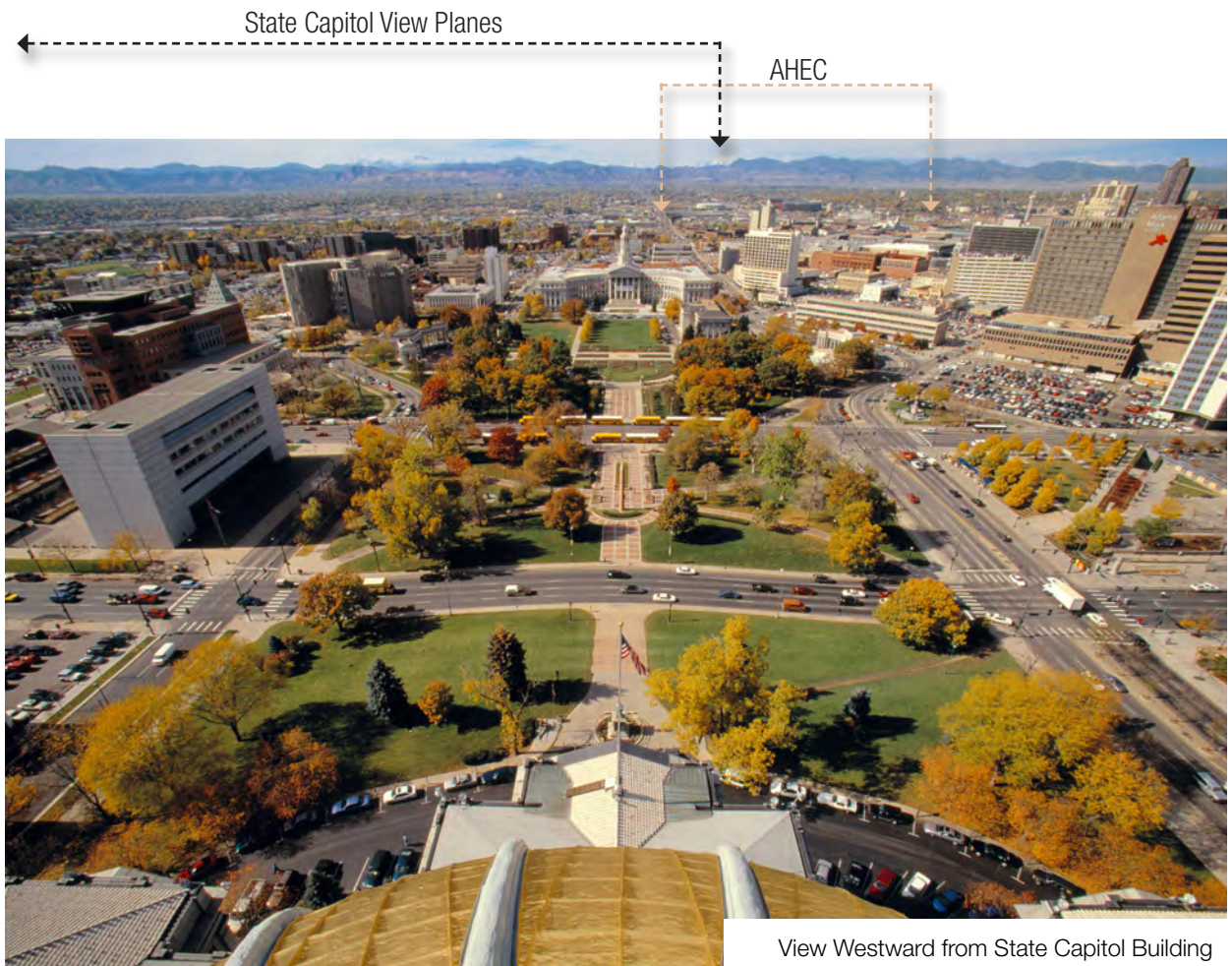
Figure 6-4: Old City Hall and State Capitol View Planes

a portion of the CU Denver Neighborhood on Auraria. The allowable building height is site-specific and determined by the angle between the point of origin to the desired view and the site elevation.

The Old City Hall View Plane has a more significant impact on the CU Denver Neighborhood due to the proximity of the origin point. In designing the Student Commons Building, the university hoped to maximize site development capacity, which would exceed height limits specified by the view plane. As a result, the university sought city and community input throughout the design process. Based on input, the university modified the design to preserve views of the Tivoli Tower from downtown.

CU Denver is committed to seeking partner and community input during the design phase of university projects into the future. The development capacities shown on the following pages assume that CU Denver will claim an exemption from the Old City Hall View Plane height requirements, but will discuss each project individually with the city, partners and the community.

The State Capitol View Plane affects the total CVA site, including the adjacent parking lot and vacant parcels. It also may influence the edge of any future long-term redevelopment of the Maple parking lot at the southern edge of the CU Denver Neighborhood on Auraria.



View Westward from State Capitol Building

ZONING

Auraria Campus is zoned as a Campus Education Institution (CMP-EI), district that has a maximum height limit of 150 feet. CU Denver buildings and potential expansion sites outside the campus have differing zoning and height restrictions. See Figure 6-5 for the maximum development volumes for the buildings along the Speer Boulevard corridor.

DEVELOPMENT CAPACITY SUMMARY

The building footprints contained in the 2012 Auraria Campus Strategic Implementation Plan were used to estimate CU Denver’s total development capacity, which includes the parcels within the CU Denver Neighborhood.

The maximum development capacity for CU Denver is nearly 2.5 million GSF, broken up into the following three categories:

- **CU Denver Neighborhood on Auraria: 1.9 million GSF**
- **CU Denver Neighborhood in Downtown: 131,498 GSF**
- **CU Denver Neighborhood Campus Village Apartments Area (CUPCO): 417,740 GSF**

This total does not include any CU Denver opportunity to acquire facilities from AHEC, other institutions, the City of Denver or other entities. The maximum development capacity is substantially more than the projected ten-year space need, which indicates that CU Denver:

- Has some latitude in determining its interim phasing. For example, the maximum build-out assumes development on every substantial open space within the CU Denver Neighborhood. The university may choose to reserve some open space to balance an increasing amount of urban development;

BUILDING	ZONING	ZONING HEIGHT MAX (FEET)
CU DENVER OWNED		
Student Commons Building	CMP-EI	150
Student Wellness Center	CMP-EI	150
CU Denver Field	CMP-EI	150
North Classroom Building	CMP-EI	150
North Classroom Site – North Site	CMP-EI	150
North Classroom Site – East Site	CMP-EI	150
Speer and Arapahoe Site	CMP-EI	150
Speer and St. Francis Way (Nutmeg)	CMP-EI	150
Speer and St. Francis Way (Maple)	CMP-EI	150
Walnut Lot (State Capitol View Plane)	CMP-EI	150
Beech Lot (State Capitol View Plane)	CMP-EI	150
5th Street Hub Site (State Capitol View Plane)	CMP-EI	150
Campus Village Apartments	R-MU-30	old code
CVA Parking Lot (State Capitol View Plane)	R-MU-30	old code
CU Denver Building + Annex Site	D-C, height area #1	200
Business School	D-C	no limit
Lawrence Street Center	D-TD	200
AURARIA CAMPUS SHARED		
Science Building	CMP-EI	150
Science Building Site	CMP-EI	150
Auraria Library	CMP-EI	150
Tivoli Student Union	CMP-EI	150
Plaza Building	CMP-EI	150
Arts Building	CMP-EI	150
King Center	CMP-EI	150
OUTSIDE CU DENVER NEIGHBORHOOD		
Speer City Parking Lot	CMP-EI	150
Denver Performing Arts Complex	D-TD	200

Figure 6-5: Zoning and Maximum Heights

- Has options as it negotiates with AHEC or with community partners such as the City of Denver or private developers; and,
- Should maximize the development capacity of all vacant sites to help meet program needs and increase the urban character of the university's neighborhood.

Lawrence Street Center 14-Stories

North Classroom Building "Hook" 5-Stories

CU Denver Building 8-Stories

Business School Building 6-Stories

Student Commons Tower 5-Stories

Student Commons Academic Wing 2-Stories



ZONING HEIGHT MAXIMUMS (Feet)
by zoning district



Existing CU Denver Building Heights

Figure 6-6, below, illustrates the maximum development capacity for the potential building sites within the CU Denver Neighborhood.

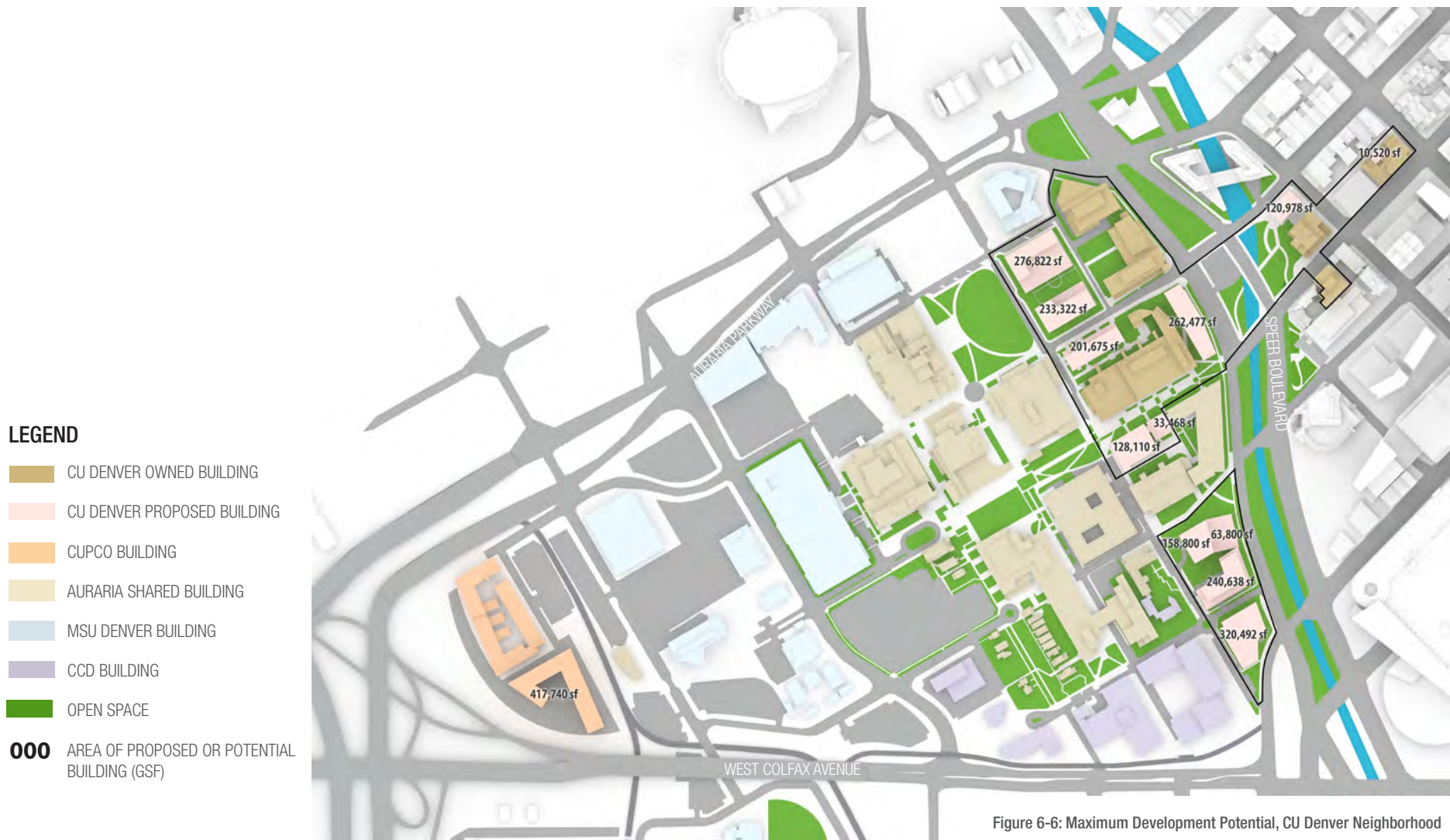


Figure 6-6: Maximum Development Potential, CU Denver Neighborhood

AREAS FOR NEIGHBORHOOD EXPANSION

CU Denver has control over several potential development sites within its neighborhood on the Auraria Campus that can accommodate future growth. Also, the university has identified five sites outside its neighborhood that should be further evaluated relative to the university's strategic priorities and objectives.

1. SPEER BOULEVARD

Although infill development in downtown Denver is quickly reducing the number of the potentially viable development sites, there are a few remaining underutilized lots around CU Denver's Neighborhood that could if acquired, give the university an opportunity to expand its downtown presence. A surface parking lot owned by the City of Denver, was identified in the previously mentioned H3 Study as a potential CU Denver development site. The university should work with the city to explore viable strategies to obtain this Nexus site, and as needed, acquire other key parcels.

2. CAMPUS VILLAGE APARTMENTS

With the development of a First-Year Residence Hall or other housing, the future of CVA will need to be evaluated. CVA may continue to serve CU Denver students. Once opened, the First-Year Residence Hall will accommodate students who would otherwise reside in CVA. As a result, a strategic assessment of CVA and the adjacent vacant parcels should be undertaken to determine their future uses.



3. SCIENCE BUILDING

The Science Building is an Auraria Campus tri-institutional shared facility that is largely devoted to the physical sciences. The CU Denver departments of Biology and Chemistry are located in that building. In the future, if MSU Denver and CCD determine that institution-specific science buildings in their respective neighborhoods are a strategic priority, CU Denver would likely enter into discussions with AHEC to include the Science Building within its neighborhood boundary.

4. DENVER PERFORMING ARTS COMPLEX – THE NEXT STAGE

Denver Arts and Venues has prepared a redevelopment plan for the Denver Performing Arts Complex, titled Next Stage. Next Stage proposes to increase density on the site, create new residential units and expand arts education and lifelong learning opportunities. As Next Stage continues to develop and move forward, CU Denver should explore the opportunity for program and facility partnership opportunities with Denver Arts and Venues.



LEGEND

- CU DENVER NEIGHBORHOOD
- POTENTIAL CU DENVER NEIGHBORHOOD EXPANSION
- CU DENVER OWNED BUILDING
- AURARIA BUILDING WITH CU USE
- BUILDING WITH NO CU USE
- OPEN SPACE



EXPANSION OPPORTUNITIES

- 1** SPEER BOULEVARD
- 2** CAMPUS VILLAGE APARTMENTS
- 3** SCIENCE BUILDING
- 4** DENVER PERFORMING ARTS COMPLEX – THE NEXT STAGE

Figure 6-7: Campus Organizational Framework

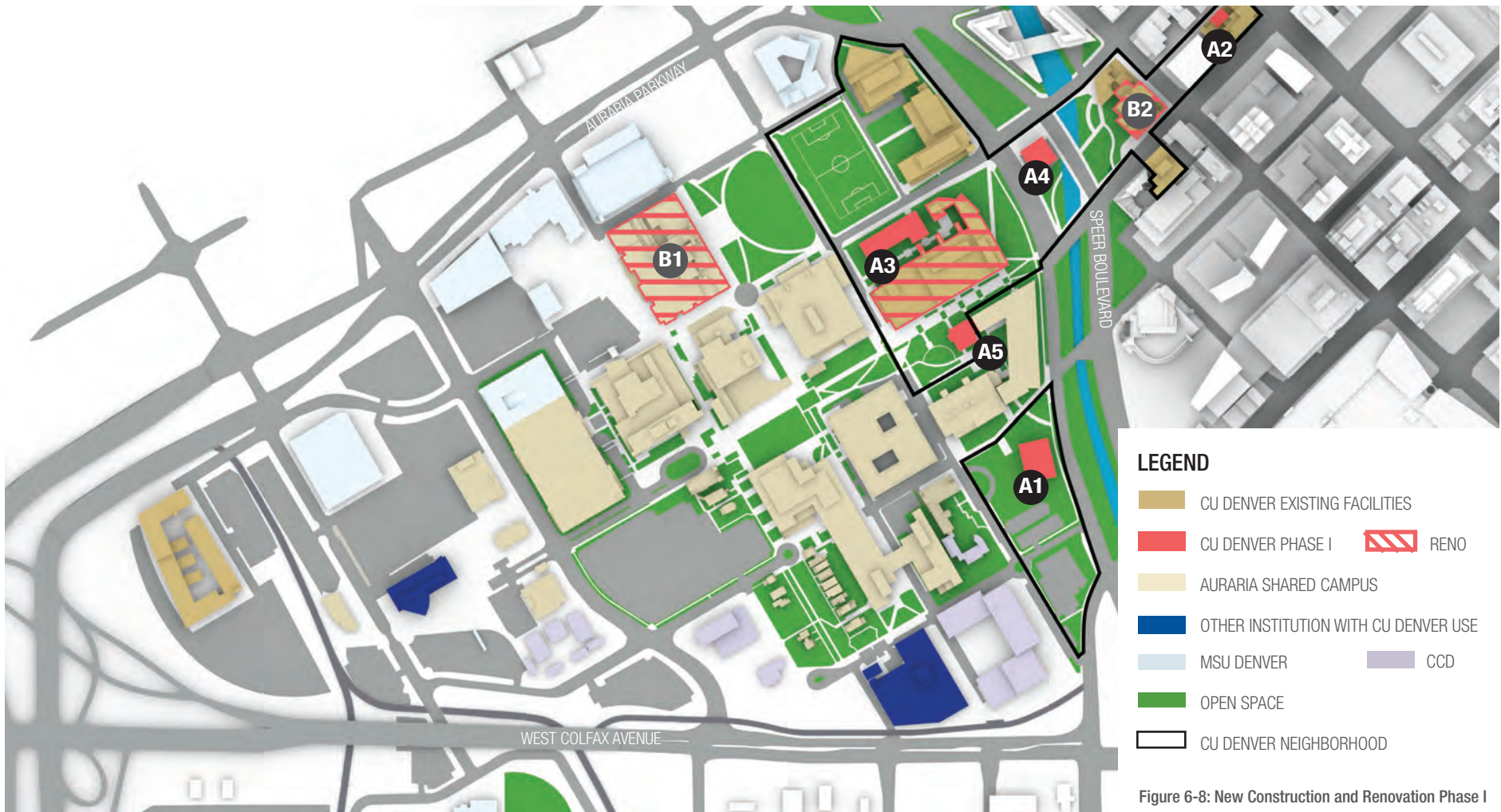


Figure 6-8: New Construction and Renovation Phase I

6.2 NEW CONSTRUCTION AND RENOVATION

The long-term value of the 2017 Facilities Master Plan will be its ability to establish capital priorities and optimize limited and valuable resources.

The university has identified more than 60 potential renovations, new construction, open space, parking, and utility and infrastructure projects. They range in complexity from renovating space in the Tivoli Student Union to programming and constructing a mixed-use tower on the CU Denver Building Annex site. Each of the projects supports and advances CU Denver's strategic plan, mission, and goals, and the growth targets established in this plan.

PROJECT PHASING

Based on strategic direction from the Executive Committee, the project team placed each recommended project into one of two phases to better align with the university's budget process and overall vision, distribute the costs to the university and the state of Colorado over time, and ensure a minimum baseline of student beds.

The phasing diagrams shown in this chapter depict a short-term strategic implementation horizon of zero-to-five years and a longer-term horizon of six-to-ten years. Each project has an identifier that reflects the project type and its priority in the overall building program. All new construction projects start with "A", while renovation projects start with "B."

Proposed project phasing should maximize the impact to university resources while minimizing campus disruption due to moving programs or user groups multiple times.

PHASE I (YEARS 0-5)

Phase I of the Facilities Master Plan will provide new space for business, chemistry, integrative biology, and engineering to allow these programs to expand into state-of-the-art instructional facilities. It will also expand the number of on-campus beds to offer students additional residential options. Similarly, renovated space for architecture and planning programs will improve the instructional effectiveness of existing spaces and allow for expansion.

A1. ENGINEERING AND PHYSICAL SCIENCES BUILDING

In May of 2017, the CU BOR approved an amended program plan for a new building to meet the academic and research space needs of engineering and applied and physical sciences programs, and the enrollment growth expected in these areas. This effort will also allow CEAS to vacate facilities that are not within the CU Denver Neighborhood, such as Boulder Creek. The new building and renovations of the North Classroom Building will provide CEAS and CLAS with state-of-the-art learning and student success environments.

The site of the proposed 60,000 GSF (37,800 ASF) building is an open turf area within the CU Denver Neighborhood that is south of the Science Building and adjacent to Speer Boulevard. This site has many advantages:

- A high profile location on Speer Boulevard that will improve the visibility of CU Denver's engineering and applied and physical sciences programs and will appeal to potential project donors;

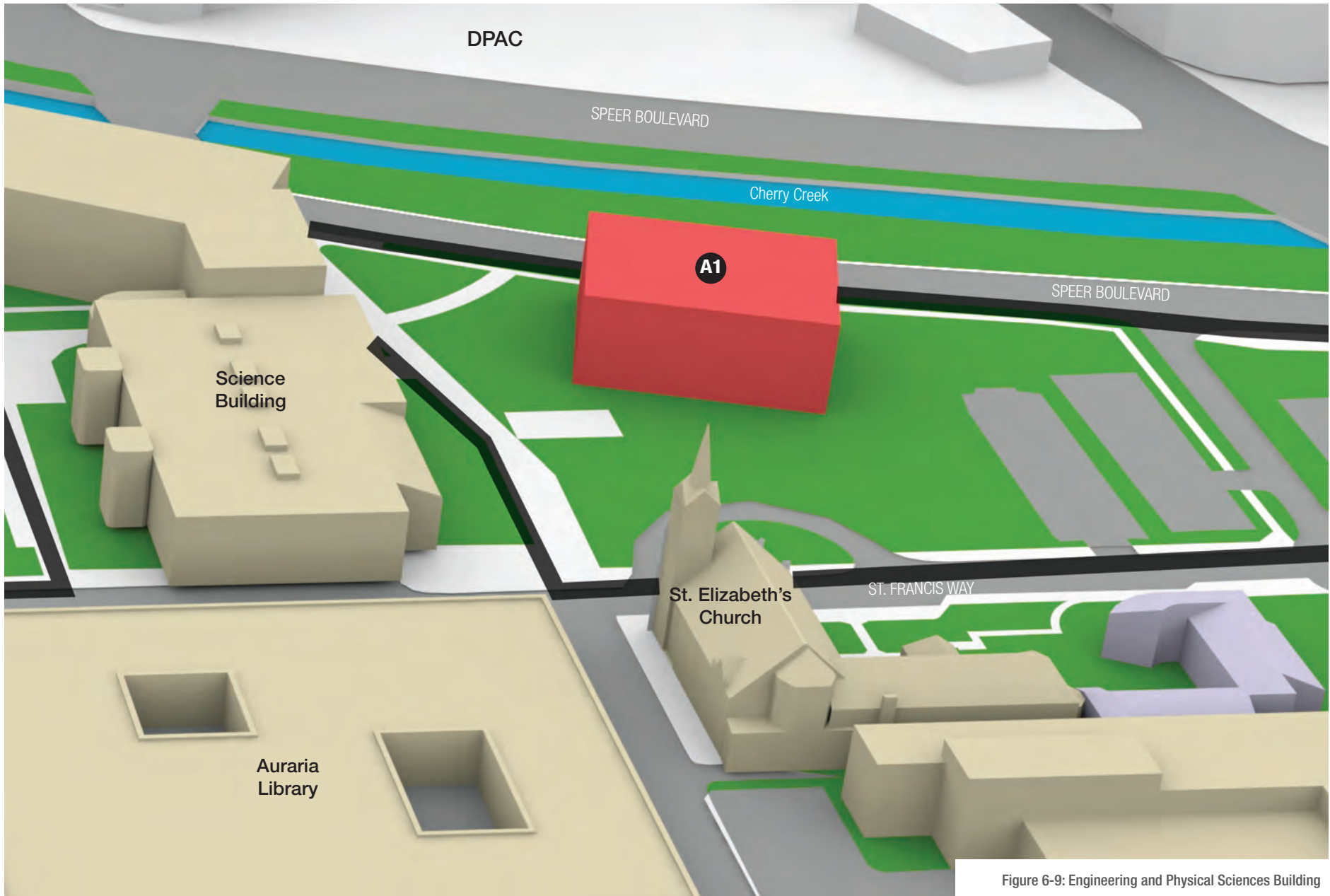


Figure 6-9: Engineering and Physical Sciences Building

- Proximity to the classrooms, laboratories, and offices in the Science Building;
- Access to an existing vehicle service corridor, St. Francis Way, that can accommodate the material delivery needs of the engineering and physical sciences programs; and,
- Adjacent expansion opportunities. The proposed Engineering and Physical Sciences Building will address near-term space needs. Anticipated future growth in these programs will require at least one more expansion of this building. The site can accommodate that expansion, as well as another future facility on an adjacent site.

As a result, the planning and design of this facility will be the first phase of a multi-building engineering complex. This first phase will front Speer Boulevard and Arapahoe Street and maintain the view of the historic St. Elizabeth's Church façade from Arapahoe Street. The functioning church will serve as a reminder of the area's history and a focal point that links the Auraria Campus to the community.

This new building will require some utility infrastructure relocations and extensions. The university will extend the power duct from 10th Street and Champa Street (northwest corner of the Cherry Creek Building) 650 linear feet to the site. For telecommunications, the university will install a 750 linear feet dual-directional conduit between utility holes 6 and 35. The building

will also require storm water treatment and detention.

There are no other projects required to facilitate this effort. The relocation of space in the North Classroom Building used by CEAS departments will enable CLAS to create active learning environments and a hub for student success and support services.

A2. BUSINESS SCHOOL PHASE II

The continued growth of the Business School requires expansion within its existing building footprint. The proposed project includes infilling the Business School courtyard to provide an additional 9,603 ASF/12,804 GSF of events, classroom, and office space. Utility infrastructure for power and telecommunications will tie into the existing Business School.

A3. FIRST-YEAR RESIDENCE HALL WITH DINING

The plan includes a proposed First-Year Residential Hall, programmed to include approximately 410 semi-suite beds (280 GSF/bed, 116,000 GSF), a ground floor food service facility (15,000 GSF), and community gathering spaces. The number of beds is derived from Brailsford and Dunlavey's demand analysis, with the policy overlay applied as described on page 84.

An allotment of 15,000 GSF has also been made for any student service operations that would complement the residence hall. Located

at the southeast corner of Larimer Street and 11th Street, the residence hall would be adjacent to the North Classroom Building. The location within the core of the CU Denver Neighborhood on Auraria is ideal for student recruitment and retention. Residents in the proposed building will have convenient access to student services in the Student Commons Building, social and recreational opportunities in the Student Wellness Center, and core curriculum classes held primarily in the adjacent North Classroom Building.

The building's design and siting should maintain the Larimer Street setback established by the North Classroom Building's "hook" and the PE/Event Center. The residence hall should reinforce pedestrian activity by including first-floor mixed-use functions, such as indoor/outdoor food vendors, computer lounges and activity centers, multiple street entrances, and ground floor transparency. A generous linear plaza located between the North Classroom Building and the housing facility should separate and join the two facilities to maximize daylight into both buildings, minimize noise issues, and to preserve and enhance the 12th Street Connector. Lastly, the 11th Street service corridor can accommodate all back-of-house service and delivery functions for both buildings.

The new student housing facility will require utility infrastructure improvements. These include an upgrade of the 6" existing water main to 8" around the perimeter of the



Figure 6-10: Phase I Construction Projects

North Classroom Building (1,950 linear feet), relocating an existing storm water quality pond and power and telecommunication connections provided at 12th and Larimer Streets and the North Classroom Building.

The First-Year Residence Hall project provides an opportunity for the university to relocate student service offices if they support the housing function. The exact student service departments the Tivoli that could move to the residence hall are not yet determined.

Once the residence hall is completed and occupied, the university will have multiple options for CVA.

A4. NEXUS BUILDING MIXED USE RESIDENTIAL

The City of Denver may soon make several sites in and around the CU Denver Neighborhood available for redevelopment. CU Denver will pursue ownership or development rights of one particular city parcel, a parking lot that lies in between the northbound and southbound lanes of Speer Boulevard at Larimer Street. This site was dubbed the “Nexus” site by the firm H3, due to its prominent location and its potential to connect AHEC and downtown. The Nexus site has been identified for development in prior planning studies of the City of Denver, AHEC, and CU Denver.

Should the Nexus site become available, it would provide CU Denver an opportunity to create a vital link between the CU Denver

Neighborhood on the Auraria Campus, Larimer Square, and greater downtown Denver.

The university would build a mixed-use facility on the Nexus site, including student housing and ground floor retail. Student service space may also be included in the building, if there are existing or new departments that align well with the rest of the occupant profile of the building. The Nexus site project is an ideal public-private partnership development opportunity.

The Facilities Master Plan housing demand analysis indicates a current demand for on-campus apartments by upper division and graduate students of 885 beds, excluding the beds in CVA. If the university meets projected enrollment targets, that demand increases to 1,232 beds, excluding CVA. The mixed-use Nexus site, sized at 173,400 GSF and 340 beds (@510 GSF/Bed), could accommodate some of the projected demand.

Since the ground floor will be visible from all sides, the design must carefully balance programmatic needs, a desire to create a vibrant street presence, and the delivery and service needs of the building and its occupants. The Larimer Street facade should enhance the pedestrian experience and encourage activity through visible ground floor uses. The Cherry Creek frontage should engage the adjacent creek parkway and recreational trail. Lastly, the building will have four front facades, and the design of each should reinforce the university’s

identity along Speer Boulevard, downtown and the Auraria Campus.

The design of Speer Boulevard near Larimer Street does not currently encourage pedestrian activity. As described in the 2016 “Ideas for Connecting the Auraria Campus + Downtown” study, the city and the university are seeking funding that would allow for improvements made to the Larimer Street crossing of Speer. Those improvements could include the following:

- Remove the existing dedicated bus lane on Larimer Street to widen the sidewalk and add dedicated bike lanes;
- Remove the northbound turn lane on Speer Boulevard to widen the sidewalks; and,
- Formalize crosswalks and provide continuity with Larimer Square using paving, light fixtures, furniture, graphics, trees and landscaped improvements.

New construction will require utility infrastructure extensions. Xcel/City of Denver will provide direct power to the site. Two telecommunications and electrical connections will link to the site.



A5. INSTRUCTIONAL LAB WING

The Instructional Lab Wing Building (ILW) will address one of CU Denver's most pressing needs – instructional laboratory space for the departments of Integrative Biology and Chemistry. Various factors are driving growth in these areas, including increased interest in health careers majors, partnerships with the Anschutz Medical Campus such as the BA/BS/MD program, growth in declared majors in both Integrative Biology and Chemistry and high demand in programs such as Public Health and Psychology that require biology and chemistry coursework.

ILW is a proposed 37,600 GSF, four-story addition to the northwestern side of the Science Building that would extend the corridor containing most of CU Denver's integrative biology and chemistry laboratories. The addition would house a mix of instructional laboratories, open and research labs, and office and support spaces. The project would also include an expansion of the existing basement-level vivarium.

As the first phase of a two-phase project, the design of the ILW addition must integrate with surrounding facilities and accommodate an addition. Its primary facade will face Lawrence Way and continue the urban street wall created by the Science Building.

Additionally, the building design should be visually open on the ground floor to reinforce

the 12th Street axis in the CU Denver Neighborhood on Auraria.

The building will require the removal and replacement of an existing detention pond and installation of a new 296 linear feet storm water main. Telecommunications infrastructure will extend from existing service located in the Science Building “hook,” and existing North Classroom Building power will service the ILW. The addition will also require the installation of a new natural gas main under 11th Street from Walnut Street south to Lawrence Way. The size of the main should accommodate future CU Denver and Auraria Campus growth.

Lastly, since the project accommodates the growth of Integrative Biology and Chemistry, it does not create backfill opportunities.

B1. TIVOLI STUDENT UNION BUILDING

Beginning September 1, 2017, CU Denver will lease 15,184 GSF of vacant space in the Tivoli Student Union Building. The vacant space housed the former AMC Theatre and Starz Encore FilmCenter and is located directly above CU Denver leased space occupied by CAM. At present, the space is being evaluated to accommodate relocation of some CU Denver functions currently housed elsewhere in the Tivoli.

B2. CU DENVER BUILDING RENOVATION

Built in 1981, CU Denver purchased the 205,128 GSF nine-story tower in 1990. CAP primarily occupies the CU Denver Building, while CAM uses the top floor, and the CU System Executive MBA program leases a portion of the ground floor. Based on a facility condition assessment of 2015, the CU Denver Building has the lowest facility condition index (FCI) of the three university-owned buildings located in its downtown Neighborhood.

When funded, the proposed project will include a complete capital renewal of the building, and renovate interiors never improved, which will enable CAP to grow by over 25,000 ASF. The expansion space would house general studios, four additional specialized studios, a new visualization laboratory, and additional project critique (“crit”) spaces. Renovations and the re-programming of the building's ground floor will enhance street-level activity on 14th and Lawrence Streets and improve connections to Creekfront Park. The Executive MBA program will remain in its current location, although its space is not part of the renovations.

The building exterior needs structural improvements and aesthetic upgrades as it occupies a highly-visible location in downtown. Also, any exterior improvements should explore the development of a mid-block visual extension of Larimer Alley to Creekfront Park.

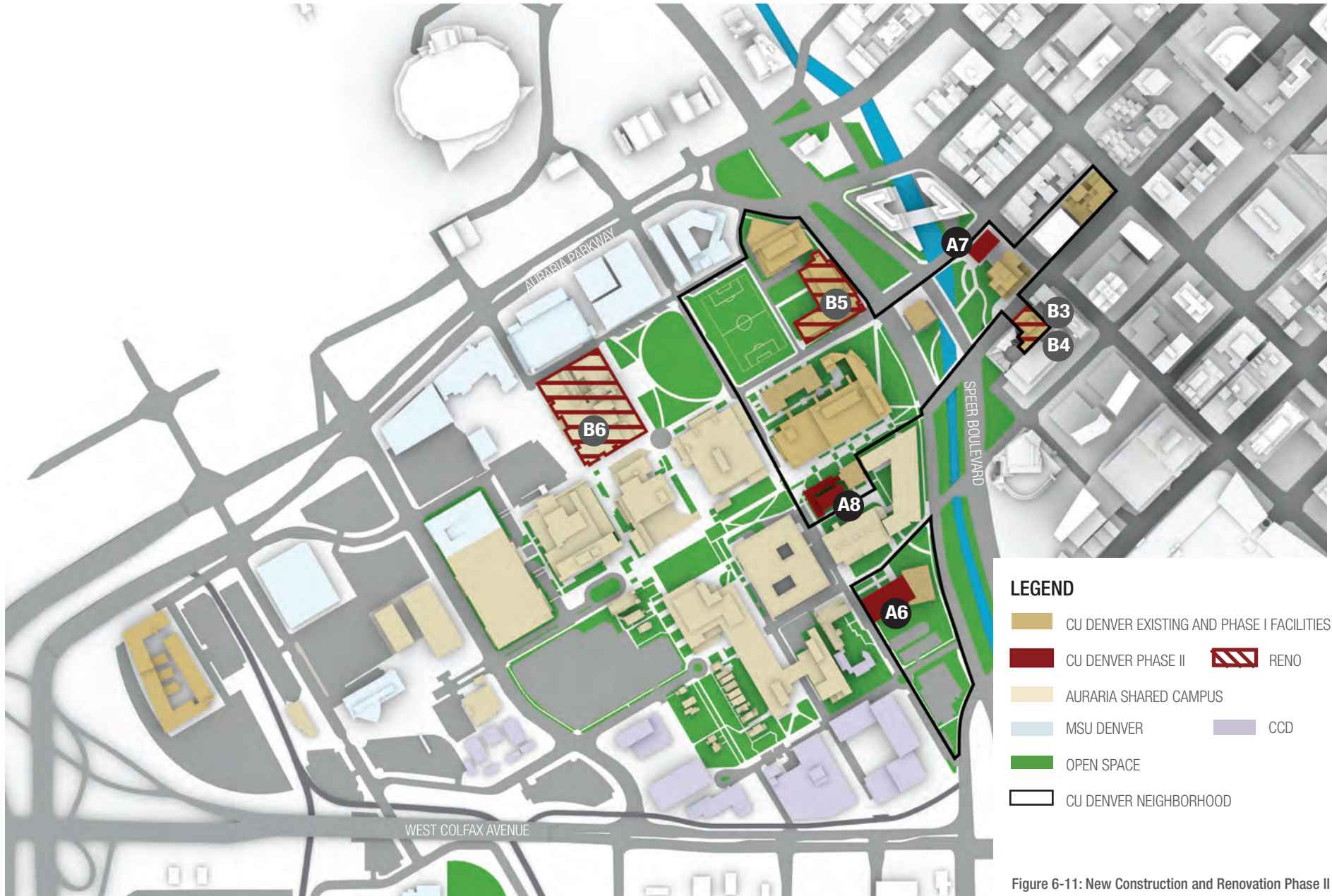


Figure 6-11: New Construction and Renovation Phase II

PHASE II (YEARS 6-10)

Phase II of the Facilities Master Plan builds on Phase I programmatically and physically. As academic programs and funded research grow, additions to the Science Building and the Engineering and Physical Sciences Building will become necessary.

A6. ENGINEERING AND PHYSICAL SCIENCES BUILDING PHASE II

The program plan for Engineering & Physical Sciences Building Phase I will address the immediate critical growth needs of CEAS. However, the enrollment targets for CEAS will require additional space well beyond that provided in Phase I. Also, to meet research growth goals, CU Denver anticipates adding 10 new researchers over the next ten years in CEAS. A second phase of the Engineering and Physical Sciences Building will be necessary to accommodate this growth. This effort will be approximately 135,000 GSF and will achieve the following:

- Relocate CEAS departments from the Administration Building, Lawrence Street Center and 5th Street Hub. This includes growing programs of distinction such as Assistive Technology Partners;
- Create additional shared-use classrooms; and,

- Develop roughly 10,000 ASF of research space, plus office space for new research principal investigators.

Phase II of the Engineering and Physical Sciences Building will be designed as an addition to Phase I, and should not preclude future expansions. Phase II will front Arapahoe Street and St. Francis Way. As with Phase I, this project will not obstruct the view of St. Elizabeth's Church down Arapahoe Street. Lastly, service vehicles will utilize docks located along St. Francis Way.

A7. CU DENVER BUILDING ANNEX TOWER

The existing CU Denver Building Annex – a low-scale facility with a closed-off ground floor fronting the energetic and historical Larimer Square – is an underutilized opportunity. CU Denver could demolish the Annex and construct a new mixed-use tower that expands the university's presence downtown, creating much needed additional space and increasing the urbanity of its neighborhood.

The university should carry out an in-depth study of its options for this site. If the study finds the Annex Tower is the right option, the next step would be the development of an Annex Tower program plan. Any developed tower will need to accommodate a mix of various university needs such as upper division/graduate housing, ground level retail and amenities, academic and support spaces,

faculty/staff housing, and visiting faculty housing. The current zoning (D-C in height area #1) allows a 200-foot tower or approximately 121,000 GSF.

The importance of the location, design and mixed functions of this building cannot be understated.

- The site has high visibility – from both Larimer Square, Speer Boulevard and the Cherry Creek Trail.
- The corner of 14th Street and Larimer Street should be transparent and accessible to emulate the vibrancy of Larimer Square.
- The Larimer Street frontage should engage pedestrians, to extend the pedestrian activity of Larimer Square west toward Cherry Creek and Speer Boulevard.
- The Cherry Creek frontage should actively engage the existing Creekside Park. The university should collaborate with the City of Denver to redesign, reprogram and reconstruct the park so that it better connects downtown to Cherry Creek and becomes a more effective gathering space for the CU Denver community as well as nearby workers and residents.
- The Annex Tower at-grade level should link with the proposed Larimer Alley if implemented.

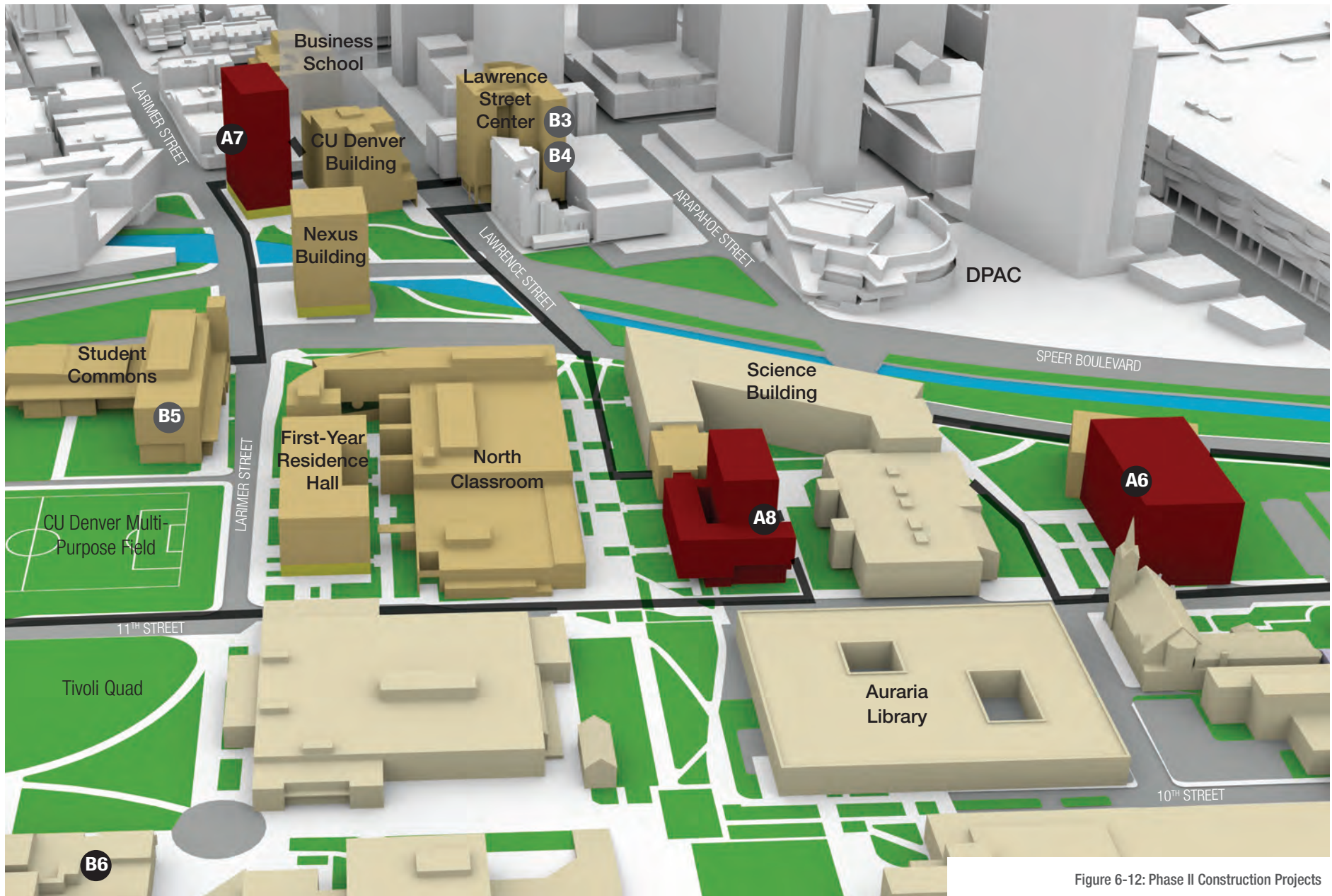


Figure 6-12: Phase II Construction Projects

Given the visibility of the site, service vehicle access should not diminish the emerging pedestrian corridor along Larimer Street. Efforts should be taken to improve access, visibility, and safety along the Tower ground level adjacent to the heavily trafficked Creekfront Park.

Before demolition of the existing CU Denver Building Annex, the current occupants must relocate, either temporarily or permanently. That determination will happen in the program-planning phase of the project.

The university will extend power and telecommunications to the new Annex Tower from the CU Denver Building.

A8. SCIENCE BUILDING ADDITION

CLAS is the largest and most diverse of CU Denver's colleges, and projected enrollment over the next ten years shows significant growth, which will require expansion of both instructional and research spaces. The college is also one of the few that occupies facilities on both sides of Speer Boulevard.

To accommodate anticipated growth and simultaneously consolidate the college in the CU Denver Neighborhood on Auraria, the proposed Science Building Addition project will expand the combined Science/Instructional Lab buildings by approximately 150,000 GSF.

The new space would accommodate:

- The Political Science, History, and Math departments, as well as Master of Humanities and Master of Social Sciences Programs, relocated from the Student Commons Building;
- The Sociology and Economics departments relocated from the Lawrence Street Center;
- The Modern Languages and Ethnic Studies departments relocated from the Plaza Building;
- The English department relocated from various structures in the Ninth Street Historic Park;
- Additional college growth not accommodated in the Instructional Lab Wing project, including laboratory space for 20 new research hires needed to meet the university's research targets;
- General classrooms to be shared by all colleges; and,
- The new addition will incorporate the existing on-site cooling tower.

The Science Building Addition should maintain the Lawrence Way setback and the four-story height of adjacent facilities. Fortunately, additional upper-level floors are possible if set back from Lawrence Way. The site's current zoning (CMP-EI) allows a 150-foot building height. Service access should occur on 11th Street.

Relocation of the site-specific art installation will require the aid of AHEC and the State entity that oversees state-funded Art in Public Places works.

Completion of the Science Building Addition will enable the university to initiate numerous sequential moves and renovations that will co-locate currently dispersed units and provide additional space for growing programs, centers, and institutes. These moves and renovations are part of the "Student Commons – Science Building Addition Backfill Project" and the "Tivoli Student Union Building II Project."

B3. LAWRENCE STREET CENTER – ENGINEERING AND PHYSICAL SCIENCES BUILDING BACKFILL (RENOVATION I)

The completion of the second phase of Engineering and Physical Sciences Building will create a backfill renovation opportunity in the Lawrence Street Center. The Computer Science and Engineering Department of CEAS will vacate approximately 12,200 GSF in the Lawrence Street Center. The renovated vacated space would accommodate a different unit with critical space needs. A potential occupant could be SEHD or SPA. Over the next ten years, SEHD and SPA will each need additional space equal to 9,800 ASF and 1,600 ASF respectively. The greatest portion of these needs in both colleges is for office and service spaces.

B4. LAWRENCE STREET CENTER – SCIENCE BUILDING ADDITION BACKFILL (RENOVATION II)

Completion of the Science Building Addition will create another backfill renovation opportunity in the Lawrence Street Center. CLAS (Economics, Sociology) will vacate approximately 12,000 GSF in the Lawrence Street Center. The renovated vacated space would accommodate another unit, currently unnamed, but likely a program not addressed through Renovation 1.

B5. STUDENT COMMONS – SCIENCE BUILDING ADDITION BACKFILL

After the completion of the Science Building Addition, the CLAS programs currently in the Student Commons Building will move into the new facility. The move affords CU Denver the opportunity to focus the programming of the Student Commons Building on student support services. As CU Denver transitions to a more residential university that requires a vibrant, engaging, and supportive 24/7 environment, the student support/service units that will create and sustain this environment will need to expand exponentially.

After CLAS vacates the roughly 36,000 ASF of space in Student Commons, several student service units may move into the freed space, requiring renovations. The university will need to determine the most appropriate student service units to relocate into the new space. A few options might include Veteran Student Services, Student Life, Community Standards and Wellness, and the Nexus Open Computer. After the identified student service units relocate, the vacated Tivoli space could accommodate additional student organizations, associations and clubs.

B6. TIVOLI STUDENT UNION BUILDING II

If CU Denver is able to fund the Science Building Addition and the subsequent moves and renovations in Student Commons, it would likely free up space in the Tivoli for re-assignment and renovation.

Some potential CU Denver uses may include informal and inviting gathering/social lounge space, small group and individual study rooms, and a quiet study lounge. Providing these student spaces will transform the Tivoli Student Union into a central gathering place for CU Denver students, whether those students are looking for a meal, social gathering, group study or quiet study.

Any proposed renovations of CU Denver vacated space in the Tivoli Student Union should conform to the Tivoli Space Allocation Guidelines and the multi-institutional Re-programming Study completed in 2016.



FUTURE DEVELOPMENT OPPORTUNITIES

CU Denver is a vibrant, growing urban university within downtown Denver—the most dynamic and rapidly developing city in Colorado—where developable land is scarce, and land prices are skyrocketing. A goal of this study is to establish a realistic capital development plan that will enable the university to meet its ten-year needs, without precluding development opportunities beyond the horizon of this plan.

If the university builds all the proposed projects within the ten-year planning horizon, five development sites will remain within the CU Denver Neighborhood on Auraria. The five sites are all within the CMP-EI zoning that allows a 150-foot height.

D1.& D2. RECREATION FIELD

Student expectations for recreation will increase as CU Denver transitions to a more residential community. The university, to meet immediate demands, should retain its existing outdoor multi-use field near the Wellness Center and Student Commons Buildings. However, as discussed previously, the limited development opportunities in the CU Denver Neighborhood on Auraria may require the future development of the field (Sites D1 and D2) to meet academic, research or student life facility needs. As a result, the university

should undertake only minor and transportable improvements, such as lighting and signage.

Furthermore, once the university achieves on-campus student residential targets, the need for additional types of outdoor recreation and club sports facilities will likely require the development of an off-campus location accessible by light rail.

The maximum development potential for Site D1 and D2 is 277,000 GSF and 233,000 GSF respectively. Any new facility development on Sites D1 and D2 should incorporate a mid-block pedestrian passageway that links the two anchors of student-focused services: the Student Commons Building and the Tivoli Student Union. The university should also maintain the viewshed from Student Commons Building AB1-1C04 to the historic tower of the Tivoli Student Union.

D3. NORTH CLASSROOM PLAZA

Located between North Classroom Building and Speer Boulevard, the narrow D3 development site occupies a very prominent position. Appropriate uses for this site could be highly visible active-learning classrooms, interdisciplinary maker-spaces, and faculty and academic support offices. However, the lack of direct service vehicle access to the site discourages the programming of academic and research laboratories, dining, and other uses with heavy service needs. A new building on

this site could be a standalone structure or an addition to the North Classroom Building.

The maximum development potential for Site D3 is approximately 263,000 GSF. Any building on this site will dramatically change the CU Denver presence on Speer Boulevard.

D4. OAK/NUTMEG PARKING LOTS

Site D4, located on the Oak and Nutmeg surface parking lots, is an opportunity for continued development of interdisciplinary learning and research environments for engineering, applied and physical sciences, and other programs. The maximum development potential of Site D4 is 241,000 GSF.

D5. MAPLE PARKING LOT

Site D5 occupies the Maple surface parking lot and has a maximum development potential of 320,000 GSF. Any structure on this site would serve as a highly visible CU Denver gateway for motorists, pedestrians and cyclists traveling north on Speer Boulevard or west on Colfax Avenue.

These five land bank sites within the CU Denver Neighborhood on Auraria Campus have a combined maximum development potential of over 1.3 million GSF under current zoning.



LEGEND

- CU DENVER EXISTING, PHASE I AND PHASE II FACILITIES
- CU DENVER BUILDOUT CAPACITY
- AURARIA SHARED CAMPUS
- MSU DENVER
- OPEN SPACE
- CU DENVER NEIGHBORHOOD
- CCD

Figure 6-13: Future Construction Opportunities

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IMPLEMENTATION 7





7.1 PROJECT COSTS

To develop an implementation plan, the project team prepared an order-of-magnitude cost estimate for each recommended capital project. The 2017 Facilities Master Plan cost estimates were prepared with the guidance of the university's Director of Facilities Projects to ensure each was consistent with the university's project estimating criteria and methodology.

The Project Implementation Phasing and Costs table (Figure 7-1) lists the estimated costs for each specific project and each project bundle. When aggregated by phase, this plan estimates the following five-year sums:

- PHASE I (0-5 Years): \$379,995,571
- PHASE II (6-10 Years): \$470,207,683

These numbers do not include costs related to services provided by AHEC or the City of Denver including roadway improvements and utility infrastructure.

COST METHODOLOGY

The method used to estimate project costs includes the following five broad categories:

1. **CONSTRUCTION COSTS:** Costs related to the actual construction of the building – interior and exterior. Estimated construction costs use per square foot costs of similar recently completed projects.
2. **SOFT COSTS:** Costs related to design and other professional fees, and permitting costs. Soft costs are typically equivalent to 30 percent of construction costs.
3. **SITE INFRASTRUCTURE:** Costs related to preparing the site for construction, as well as connecting the building utilities to the surrounding utility infrastructure. Site Infrastructure costs are typically equivalent to five percent of construction costs.
4. **CONTINGENCY:** All projects undertaken by CU Denver include contingency at five percent for new construction and ten percent for renovation projects. The **TOTAL COST** for each project resulted from a contingency applied to the total costs of categories 1-3 above; construction costs, soft costs, and site infrastructure.
5. **INFLATION:** Total Project Costs for each project was inflated to the projected year of construction, using an estimated five percent per year rate of inflation.

DESCRIPTION	ESTIMATED GSF	ANTICIPATED PROJECT START YEAR	ESTIMATED COSTS ¹	
			PHASE I (YEARS 0-5)	PHASE II (YEARS 6-10)
New Facilities				
A1 Engineering and Physical Sciences Building Renovation	98,368	2018-2019	\$66,621,963	
A2 Business School Phase II	12,531	2019-2020	\$9,166,314	
A3 First-Year Residence Hall with Dining	146,064	2020-2021	\$76,593,908	
A4 Nexus Building Mixed Use Residential ²	183,032	2020-2021	\$105,351,611	
A5 Instructional Lab Wing	37,600	2020-2021	\$24,433,661	
A6 Engineering & Physical Sciences Building Phase II	136,463	2023-2024		\$115,126,953
A7 CU Denver Building Annex Tower	121,000	2024-2025		\$142,528,841
A8 Science Building Addition	148,436	2026-2027		\$142,159,891
Total New Facilities			\$282,167,457	\$399,815,686
Renovations of Existing Spaces				
B1 Tivoli Student Union Building ³	15,184	2019-2020	\$3,728,915	
B2 CU Denver Building Renovation	131,249	2020-2021	\$51,376,935	
B3 Lawrence Street Center – EPS Building Backfill (Reno I)	12,220	2024-2025		\$5,851,652
B4 Lawrence Street Center – Science Building Addition Backfill (Reno II)	11,986	2027-2028		\$5,739,446
B5 Student Commons – Science Building Addition Backfill	36,126	2027-2028		\$15,136,921
B6 Tivoli Student Union Building II ³	8,000	2027-2028		\$2,499,008
Total Renovations of Existing Spaces			\$55,105,850	\$29,227,028
Other				
C1 Additional Facility Operating Expenses ⁴			\$32,104,397	\$36,614,970
C2 Facility Deferred Maintenance (Lawrence Street Center and CU Denver Building)			\$6,067,867	
C3 Campus Village Apartments Deferred Maintenance			\$4,550,000	\$4,550,000
Total Other			\$42,722,264	\$41,164,970
Grand Total			\$379,995,571	\$470,207,683

1 Project costs are escalated to the anticipated project start year.

2 Does not include any costs related to land acquisition.

3 Does not include lease costs.

4 Calculated at a rate of \$21/GSF of new construction.

Figure 7-1: Project Implementation Phasing and Costs (June 2017)

7.2 RECOMMENDATIONS

In addition to the projects proposed in this master plan, the following recommendations will support the plan’s overall vision and goals.

WORKPLACE GUIDELINES

NATIONAL PERSPECTIVE

National and international trends have seen reductions in office space per person. The Global Association for Corporate Real Estate has reported a 25 percent reduction in office space from 2010 to 2013. A workspace allocation and space benchmark study published by the General Services Administration (GSA) of the federal government noted that organizations were allocating an average of 190 Usable Square Feet (USF) per workplace, whereas a new GSA headquarters facility was averaging approximately 80 USF. Implementation of alternative workplace strategies, such as telecommuting and office “hoteling” achieve some of these reductions.

In the traditional office approach, private offices include dedicated meeting or visitor space and material storage. Alternatively, an activity based workplace approach aggregates meeting and storage need together in a shared fashion with a variety of space types, such as conference rooms, huddle rooms, and informal gathering space with amenities such as soft furniture and appliances. Consequently,

the transition from a fully-enclosed private office to a more open and shared work space result in reductions in total space per employee. Furthermore, providing more shared spaces for formal and informal interaction encourages collaboration and communication.

CU DENVER

Office space represents the largest share of the CU Denver space inventory. The average office is 133 ASF, or ten percent greater than a typical academic office of 120 ASF. Where the university has purchased and occupied older, corporate office buildings or residential structures, office sizes are larger than typical. Whereas new buildings such as Student Commons average 131 ASF per office, older spaces such as those in the Ninth Street Historic Park average 143 ASF, the CU Denver Building averages 156 ASF, and Lawrence Street Center averages 141 ASF per office. Lawrence Street Center also has a great deal of internal circulation space which contributes to this inefficiency.

Two sets of workplace criteria when used in calculating future office space needs—the 2007 Space Policy for CU Denver and the more efficient guidelines recently adopted at CU Anschutz. The projected office needs assume that existing office configurations will remain in place.

However, if the university adopted workplace guidelines similar to CU Anschutz and applied them to new construction and renovated all old workspaces, CU Denver's total office space 10-year need could be reduced by over 52,000 ASF. The CU Anschutz workplace criteria were applied to all master plan recommended new construction and renovation projects, while all existing workspace calculations retained their current size and type.

RECOMMENDATION

The office need of 29,823 ASF (Figure 5-13, Page 65) for CU Denver over the 10-year planning period is based on the following:

- CU Denver adopts new workplace guidelines similar to those of CU Anschutz;
- CU Denver applies the new guidelines to all of the projects recommended in this master plan – new construction and renovations; and,
- CU Denver retrofits all remaining office space (that which is not part of one of the Facilities Master Plan renovation projects) consistent with the new guidelines.

If CU Denver continues to follow its current practices of assigning office space, the 10-year office need will increase to approximately 82,000 ASF, which is largely unattainable

given the past and current scarcity of capital construction funding.

CU Denver should conduct a follow-up study to determine the efficacy of adopting new workplace guidelines. The study could draw on the experience of CU Anschutz while achieving campus-specific guidelines.

The renovated 13th floor of the Lawrence Street Center for the Office of Information Technology and the newly constructed office areas of the Student Commons Building could serve as excellent case studies for this follow-up effort.

MONDAY THROUGH FRIDAY CLASSROOM SCHEDULING

Classroom space will be critical to accommodating enrollment growth. As previously noted, the average weekly room hours (WRH) for all classrooms is 31, which is above the CDHE guideline of 30 WRH. However, a national survey of best practices recommends a target of 35 WRH.

Roughly thirty percent of all weekly student credit hour production occurs after 3 p.m., and most classes are scheduled Monday through Thursday. This pattern leaves approximately 90 percent of classrooms empty on Fridays (Figure 7-2).

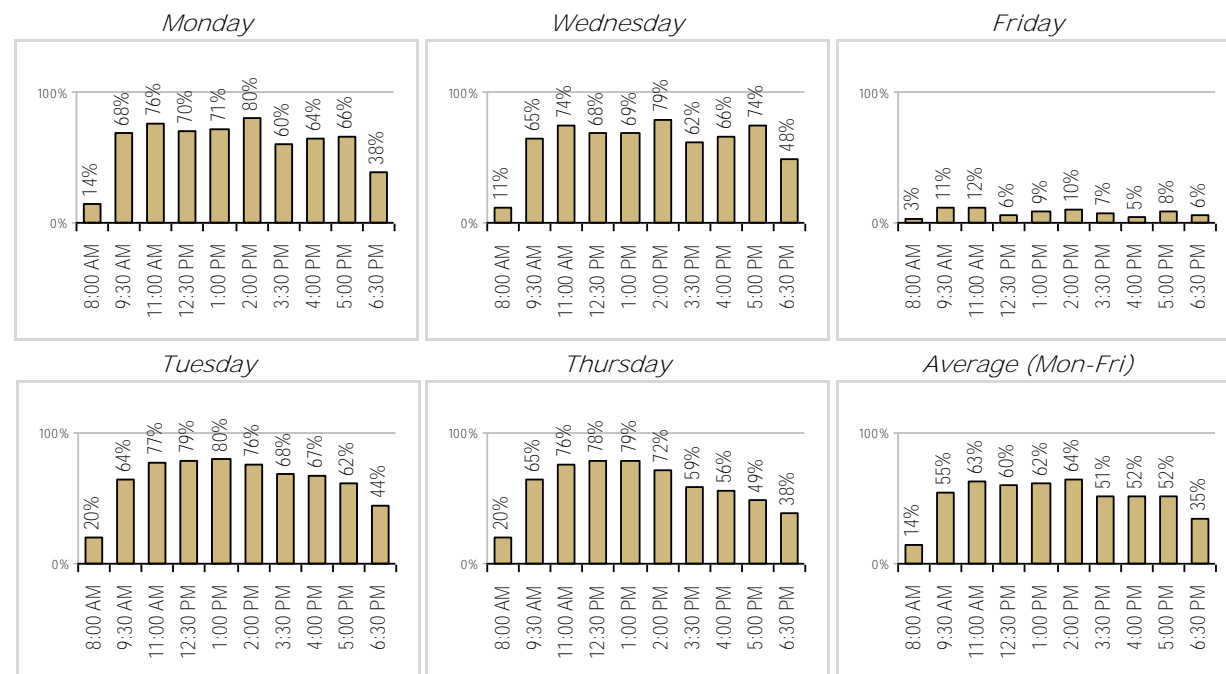
RECOMMENDATION

The university should study the feasibility and effectiveness of Monday through Friday scheduling practices to raise weekly room hour use and optimize the use of the instructional space assets.

Since the campus is mostly vacant Friday, Saturday and Sunday, a five-day schedule would also benefit student life by creating a more vibrant and active campus all week.

Lastly, increased student engagement with the campus correlates with improved student retention and success.

Percent of Classrooms In Use



Total classrooms = 117

Figure 7-2: Classroom Use by Day and Time (Fall 2015)

DEPARTMENT VS. CENTRAL CLASSROOM SCHEDULING

The university uses approximately one-third of its classrooms for less than 30 WRH (ranging in value from 0 to 29.6 WRH). Over half of these rooms are departmentally-controlled. As Figure 7-3 demonstrates, the cluster of dark lines to the left represents a disproportionate number of departmental classrooms.

On the whole, utilization of centrally-scheduled classrooms is higher than departmentally-scheduled classrooms. There are, however, examples where the decentralized scheduling model works very well. Some of CU Denver’s highest classroom utilization rates are in the Business School, where the school is granted first rights to schedule classrooms before they are turned over for centralized scheduling.

RECOMMENDATION

The university should examine various models of classroom scheduling—centralized, decentralized and hybrid—to determine which model would be most effective for both Proprietary and General Assignment Priority Scheduled classrooms. Certain factors should be considered, including the classroom location and whether other academic programs could

potentially benefit from the space. For example, many underperforming classrooms are in the Lawrence Street Center, CU Denver Building and King Center—buildings that may be less accessible to certain schools or colleges.

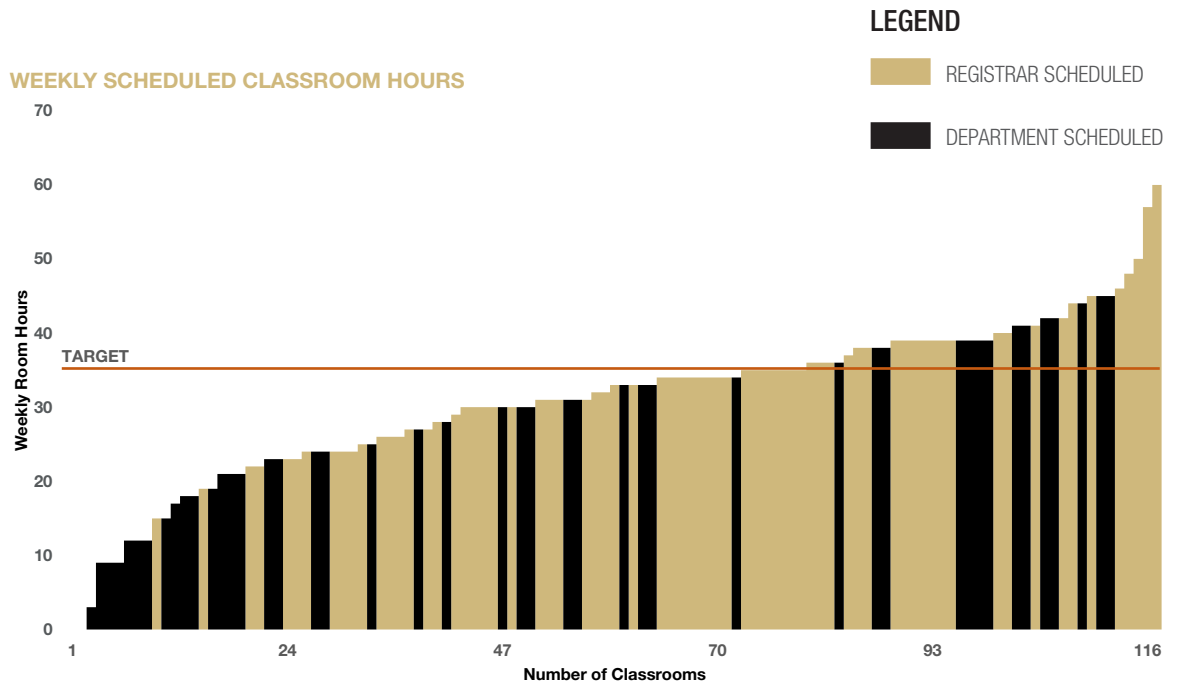


Figure 7-3: Utilization of Registrar and Departmentally Scheduled Classrooms

CLASSROOM MIX

As described in the Student Station Occupancy analysis (Section 5.0 Analysis, page 61), some classrooms are only half occupied when scheduled. While this offers potential capacity for enrollment growth, this is also a lost opportunity.

RECOMMENDATION

CU Denver should examine how classroom sizes relate to individual course enrollments to improve occupancy. Improvements can take numerous forms, some of which include:

- Review of the course scheduling process to see if there are ways to align course size and room capacities better;
- Consider re-purposing classroom or other space to create classrooms with capacities that better fit common course enrollment observed at CU Denver; and,
- Consider moving to course enrollments that better fit the current stock of classrooms available to CU Denver.

SPACE MANAGEMENT INVENTORY SYSTEM

CU Denver currently relies on space management information and building floor plans from two sources, AHEC and the university. In the case of the former, the university has no control over the structure or updating of data, and in the latter, the system is designed for purposes other than space planning and management. The current situation poses a challenge for the Office of Institutional Planning when responding to requests for information from architects and other consultants, CU Denver staff and faculty, and the CU System or governmental agencies. It also hampers efforts to effectively manage the space assets of the university and provide conceptual design services.

RECOMMENDATION

CU Denver should quickly implement the recently purchased Computer-Aided Facilities Management (CAFM) software to improve space tracking and streamline information requests. It will also provide a means to track progress on goals that center around the addition of specific types of space, such as student activity space.

SPACE STANDARDS

The implementation of the CAFM system will provide CU Denver the opportunity to adopt space standards simultaneously. Space standards assign a square footage amount or range to various space types that are commonly seen in a university setting- office space, classrooms, conference space, teaching laboratories, etc. They ensure that space is assigned equitably across the university and that space is being used efficiently.

They also provide guidance to planners and architects when establishing the overall space need of a project or designing the project.

RECOMMENDATION

CU Denver should work to develop and adopt space standards that align with the strategic priorities of the university.

OPEN SPACE STUDIES

Of the many open spaces discussed in this plan, two have the potential to significantly enhance the campus experience for CU Denver students, staff and faculty and merit further study. The open spaces are the Creekfront Park area between the CU Denver Building and Cherry Creek (identified on page 99 as area #1), and the lawn in front of the North Classroom Building along Speer Boulevard (one portion of project #6 on page 99).

RECOMMENDATION

CU Denver should conduct a study of both open spaces to ascertain how they might be enhanced or reprogrammed to improve the user experience and meet other university goals. In the case of Creekfront Park, this must be in collaboration with the City of Denver Parks and Recreation Department.

SPEER BOULEVARD CROSSING

As mentioned in Section 6.1 (page 89) at-grade roadway improvements for the Speer Boulevard/Larimer Street intersection will be considered for funding by Denver voters in the fall of 2017 as part of the General Obligation Bond. These roadway improvements, if approved, represent an opportunity for CU Denver because of the linkage and physical proximity between this critical intersection and a number of other initiatives mentioned in this plan. These include the development of the Nexus site, re-visioning of the open spaces behind the CU Denver Building and between the North Classroom Building and Speer Boulevard, and re-development of the CU Denver Building annex site.

RECOMMENDATION

CU Denver should make sure it has representation on the project committee if/when the roadway improvements are funded. CU Denver should also consider assembling some of its key civic partners before the roadway improvements commence to discuss how these efforts could be coordinated.



SUPPORT FUNCTIONS – SPACE NEEDS

As part of the Facilities Master Plan process, interviews were conducted with representatives of departments which provide support to the overall university in the areas of facilities operations and maintenance, information technology and environmental health and safety. The interviews revealed the following space needs:

- The **Office of Information Technology (OIT) data center** that currently serves CU Denver is located in the North Classroom Building on its second floor. The data center is land-locked – there is no opportunity to expand it into surrounding spaces. Based on discussions with the OIT, a new data center of 2,000 square feet, and projected to cost approximately \$15 million, has been identified as a future need. This need currently has neither a projected start date nor specific location, but would most likely need to be included as part of a larger project.
- The **Facilities Management** Department at CU Denver is responsible for performing building operations and maintenance of the four properties owned by CU Denver: the Business School, the CU Denver Building, the Lawrence Street Center and Student Commons. The Wellness Center will open in early 2018, adding a fifth property.

Currently, the facilities group performs these duties with a minimum of dedicated space for personnel and storage and no large industrial shop spaces. The department often finds it necessary to bring personnel back and forth from CU Anschutz and/or utilize shop space at CU Anschutz for maintenance of CU Denver Campus buildings. The interviews with Facilities Management revealed that on or before completion of the next CU Denver-owned facility (after the Wellness Center), the department will require approximately 20,000 GSF of space to adequately support all of the CU Denver assets. This space should be proximate to the CU Denver owned properties to minimize distances that must be traveled.

- **Environmental Health and Safety (EHS)** presently occupies one office in the North Classroom Building and has use of several storage lockers behind the AHEC Facilities Services Building near the corner of 7th Street and Lawrence Way. As CU Denver research and instructional laboratory space increases, the EH&S staff will need additional office space to accommodate a total of 3 additional FTE (360 ASF), a dedicated hazardous waste room (500 ASF) and a Biosafety room for waste and autoclave activities (400 ASF). The total square footage need for EH&S is 1,260 ASF.

RECOMMENDATION

CU Denver should continue to explore opportunities to provide space to these departments, either as part of a project that has already been contemplated, as part of a new project, or by acquiring and renovating existing space.

ADVANCEMENT OUTREACH

The current trajectory of state funding for capital projects suggests that some or all of the projects proposed in this master plan will require some donor funding to be realized. As such, the CU Denver Office of Advancement (Advancement) will be a critical partner in the execution of this master plan.

Advancement creates a unique fundraising plan and recognition recommendations for each capital project as the site, occupants, goals and vision of each project are different. They then work in partnership with the CU Foundation to create a gift agreement for each gift that is pledged on a capital project. If the gift involves the naming of a building, the agreement must follow the Board of Regents policy on building naming.

The Facilities Master Plan itself can be a very useful tool to inform a donor about the aspirations of the university and how that donor can play a crucial role in making them a reality.

RECOMMENDATION

CU Denver should review and amend as needed its capital project design process to ensure that the Advancement is involved as early as possible. Doing so allows Advancement to be part of discussions about site, vision, goals and other elements of a project that make it compelling for a potential donor. Going forward, program plans that are written for capital projects should include

a recognition plan, which among other things could highlight opportunities for donor involvement and identify areas of the building for donor recognition.

CAMPUS SUSTAINABILITY MASTER PLAN

Issues and discussions relating to sustainability were woven through the master planning process but were not addressed in a comprehensive and holistic manner.

RECOMMENDATION

The university should conduct a separate, extended and comprehensive effort to examine options, set goals and develop holistic campus strategies. A future sustainability master plan could address the following topics:

- The risks and potential impacts of climate change on the university;
- Water issues relating both to use within buildings and to landscape irrigation, particularly in Colorado's semi-arid climate;
- An overall storm water retention and treatment strategy;
- Strategies and opportunities to incorporate sources of renewable energy. Potential benchmarks for incrementally reducing energy use could be evaluated for adoption at CU Denver;

- Expansion of the solid waste reduction and recycling program; and,
- Encouraging the use of a broad range of transportation modes including light rail.

CU Denver's core mission includes research and teaching, so the arenas of innovation and public education around sustainability in an urban context are a natural fit for CU Denver.

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ACKNOWLEDGEMENTS 8





8.1 APPRECIATION

The project team and the CU Denver Office of Institutional Planning team would like to thank the many people within and outside the university who devoted time and effort to work with us in developing this plan. Their efforts will enhance the university for years to come.

Special thanks to a core group of staff from the Office of Institutional Planning, who worked directly with the project team to coordinate all meetings and facilitate development of the Facilities Master Plan: Michael Del Giudice, Chief Planning Officer and Director; Cary Weatherford, Associate Director; and Erik Balsley, Senior Institutional Planner.

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UNIVERSITY OF COLORADO DENVER 2017 FACILITIES MASTER PLAN

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