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...is a campus-wide, year-long process that will inform our future facilities and infrastructure needs and how we plan for an evolving future of education and research. With our goal to create alignment around our infrastructure investments, SFV will culminate in the development of a digital facilities planning tool.

The tool will be designed to help campus leadership make the most meaningful and impactful infrastructure investment decisions in support of the campus mission and priorities emanating from Academic Futures, our individual discussions with all the colleges and major units and other campus-wide planning efforts.
EXECUTIVE SUMMARY

The initial Deep Dive phase culminated in the creation of six Scenario Planning teams: Future Demographics, Portfolio of Pedagogy, Research and Innovation Ecosystem, Federated Flexibility, Resilient Asset Management, and Integrative Facilities. Each team included a broad interdisciplinary mix of “visionaries” from across campus. Their work provided the structure for the campus space prediction methodology used in development of the planning tool. Each Scenario Planning team participated in three workshops that examined the ideal mix of uses for potential future campus environments. These workshops were structured around four key questions that guided the discovery process:

- What infrastructure do we need to achieve our vision?
- How do we apply this to CU Boulder?
- How will it be applied in the planning tool?
- What are our mixed-use building templates?

DELIVERABLES

While each team focused on a distinct topic, their proposed strategies and goals all aligned with the Chancellor’s Strategic Imperatives for the Boulder Campus and converged on a vision of human-centered campus planning. The result of the Scenario Planning phase yielded three deliverable content areas:

KEY FINDINGS

Key findings across the Scenario Planning teams articulated the spatial components and strategies necessary to achieve university strategic goals. These will help guide development of the planning tool and informed future capital planning discussions and decisions.

BUILDING TEMPLATES

The Scenario Planning phase culminated in the development of building templates for 12 unique building typologies across CU Boulder’s campus. Each building template applies a mixed-use approach to campus programming to facilitate an enhanced experience for all students, faculty and staff.

INPUTS FOR PLANNING TOOL

The Scenario Planning phase identified and defined key components that drove the facilities planning tool, and created the campus makeup on the building, neighborhood, campus and university scale.
# Scenario Planning at a Glance

<table>
<thead>
<tr>
<th>Category</th>
<th>Description</th>
<th>Example</th>
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<tbody>
<tr>
<td><strong>Growth</strong></td>
<td><strong>Future Demographics</strong></td>
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<td></td>
<td>What infrastructure do we need to achieve our vision?</td>
<td>Spaces that support our growing diverse population</td>
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<tr>
<td><strong>Portfolio of Pedagogy</strong></td>
<td>What infrastructure do we need to achieve our vision?</td>
<td>Spaces that support our students educational journey</td>
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<tr>
<td><strong>Research &amp; Innovation Ecosystem</strong></td>
<td>What infrastructure do we need to achieve our vision?</td>
<td>Spaces that enable a flourishing research enterprise</td>
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<td><strong>Federated Flexibility</strong></td>
<td>What infrastructure do we need to achieve our vision?</td>
<td>Services that enable an efficient campus</td>
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<td><strong>Application</strong></td>
<td><strong>Integrative Facilities</strong></td>
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<td>What are our building templates?</td>
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<tr>
<td><strong>Resilient Asset Management</strong></td>
<td>What we need to achieve our vision</td>
<td>Infrastructure that protects our people and places</td>
</tr>
<tr>
<td><strong>Strategic Facilities Visioning</strong></td>
<td>Scenario Planning Phase Summary</td>
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</table>
SCENARIO PLANNING TEAMS & KEY FINDINGS:

The following findings are a synthesized report of what we heard in the Scenario Planning sessions and recommendations.

FUTURE DEMOGRAPHICS

The mission of the Future Demographics team was to develop and test scenarios around different student enrollment breakdowns, how to support a diverse range of students, and the associated impacts on space and facilities requirements across campus.

This included not only testing the impact of shifting demographics on space and facility requirements, but also predicting faculty and staff requirements. These scenarios were used to predict the amounts and types of space for learning and associated functions of research, auxiliary, office and support space requirements over time. They also resulted in the ratio of student support space types per building template.

Critical to the process were enrollment and human resources data, and the development of campus wide benchmarks for learning, research, auxiliary, office and support space. Enrollment and demographics data were used to inform how much learning, research, office auxiliary and support space the university needs over time.

KEY FINDINGS INCLUDE

OPEN, COLLABORATIVE CULTURE

Shared, non-scheduled study and lounge space for socializing, coworking, and studying is a top demand in all mixed-use building templates and a key component to creating a culture that supports diverse demographic groups. Open study, communal, and social spaces should be woven across all facilities, taking a foothold in each mixed-use building template.

DEDICATED SPACE

To foster community and support within student groups, spaces identified for a future scenario of shifting demographics are dedicated to specific populations in addition to spaces open to all. Specifically, graduate students, marginalized students and first-generation students require dedicated spaces to create community and receive the right type of specialized support for their particular needs.

SPACE TYPES IN DEMAND

In-demand space types include academic support, bookable study, commuter support, dedicated student home bases, open lounge, café and social spaces, open study and coworking spaces, spaces for student organizations and wellbeing.

SUPPORT SERVICES

Students desire a portfolio of spaces that allow them to maneuver seamlessly between an integrated campus experience to dedicated and specialized support spaces. Deliberate clustering of shared and dedicated support spaces is paramount. Advising and support should be designed to be inclusive for all students, including dedicated service for unique populations with an option to schedule appointments or receive drop-in concierge services.
SCENARIO PLANNING
TEAMS & KEY FINDINGS:

PORTFOLIO OF PEDAGOGY

The mission of the Portfolio of Pedagogy team was to develop and test scenarios that investigated the relationship between different learning modalities and their impacts on space and facilities requirements across campus.

Differentiation between undergraduate, masters, and PhD students informed the overall learning profile of space types required. Critical to this analysis was balancing the provision of a variety of digital and physical learning modalities with increases in efficiency and utilization of space and resources. Volume and throughput of the student population was analyzed in relationship to total affordability of space, quality of learning delivery, faculty training and support.

We used the inventory of campus learning spaces, and efficiency and utilization benchmarks to create a new profile of campus learning spaces that align with the new cross section of learning modalities that were desired. As a result, the planning tool will model changes in learning modalities that drive the quality, suitability, type, technology of learning spaces and faculty support services and environments.

KEY FINDINGS INCLUDE

RELATIONSHIPS DRIVE THE LEARNING EXPERIENCE

The value proposition of providing diverse, in-person, and on-campus experiences drive new learning environments. Learning spaces should be flexible, active, and immersive, and non-scheduled study space will grow to support new pedagogies. The most in demand spaces across the mixed-use building templates are active classrooms, immersive environments and seminar rooms (scheduled learning); open lounge, study, café, social and event spaces (non-scheduled learning) and flexible workplace environments (office).

MULTI-MODAL LEARNING

The undergraduate degree is focused around exposure, requiring an ease of access to a variety of high-quality, hands-on educational experiences including research opportunity. Aligning class sections with the appropriate spaces in terms of quality, suitability and technology will enable the university’s multi-modal approach to learning at a variety of scales.

DIVERSE ACADEMIC RESIDENTIAL EXPERIENCES

A wide variety of learning environments should be grouped and incorporated into housing to create unique learning ecosystems, forming the basis of residential academic experiences across campus.

FACULTY SUPPORT

Faculty need access and time in content creation studios, practice space, digital recording studios, and VR/simulators to build meaningful course content and continue their professional growth.
SCENARIO PLANNING
TEAMS & KEY FINDINGS:

RESEARCH & INNOVATION ECOSYSTEM

The mission of the Research and Innovation Ecosystem team was to develop and test scenarios that investigated the relationship between the diversity and growth of existing and new research areas and their impacts on space and facilities requirements across campus. The team investigated the intersections of basic and applied research, new partnerships, entrepreneurialism and the incorporation of learning in research environments.

Understanding and developing requirements in these areas drove new space types and adjacencies for a variety of research facilities, the extent of shared core research facilities and equipment, the sharing of space with external organizations, and the provision of embedded learning. As a result, the planning tool will model changes in research growth and diversity that drive the ratio of space types, equipment and space allocations by research intensities.

KEY FINDINGS INCLUDE

RESEARCH NEIGHBORHOODS
Curating meaningful interactions between people and sharing of technology and infrastructure dictates the future design of research facilities; this will be achieved through interweaving research labs, teaching labs, shared core facilities, immersive environments, coworking and social spaces. General research facilities should include offices, collaborative workplaces, learning environments, shared equipment, and research support concierge. Highly specialized lab environments are found in single locations around campus and include secure/classified space, special collections, and unique core facilities. Partnership facilities focus on innovation and entrepreneurship, bringing in public and private partnerships for a multi-layered relationship from collaborative projects, mentorship, and student employment.

COLOCATION & SHARED SPACES
Developing co-working spaces and colocation opportunities will promote interdisciplinary collaboration, foster academic-industry exchange, attract research talent and enrich student research experiences. Leveraging opportunities to share spaces, resources, services and technologies will not only improve efficiency and avoid costs but promote collaborative research culture; the first step in achieving this is undertaking an inventory of facilities and equipment.

CORE FACILITY CLUSTERS
Core facilities should be clustered around common themes and include high performance research environments and specialized support services. The use and function of technology drive placement across the university, where everyday use, lower risk assets are in building neighborhood scales, and storage, high-investment, and invaluable assets centralized in single or campus-based locations.

THEMATIC CLUSTERS
Thematic approaches can be applied to all research building templates as a strategy to integrate disciplines and programs around a common purpose and vertically integrate the research and learning missions. Examples of thematic approaches include Environment, Air & Water; Improving the Human Condition; Wellbeing; Life Sciences; Arts; Aerospace; and Surfaces & Materials.
SCENARIO PLANNING TEAMS & KEY FINDINGS:

**FEDERATED FLEXIBILITY**

The mission of the Federated Flexibility team was to develop and test various scenarios regarding the degree to which facilities and services could be shared.

Driven by academic units, student life and administrative functions, and with the goal to drive interdisciplinary collaboration and improve operational efficiencies, the team investigated a variety of scenarios in a hub and node model. Conceived as a constellation of university-wide facilities, the model tested the creation of hubs as home bases for academic units and nodes as thematic clusters of generic and specialized spaces, with integrated administrative services collocated in the ways that best serve students, faculty and staff.

We used location data (where people are) and space typology information to inform which resources, facilities and services could be shared and collocated over time. As a result, the planning tool will model changes to the accessibility of services and environments by aggregating and analyzing the services available within a building or neighborhood.

**KEY FINDINGS INCLUDE**

**DISTRIBUTED SUPPORT SERVICES**

Services that support students, faculty and staff should be distributed across campus in order to improve access. At the building scale, concierge services should provide support for the most in-demand needs, while more specialized services are clustered at the neighborhood scale. Basic concierge services, flexible workplaces and café spaces should be located within a 5-minute travel; more specialized, shared services should be within a 15-minute travel.

**OPTIMIZE FACILITIES THROUGH INCREASED UTILIZATION**

Leveraging a prioritized central scheduling system, coupled with providing flexible workplace environments, improved access to facilities and strengthening connectivity between campus locations will drive improved and consistent utilization.

**SUPPORTING A MOBILE WORKFORCE**

Creating easy, decentralized access to flexible workplace environments is desired across campus. The campus should provide hoteling and coworking spaces and a variety of amenities to flexibly align with the workstyles of diverse users.

**ACCESSIBLE CONCIERGE**

Concierge support should be found in each building to provide high level support to the most in-demand services for that building’s population. IT walk-in, safety, and communications support should be found in each building either via a concierge or departmental representative.
SCENARIO PLANNING
TEAMS & KEY FINDINGS:

INTEGRATIVE FACILITIES

The mission of the Integrative Facilities team was to develop and test scenarios that investigated how different learning, research, service and auxiliary functions could be integrated to create various forms and themes for neighborhood development.

The team investigated the intersection of residential academic experiences, learning environments, community facilities, commercial partnerships and other mixed-use typologies to create sustainable and vibrant living, learning, working experiences. We used a series of programmatic variables to create a projected portfolio of mixed-use developments over time. The tool will model different mixed-use developments and drive the ratios of programmatic mixes by themes, residential, retail, cultural, community, and civic functions by campus geography.

KEY FINDINGS INCLUDE

MIXED-USE APPROACH TO DEVELOPMENT

The mixing of uses at the building, neighborhood and campus scales will enrich and diversify experiences, helping to grow, cultivate, and retain talent. Each campus location should be fully built out with mixed-use learning, research, residential facilities that facilitate health, wellbeing, community involvement, and collaboration.

CONNECT CAMPUSES

Physically connect campuses through mixed-use community zones and connected corridors that evoke an enjoyable and direct transit experience.

COMMUNITY ACCESS

Incorporate community mixed-use spaces along the campus periphery in easy to access spaces to improve campus accessibility. Increased access to facilities and event spaces, for students, faculty, staff and external partners are in high demand.

PRESCRIBE OUR HERITAGE

Continue to leverage the campus’ history, heritage, and design aesthetic to create unique outdoor environments that attract students and talent.
SCENARIO PLANNING

TEAMS & KEY FINDINGS:

RESILIENT ASSET MANAGEMENT

The mission of the Resilient Asset Management team was to identify and evaluate university buildings and systems based on a fully integrated asset management system as a driver of redevelopment strategies. In parallel, the team identified critical facilities and infrastructure as a means of both safeguarding the university mission and increasing its sustainability and resiliency. The team also developed strategies for assessing criticality, safety and preparedness, as well as potential community partnership agreements. Taking into account lifecycle costs, we used facility and infrastructure condition data, capital investment history, and resiliency and sustainability goals to inform how we invest in capital projects over time. One intent of the planning tool is to model a resiliency framework for capital investments.

KEY FINDINGS INCLUDE

ORGANIZING FRAMEWORK FOR RESILIENCY
A three-tiered organizing framework for resiliency includes building operations, facility typologies, and campus system initiatives. A hierarchy of resiliency investments should be adopted campus-wide and include a matrixed approach for the learning and research missions. An asset inventory that maps all critical assets across the university is a necessary next step in setting up a resiliency plan.

MISSION DEPENDENCY INDEX
The campus should create a mission dependency index that assesses criticality for all building functions. A uniform formula to identify high priority facilities can be constructed using a cross section of condition, criticality (protecting our assets) and safety (protecting our people). Assessment of criticality levels could be standardized across the portfolio, but resiliency measures are contingent on facility type.

SAFETY & PREPAREDNESS
Protecting people is the top factor for mission dependency within the resiliency formula, with a direct actionable recommendation for emergency response kits secured across campus and building locations.

RESPONSE TIMELINE & COMMUNICATIONS
Mission disruption occurs on a cascading basis, with severity and disruption occurring immediately in labs, hours for housing, and after days for academic & administrative facilities, requiring a tiered response for campus resiliency. Regardless of facility type, reliable communication systems are a leading factor in campus functionality; from daily WiFi use, to emergency response, to networked campus systems, communication platforms are a launch point for campus resiliency initiatives.
MIXED-USE BUILDING TEMPLATES

The Scenario Planning phase culminated in the development of building templates for 12 unique mixed-use building typologies across CU Boulder’s campus. Each building template applied a mixed-use approach to campus programming to facilitate an enhanced experience for all students, faculty, and staff. Mixed-use templates provide a framework of recommended space types and functions to be considered during project planning.

THEY WERE AS FOLLOWS

<table>
<thead>
<tr>
<th>ADMINISTRATIVE</th>
<th>ATHLETICS</th>
<th>CAMPUS LIFE</th>
<th>COMMUNITY</th>
</tr>
</thead>
<tbody>
<tr>
<td>Administrative department workplaces and home bases</td>
<td>Athletic, student-athlete support and external partnership facilities</td>
<td>Facilities that focus on dining, support, social, recreation and the overall aspect of being a student in the CU Boulder community</td>
<td>On and off campus locations that invite the community in for clinics, classes, workplace, health and other functions</td>
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<table>
<thead>
<tr>
<th>CORE FACILITY CLUSTER</th>
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<td>Core facilities are clustered around a common theme and include high performance research environments and specialized support services</td>
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<thead>
<tr>
<th>CULTURAL</th>
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<tbody>
<tr>
<td>Exhibit, event and auditorium spaces that span from performance to conference to community building</td>
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<tr>
<th>GENERAL RESEARCH</th>
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<tbody>
<tr>
<td>Generic, flexible labs, classrooms and workplaces that enable collaborative research and learning in research</td>
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<tr>
<th>HOUSING</th>
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<tbody>
<tr>
<td>On-campus housing solutions for students, faculty and staff</td>
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<table>
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<tr>
<th>LEARNING</th>
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<tbody>
<tr>
<td>Shared flexible active classrooms, class labs, immersive and practice spaces, social and study space and workplace environments</td>
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<th>PARTNERSHIP</th>
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<th>WELLBEING</th>
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<tr>
<td>Counseling, emotional support, and dedicated spaces to focus on personal, mental and physical wellbeing</td>
</tr>
</tbody>
</table>
NEXT STEPS: PLANNING TOOL DEVELOPMENT

The Scenario Planning teams also identified and defined key components that will drive the creation of a facilities planning tool, creating recommendations for space types and desired functions at the building, neighborhood and campus scales. Moving forward, the SFV emphasis will shift from Scenario Planning into Tool Development. The goal of the SFV planning tool is multifaceted. It will enable leadership to understand the true capacity and condition of our campus; forecast facilities needs based on population projections and the scenario planning process; and anticipate and respond to a variety of future facilities requests. In order to achieve these goals, immediate next steps include working with subject matter experts from across the university to assemble existing, public and readily available data into a centralized location.
The mission of the Future Demographics team was to develop and test scenarios around different student enrollment breakdowns and their impacts on space and facilities requirements across campus. This included not only testing the impact of shifting demographics, but also predicting faculty and staff requirements. These scenarios were used to predict the amounts and types of space for learning and associated functions of research, auxiliary, office and support space requirements over time. Critical to the process were enrollment and human resources data, and the development of campus wide benchmarks for learning, research, auxiliary, office and support space. We used enrollment and demographics data to inform how much learning, research, office auxiliary and support space we needed over time.

KEY FINDING
OPEN, COLLABORATIVE CULTURE

Shared, non-scheduled space for socializing, coworking, and studying is a top demand in all mixed-use building templates and a key component to creating a culture that supports diverse demographic groups.
FUTURE DEMOGRAPHICS TEAM

The tool will model student demographic projections that drive the ratio of space types and allocations per student demographic.

<table>
<thead>
<tr>
<th>NAME</th>
<th>POSITION</th>
<th>DEPARTMENT</th>
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</thead>
<tbody>
<tr>
<td>Armando Pares</td>
<td>Assistant Dean, Continuing Ed.</td>
<td>Continuing Ed</td>
</tr>
<tr>
<td>Brian Groves</td>
<td>Executive Director, Auxiliary Services</td>
<td>Fin. &amp; Bus. Strategy</td>
</tr>
<tr>
<td>Ceal Barry</td>
<td>Deputy Athletic Director / SWA</td>
<td>Athletics</td>
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<tr>
<td>Daryl Maeda</td>
<td>Associate Professor / Associate Dean, Student</td>
<td>Arts &amp; Sciences</td>
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<tr>
<td>Dave Kang</td>
<td>Vice Chancellor, Infrastructure &amp; Sustainability</td>
<td>Infra. &amp; Sustain.</td>
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<tr>
<td>David Brown</td>
<td>Divisional Dean, Social Sciences / Professor</td>
<td>Arts &amp; Sciences</td>
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<tr>
<td>Diana Salazar</td>
<td>Director, International Student &amp; Scholar Services</td>
<td>U/G Edu</td>
</tr>
<tr>
<td>Doreen Jokerst</td>
<td>CU Police Chief</td>
<td>Integrity, Safety &amp; Comp.</td>
</tr>
<tr>
<td>Elizabeth Meyer</td>
<td>Associate Dean, Students / Associate Professor</td>
<td>School of Education</td>
</tr>
<tr>
<td>Gretchen O’Connell</td>
<td>Senior Assistant Dean</td>
<td>Graduate School</td>
</tr>
<tr>
<td>Gwen Pomper</td>
<td>Assistant Vice Chancellor, Enroll. Management</td>
<td>Enroll. Management</td>
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<tr>
<td>Jack Draeb</td>
<td>U/G Student Representative / Major of Economics</td>
<td>Student Rep</td>
</tr>
<tr>
<td>Jimmie Baker</td>
<td>Senior Associate Director, Operations &amp; Services</td>
<td>Student Affairs</td>
</tr>
<tr>
<td>John Meister</td>
<td>Director, Disability Services</td>
<td>ODECE</td>
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<tr>
<td>Ken Anderson</td>
<td>Associate Dean / Professor</td>
<td>Engineering</td>
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<tr>
<td>Kevin MacLennan</td>
<td>Assistant Vice Chancellor, Enrollment Management</td>
<td>Enroll. Management</td>
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<tr>
<td>Kirsten Schuchman</td>
<td>Assistant Vice Chancellor, Public Policy &amp; Advocacy</td>
<td>Strat. Relations &amp; Comm</td>
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<tr>
<td>Lorraine Bayard de Volo</td>
<td>Chair, Women &amp; Gender Studies</td>
<td>Arts &amp; Sciences</td>
</tr>
<tr>
<td>Myron Gutmann</td>
<td>Director, Institute of Behavioral Science / Professor</td>
<td>Research Institutes</td>
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<tr>
<td>Ryan Chreist</td>
<td>Assistant Vice Chancellor / Executive Director</td>
<td>Advancement</td>
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<tr>
<td>Sandy Jones</td>
<td>Dean of Students</td>
<td>Student Affairs</td>
</tr>
<tr>
<td>Sarah Fahmy</td>
<td>Graduate Student Rep. / Masters Theater &amp; Performance Studies</td>
<td>Student Rep</td>
</tr>
<tr>
<td>Tom Goodhew</td>
<td>Assistant Director, Facilities Planning</td>
<td>Planning, Design &amp; Construction</td>
</tr>
<tr>
<td>Valerie Simons</td>
<td>Executive Director</td>
<td>OIEC</td>
</tr>
</tbody>
</table>
FUTURE DEMOGRAPHICS

FINDINGS

WORKSHOP 1

WHAT INFRASTRUCTURE DO WE NEED TO ACHIEVE OUR VISION?
Spaces that support our growing diverse population

CENTRALIZED SUPPORT: Co-locating student services with social and support spaces will provide a positive student-centered experience for an increasingly diverse demographic.
IDENTIFIABLE HOME BASE: Students desire an identifiable home where they can get the services they need.
RETURNING LEARNERS: Returning learners are going to become more mainstream and return to campus for shorter periods of time, and take advantage of a wider diversity of program offerings.
COMMUTER STUDENT HOME BASE: Provide touchdown spaces, storage, amenities, and a sense of home for commuter students.
HOUSING DIVERSITY: Offering diverse housing options is necessary to accommodate diverse student needs (e.g., accessibility, affordability, community, support services).
COMMUNITY NETWORK: Facilitate community, peer to peer networking and mentorship through lounges, cafés, and common areas.

WORKSHOP 2

HOW DO WE APPLY THIS TO THE CAMPUS SYSTEM?
Student groups and shared/ dedicated and time spent

SEAMLESS MANEUVERABILITY: Students desire a portfolio of spaces that allow them to maneuver seamlessly between an integrated campus experience to dedicated and specialized support spaces. Deliberate clustering of shared and dedicated support spaces is paramount.
Dedicated Space: Graduate students, followed by marginalized students and first generation students require dedicated spaces to create community and receive the right type of specialized support for their particular needs.
SUPPORT SERVICES: Advising and support should be designed to be inclusive for all students, including dedicated service for unique populations with an option to schedule appointments or receive drop-in concierge services.
TOOL DEVELOPMENT: By understanding time spent in various activities, we can allocate space ratios per demographic group in the tool.

WORKSHOP 3

HOW IT WILL BE APPLIED IN THE PLANNING TOOL?
Ratio of student support space types by building typology by demographic

COLLABORATIVE CULTURE: An open and collaborative culture will create a positive experience for future demographics, and is realized with open study, communal, and social spaces woven across all facilities.
DEDICATED SPACE: To foster community and support within student groups, a third of spaces are dedicated to specific populations while two thirds are open to all.
IN DEMAND SPACE TYPES: In demand space types include academic support, bookable study, commuter support, dedicated student home bases, open lounge, café and social spaces, open study and coworking spaces, spaces for student organizations and wellbeing.
OPEN, SOCIAL CAMPUS: Open study and open social spaces were the most in demand, taking a foothold in each building and spanning over a third of the designated area across each building template.
FUTURE DEMOGRAPHICS WORKSHOP 1

BASELINE INFORMATION
This information was shared at the outset of the workshop as a common base of knowledge for group activities.

ACTIVITIES
- **INDIVIDUAL & WITH A PARTNER**
  Based on CU Boulder’s six demographic categories (first generation, graduate, international, lower SES, traditional, transfer), participants answered “what kinds of environments would support the needs of our students?” first individually and then as groups.

- **SMALL GROUPS (4-5 PEOPLE)**
  Participants discussed the needs identified in the previous exercise and the mix of spaces needed to support the university’s vision for each demographic category, voting for their top choices on a vision board.

- **ALL**
  Each group received three dots and identified the top places on campus to initiate the discussed interventions.
## FUTURE DEMOGRAPHICS WORKSHOP 1 FINDINGS

### SUPPORTING A DIVERSE RANGE OF STUDENTS

Collocating student services with social and support spaces will provide a positive student-centered experience for an increasingly diverse demographic.

<table>
<thead>
<tr>
<th>Supporting Actions</th>
<th>Findings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Graduate students, international students and transfer students desire an identifiable home where they can get the services they need.</td>
<td>Returning learners are going to become more mainstream and return to campus for shorter periods of time, and take advantage of a wider diversity of program offerings.</td>
</tr>
<tr>
<td>Offering diverse but equitable housing options is necessary to accommodate diverse student needs (e.g., accessibility, affordability, community, support services).</td>
<td>Provide touchdown spaces, storage, amenities, and a sense of home for commuter students.</td>
</tr>
<tr>
<td>Facilitate community, peer to peer networking and mentorship through lounges, cafés, and common areas.</td>
<td></td>
</tr>
</tbody>
</table>

Graduate students, international students and transfer students desire an identifiable home where they can get the services they need.
BASELINE INFORMATION
This information was shared at the outset of the workshop as a common base of knowledge for group activities.

ACTIVITIES

Participants were split into small groups and each group focused on two distinct demographic categories throughout the workshop. Marginalized students and returning learners were added as categories.

VALIDATE SPACE TYPES
Teams examined a variety of proposed spaces by use to assess the fit of these environments for each assigned demographic.

SPACE TYPE SCALES
Groups assessed each space type based on two scales:
- Bookable vs. open
- Dedicated vs. shared

A WEEK IN THE LIFE
Teams then estimated the average time spent in each space type per week for the typical student.
**FUTURE DEMOGRAPHICS WORKSHOP 2 FINDINGS**

**SUPPORTING A DIVERSE RANGE OF STUDENTS**

Students desire a portfolio of spaces that allow them to maneuver seamlessly from an integrated holistic campus environment to dedicated and specialized community and support spaces.

- Cultural and social experiences on campus are anticipated to be a predominant reason students opt for brick and mortar vs. solely online learning.

- Student studying, networking, socializing, and student organization participation are not stand alone but an interconnected flow of activities.

- Advising and support should be designed to be inclusive for all students, including dedicated service for unique populations with option to schedule appointments or receive drop-in concierge services.

- Most demographic groups spend similar amounts of time in support and wellbeing spaces, with the difference being the amount of specialized service to that particular group.

- Graduate students, followed by marginalized students and first generation students require dedicated spaces to create community and receive the right type of specialized support for their particular needs.
**FUTURE DEMOGRAPHICS WORKSHOP 3**

**BASELINE INFORMATION**
This information was shared at the outset of the workshop as a common base of knowledge for group activities.

**ACTIVITIES**
- **SOLUTIONS MATCHING**
  Teams matched facility solutions to the applicable building templates. Each building template reflected a commonly understood and cohesive facilities need.

**FACILITY DNA**
- Teams were assigned three building templates and asked to assemble the “DNA” of their ideal buildings using a combination of the nine facility solutions.

**DEMOGRAPHIC ALIGNMENT**
- Groups identified the demographic focus for each facility solution.
FUTURE DEMOGRAPHICS WORKSHOP 3 FINDINGS

SUPPORTING A DIVERSE RANGE OF STUDENTS

An open and collaborative culture will create a positive experience for future demographics, and is realized with open study, communal, and social spaces woven across all facilities.

DEDICATED SPACE
To foster community and support within student groups, a third of spaces are dedicated to specific populations while two thirds are open to all.

IN DEMAND SPACE TYPES
In demand space types include academic support, bookable study, commuter support, dedicated student home bases, open lounge, café and social spaces, open study and coworking spaces, spaces for student organizations and wellbeing.

OPEN, SOCIAL CAMPUS
Open study and open social spaces are the most in demand, taking a foothold in each building and spanning over a third of the designated area across each building template.
The mission of the Portfolio of Pedagogy team was to develop and test scenarios that investigated the relationship between different learning modalities and their impacts on space and facilities requirements across campus.

Differentiation between undergraduate, masters, and PhD students informed the overall learning profile of space types required. Critical to this analysis was balancing the provision of a variety of digital and physical learning modalities with increases in efficiency and utilization of space and resources. Volume and throughput of the student population was analyzed in relationship to total affordability of space, quality of learning delivery, faculty training and support.

We used the inventory of campus learning spaces, and efficiency and utilization benchmarks to create a new profile of campus learning spaces that align with the new cross section of learning modalities that were desired.

KEY FINDING

RELATIONSHIPS DRIVE THE LEARNING EXPERIENCE

The value proposition of providing diverse, in-person, and on-campus experiences drive new learning environments. Learning spaces should be flexible, active, and immersive, and non-scheduled study space will grow to support new pedagogies.
PORTFOLIO OF PEDAGOGY TEAM

The tool will model changes in learning modalities that drive the quality, suitability, type, technology of learning spaces, and faculty support services and environments.

<table>
<thead>
<tr>
<th>NAME</th>
<th>POSITION</th>
<th>DEPARTMENT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Andy Martin</td>
<td>Faculty Advisor / Professor, Ecology &amp; Evolutionary Biology</td>
<td>Arts &amp; Sciences</td>
</tr>
<tr>
<td>Armando Pares</td>
<td>Assistant Dean, Continuing Ed</td>
<td>Continuing Ed</td>
</tr>
<tr>
<td>Blake Red</td>
<td>Associate Clinical Professor</td>
<td>Law</td>
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<tr>
<td>Bud Coleman</td>
<td>Previous Chair, THDN / CU, DC Director / Commencement Marshall</td>
<td>Arts &amp; Sciences</td>
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<tr>
<td>Catherine (Trina) Hicks</td>
<td>Scheduling Coordinator</td>
<td>Office of the Registrar</td>
</tr>
<tr>
<td>David Kohnke</td>
<td>Director, IT</td>
<td>Leeds, Business</td>
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<tr>
<td>Elizabeth (Lil) Fenn</td>
<td>Previous Chair, History / 2015 Pulitzer Prize Winner</td>
<td>Arts &amp; Sciences</td>
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<tr>
<td>Grace Maniscalco</td>
<td>Executive Assistant to the Dean</td>
<td>School of Education</td>
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<td>Jenny Knight</td>
<td>Associate Professor, Molecular Cellular &amp; Developmental Biology</td>
<td>Arts &amp; Sciences</td>
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<tr>
<td>Jeremy Smith</td>
<td>Professor</td>
<td>College of Music</td>
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<tr>
<td>Kevin Griffin</td>
<td>Director of Space Optimization</td>
<td>Planning, Design &amp; Construction</td>
</tr>
<tr>
<td>Merna Jacobsen</td>
<td>Assistant Vice-Chancellor &amp; Deputy Chief HR Officer /</td>
<td>HR</td>
</tr>
<tr>
<td></td>
<td>Director, Organizational &amp; Employee Development</td>
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<tr>
<td>Paul Beale</td>
<td>Professor, Physics</td>
<td>Arts &amp; Sciences</td>
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<tr>
<td>Rebecca Kallemeyn</td>
<td>Learning Experience Designer</td>
<td>OIT</td>
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<tr>
<td>Richelle Reilly</td>
<td>Campus Landscape Architect / Facilities Planner</td>
<td>Planning, Design &amp; Construction</td>
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<tr>
<td>Robert McDonald</td>
<td>Dean, Libraries / Professor</td>
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<tr>
<td>Robert McLeod</td>
<td>Professor, Optics, Nanostructures &amp; Bioengineering</td>
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<tr>
<td>Roberto Arruda</td>
<td>Director, International Student Academic Success</td>
<td>Academic Affairs</td>
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<tr>
<td>Robin Suitts</td>
<td>Capital Program Administrator</td>
<td>Planning, Design &amp; Construction</td>
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<tr>
<td>Sarabeth Berk</td>
<td>Director, Innovation &amp; Entrepreneurship Initiative</td>
<td>RIO</td>
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<tr>
<td>Tom Goodhew</td>
<td>Assistant Director, Facilities Planning</td>
<td>Planning, Design &amp; Construction</td>
</tr>
</tbody>
</table>
PORTFOLIO OF PEDAGOGY FINDINGS

WORKSHOP 1
WHAT INFRASTRUCTURE DO WE NEED TO ACHIEVE OUR VISION?
Spaces that support our students’ educational journey

SPACE-PEDAGOGY ALIGNMENT: Aligning class sections with the appropriate spaces in terms of quality, suitability and technology will enable the university’s multi-modal approach to learning at a variety of scales.

SCHEDULED & OPEN SPACES: Balance non-scheduled study space with formally scheduled space, recognizing their equal importance.

FLEXIBILITY & ADAPTABILITY: Design learning environments (labs, classrooms, specialty spaces and meeting spaces) with adaptability and flexibility in mind, so that facilities can be shared across diverse programs.

PERVASIVE WIFI: Provide stable WiFi and power in all indoor and outdoor locations to provide equity of technology.

COLLABORATIVE ENVIRONMENTS: Promote collaboration through agile design and spaces that bridge learning and research.

DISTANCE LEARNING: Distance learning is an important opportunity for development and expansion beyond Boulder to reach a broader, more diverse demographics.

WORKSHOP 2
HOW DO WE APPLY THIS TO THE CAMPUS SYSTEM?
Types of learners and learning / time spent by space type

OPEN & CREATIVE: For all learners, learning spaces should promote relationship building, connection and networking, and therefore occur more often in informal, social spaces and shared workplaces, as well as media and technology rich environments.

EDUCATIONAL NETWORK: Students in higher academic levels have an increased focus on networks and collaborative innovation to create educational success, requiring community-focused study, work, and social spaces.

RELATIONSHIPS: In an increasingly digital world, a brick and mortar institution is justified by the need for human interaction, requiring a relationship-focused balanced with content-focused design of spaces.

FACULTY: Faculty need access and time in community content creators, practice space, digital recording studios, and VR/simulators to build meaningful course content and continue their professional growth.

UNDERGRADUATE: The undergraduate degree is focused around exposure, requiring an ease of access to a variety of high-quality, hands-on educational experiences including research opportunity.

WORKSHOP 3
HOW WILL IT BE APPLIED IN THE PLANNING TOOL?
Ratio of learning space types by building typology

OPEN & ACTIVE SPACES: The most in demand spaces across the nine building templates are active classrooms, immersive environments and seminar rooms (scheduled learning); open lounge, study, café, social and event spaces (non-scheduled learning) and flexible workplace environments (office).

LEARNING BUILDINGS: Learning buildings include all space types in this category, expanding from structured learning to a full spectrum of study, creative, community, and support spaces.

DIVERSE ACADEMIC RESIDENTIAL EXPERIENCES: A wide variety of learning environments should be grouped and incorporated into housing to create unique learning ecosystems, forming the basis of residential academic experiences across campus.
PORTFOLIO OF PEDAGOGY WORKSHOP 1

BASELINE INFORMATION
This information was shared at the outset of the workshop as a common base of knowledge for group activities.

ACTIVITIES

INDIVIDUAL & WITH A PARTNER
Based on CU Boulder’s four pedagogical categories (undergraduate, masters, PhD, licensure and certificate), participants answered “what kinds of environments would support the needs of our students?”, first individually and then with groups.

SMALL GROUPS (4-5 PEOPLE)
Participants discussed the needs identified in the previous exercise and the mix of spaces needed to support the university’s vision for each pedagogy, voting for their top choices on a vision board.

ALL
Each group received dots and identified the top places on campus to initiate the discussed interventions.
## PORTFOLIO OF PEDAGOGY WORKSHOP 1 FINDINGS
### A SPECTRUM OF SUPPORTIVE LEARNING ENVIRONMENTS

Aligning class sections with the appropriate spaces in terms of quality, suitability and technology will enable the University’s multi-modal approach to learning at a variety of scales.

<table>
<thead>
<tr>
<th>Balance non-scheduled study space with formally scheduled space, recognizing their equal importance</th>
<th>Design learning environments (labs, classrooms, specialty spaces and meeting spaces) with flexibility in mind, so that facilities can be shared across diverse programs</th>
<th>Provide stable WiFi and power in all indoor and outdoor locations to provide equity of technology</th>
</tr>
</thead>
<tbody>
<tr>
<td>Promote collaboration through agile design and spaces that bridge learning and research</td>
<td>Distance learning is an important opportunity for development and expansion beyond Boulder to reach broader, more diverse demographics</td>
<td>While distance learners are off campus there are on campus space needs for faculty and staff support, which includes recording studios, content creation labs, black box spaces, etc.</td>
</tr>
</tbody>
</table>
PORTFOLIO OF PEDAGOGY WORKSHOP 2

BASELINE INFORMATION
This information was shared at the outset of the workshop as a common base of knowledge for group activities.

ACTIVITIES
Teams examined a variety of proposed spaces by use to assess the fit of these environments for each assigned degree level and faculty.

VALIDATE SPACE TYPES

A WEEK IN THE LIFE
Teams then estimated the average time spent in each space type per work week for each degree level and faculty.

GENERATIONAL STUDENT THEMES
- ENGAGED LEARNING
- FLUID COMMUNITY
- CASE STUDY: DUKES UNIVERSITY

PORTFOLIO OF PEDAGOGY
- PORTFOLIO OF PEDAGOGY 1
- PORTFOLIO OF PEDAGOGY 2

CASE STUDY: DUKE UNIVERSITY
Generational growth campus design two concepts, assuming through an assessment during the design process, a number of students to be in on-campus locations throughout their education. The success and sufficient campus engages students through diverse, informal learning opportunities, active learning environments, departmental homes, and student-centered social experiences. Campus community facilitates student management through connectedness, unique student experiences, and student involvement.
PORTFOLIO OF PEDAGOGY WORKSHOP 2 FINDINGS

A WEEK IN THE LEARNING LIFE

In an increasingly digital world, a brick and mortar institution is justified by the need for human interaction, requiring a relationship-focused design of spaces over content-focused.

Upperclassman have an increased focus on community and innovation to create educational success, requiring an intentional build in connecting and interactive spaces.

The undergraduate degree is focused around exposure, requiring an ease of access to a variety of opportunities and experiences.

Masters degrees are rooted in immersive experiences and require spaces to interact with their cohort, community, and clients.

PhD students are more likely to produce meaningful work when they are pushed to break silos and collaborate across disciplines.

License & Certificate students are drawn to campus via a one-stop-shop for convenient, unique, and experience based growth experiences that help them grow their network.

Faculty need access and time in community content creators, practice space, digital recording studios, and VR/simulators to build meaningful course content and continue their professional growth.
PORTFOLIO OF PEDAGOGY WORKSHOP 3

BASELINE INFORMATION
This information was shared at the outset of the workshop as a common base of knowledge for group activities.

ACTIVITIES
Solutions matching
Teams matched facility solutions to the applicable building templates. Each building template reflected a commonly understood and cohesive facilities need.

Facility DNA
Teams were assigned three building templates and asked to assemble the "DNA" of their ideal buildings using a combination of the nine facility solutions.
PORTFOLIO OF PEDAGOGY WORKSHOP 3 FINDINGS

A WEEK IN THE LEARNING LIFE

The most in demand spaces across the nine building templates are active classrooms, immersive environments and seminar rooms (scheduled learning); open lounge, study, café, social and event spaces (non-scheduled learning) and flexible workplace environments (office).

LEARNING BUILDINGS
Learning buildings include all space types in this category, expanding from structured learning to a full spectrum of study, creative, community, and support spaces.

DIVERSE ACADEMIC RESIDENTIAL EXPERIENCES
A wide variety of learning environments should be grouped and incorporated into housing to create unique learning ecosystems, forming the basis of residential academic experiences across campus.
The mission of the Research Ecosystem team was to develop and test scenarios that investigated the relationship between the diversity and growth of existing and new research areas and their impacts on space and facilities requirements across campus.

The team investigated the intersections of basic and applied research, new partnerships, entrepreneurialism and the incorporation of learning in research environments.

Understanding and developing requirements in these areas drove new space types and adjacencies for a variety of research facilities, the extent of shared core facilities and equipment, the sharing of space with external organizations, and the provision of embedded learning.

**KEY FINDING**

**CREATING RESEARCH NEIGHBORHOODS**

Curating meaningful interactions between people and sharing of technology and infrastructure dictates the future design of research facilities; this will be achieved through interweaving labs, teaching labs, shared core facilities, immersive environments, coworking and social spaces.
RESEARCH & INNOVATION ECOSYSTEM TEAM

The tool will model changes in research growth and diversity that drive the ratio of space types, equipment and space allocations by research intensities.

<table>
<thead>
<tr>
<th>NAME</th>
<th>POSITION</th>
<th>DEPARTMENT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Beth Kroger</td>
<td>Chief of Operations</td>
<td>JILA</td>
</tr>
<tr>
<td>Bob Boswell</td>
<td>Vice Chancellor</td>
<td>ODECE</td>
</tr>
<tr>
<td>Bob McGrath</td>
<td>Director, RASEI</td>
<td>RIO</td>
</tr>
<tr>
<td>Denitta Ward</td>
<td>Assistant Vice Chancellor, Research &amp; Director, Office of Contracts &amp; Grants</td>
<td>RIO</td>
</tr>
<tr>
<td>Emima Begovic</td>
<td>Director, Finance, Accounting &amp; Operations</td>
<td>SEEC</td>
</tr>
<tr>
<td>Jennifer Knievel</td>
<td>Faculty Director, Arts &amp; Humanities / Associate Professor</td>
<td>Libraries</td>
</tr>
<tr>
<td>Kathy Ramirez-Aguilar</td>
<td>CU Green Labs Program Manager</td>
<td>Green Labs</td>
</tr>
<tr>
<td>Lang Farmer</td>
<td>Divisional Dean, Natural Sciences</td>
<td>Arts &amp; Sciences</td>
</tr>
<tr>
<td>Laura Michaelis-Cummings</td>
<td>Chair, Linguistics</td>
<td>Arts &amp; Sciences</td>
</tr>
<tr>
<td>Laura Ragin</td>
<td>Assistant Vice Chancellor / Controller</td>
<td>Fin. &amp; Bus. Strategy</td>
</tr>
<tr>
<td>Martha Palmer</td>
<td>Professor, Linguistics &amp; Computer Sciences Engineering</td>
<td>RIO</td>
</tr>
<tr>
<td>Robert Linz</td>
<td>Associate Director / Head of Public Services</td>
<td>Law</td>
</tr>
<tr>
<td>Stephanie Wanek</td>
<td>Assistant Director of Operations, ATLAS (In for Mark)</td>
<td>ATLAS</td>
</tr>
<tr>
<td>Taylor Shaw</td>
<td>Student</td>
<td>CMCI Student</td>
</tr>
<tr>
<td>Terri Fiez</td>
<td>Vice Chancellor, Research &amp; Innovation</td>
<td>RIO</td>
</tr>
<tr>
<td>Thomas Hauser</td>
<td>Director, Research Computing</td>
<td>OIT</td>
</tr>
<tr>
<td>Thomas Perkins</td>
<td>Director, JILA / Associate Professor</td>
<td>Research Institutes</td>
</tr>
<tr>
<td>Wayne Northcutt</td>
<td>Facilities Planner</td>
<td>Planning, Design &amp; Construction</td>
</tr>
<tr>
<td>Tom Goodhew</td>
<td>Assistant Director, Facilities Planning</td>
<td>Planning, Design &amp; Construction</td>
</tr>
</tbody>
</table>
RESEARCH & INNOVATION ECOSYSTEM FINDINGS BY WORKSHOP

WORKSHOP 1

WHAT INFRASTRUCTURE DO WE NEED TO ACHIEVE OUR VISION?
Spaces that enable a flourishing research enterprise

RESOURCE EFFICIENCY: The ability to share spaces, services and resources will encourage interdisciplinary research, save money and assist in diversifying the research portfolios.

SHARED SPACES: Leveraging opportunities to share spaces, resources, services and technologies will not only improve efficiency and avoid costs but promote collaborative research culture; the first step in achieving this is undertaking an inventory of facilities and equipment.

FLEXIBLE & MODULAR: Flexible and modular labs promote the ability to share use across multiple programs and collaborations and adapt over time as research needs change.

COLOCATION: Developing co-working spaces and colocation opportunities will promote interdisciplinary collaboration, foster academic-industry exchange, attract research talent and enrich student research experiences.

STUDENT EXPLORATION: Learning in research requires flexible spaces for students to experiment with new ideas, showcase their work, and find and pursue their passions.

RESEARCH SUPPORT: Integrating research support functions (e.g., grant identification and support, contracting, business development, etc.) into a seamless system will allow research teams to focus their time on discovery and improve research productivity.

WORKSHOP 2

HOW DO WE APPLY THIS TO THE CAMPUS SYSTEM?
Activities and space types/ general profile by types

RESEARCH NEIGHBORHOODS: There is a mix of research, learning and co-working spaces that should be located within 5 minutes, while more specialized, shared spaces should be located within a 15-minute travel. The intensity of research defines the need for unique facilities on campus.

GENERAL RESEARCH FACILITIES: General research facilities can be found within a 5-minute travel radius and include offices, collaborative workplaces, learning environments, shared equipment, and research support concierge.

UNIQUE FACILITIES: Highly specialized lab environments are found in single locations around campus and include secure/classified space, special collections, and unique core facilities.

PARTNERSHIP FACILITIES: Partnership facilities focus on innovation and entrepreneurship, bringing in public and private partnerships for a multi-layered relationship from collaborative projects, mentorship, and student employment.

CORE FACILITY CLUSTER: Core facilities are clustered around a common theme and include high performance research environments and specialized support services.

WORKSHOP 3

HOW WILL IT BE APPLIED IN THE PLANNING TOOL?
Ratio of research space types by building typology and core facility clusters

DESIGNED COLLABORATION: Curating meaningful interactions between people to generate unique collaborative opportunities dictates the future design of research spaces; this will be achieved through interweaving labs, teaching labs, shared core facilities, immersive environments, coworking and social spaces.

THEMATIC CLUSTERS: Thematic approaches can be applied to all research building templates as a strategy to integrate disciplines and programs around a common purpose and vertically integrate the research and learning missions. Examples of thematic approaches include Environment, Air & Water; Improving the Human Condition; Wellbeing; Life Sciences; Arts; Aerospace; and Surfaces & Materials.

CRITICAL MASS APPROACH TO TECHNOLOGY: The use and function of technology drive scale of placement across the university, where everyday use lower risk assets are in building neighborhood scales, and storage, high-investment, and invaluable assets centralized in single or campus-based locations.
EXECUTIVE SUMMARY PHASE PROCESS BY TEAM 12 MIXED-USE BUILDING TEMPLATES INSIGHTS DRIVING TOOL DEVELOPMENT APPENDIX

RESEARCH & INNOVATION ECOSYSTEM WORKSHOP 1

BASELINE INFORMATION
This information was shared at the outset of the workshop as a common base of knowledge for group activities.

ACTIVITIES

INDIVIDUAL & WITH A PARTNER
Based on the six categories resulting from the Deep Dive Phase (learning in research, interdisciplinary research through shared resources, entrepreneurship, translation and commercialization, engaged collaborative and community research, high performance research environments, and supporting the $2B research enterprise) participants answered “what kinds of environments would support these aspects of the Research & Innovation Ecosystem?”, first individually and then with groups.

SMALL GROUPS (4-5 PEOPLE)
Participants discussed the needs identified in the previous exercise and the mix of spaces needed to support the university’s vision for each category, voting for their top choices on a vision board.

ALL
Each group received dots and identified the top places on campus to initiate the discussed interventions.

DATA SOURCE:
CU BOULDER OFFICE OF CONTRACTS & GRANTS

RESEARCH & INNOVATION ECOSYSTEM
$2B RESEARCH ENTERPRISE
GROW
Portfolio will need to grow by 7% annually to reach $2 billion in 20 years
This suggests that proposal volume should be upwards of $6B

KEY
FEDERAL
INDUSTRY
STATE OF CO
INTL, NON-PROFIT, OTHER
OTHER UNIVERSITIES

DIVERSITY
The share of the non-federal expenditures grows from historic average of 25% to 40% over 20 years
INDUSTRY FUNDING
The share of the non-federal industry awards increases to 12%, more than doubling in total size over 20 years

DATA SOURCE:
CU BOULDER OFFICE OF CONTRACTS & GRANTS

RESEARCH & INNOVATION ECOSYSTEM
SPACE ALLOCATION BREAKDOWN PER CU BOULDER FACILITIES MANAGEMENT

LEARNING/RESEARCH SPACES*
*Learning / research spaces exclude: residential, general use, health care, support, and special use

FICM CODES
CLASSROOM
Classroom
LABORATORY
Class Laboratory
Open Laboratory
Research/Non-class Lab
OFFICE
Office
Conference Room
STUDY
Study Room
Stack
Open-Stack Study Room
Processing Room
SPECIAL USE
Armory
Athletic / Physical Education
Athletic Spectator Seating
Media Production
Clinic
Animal Facilities
Greenhouse
All Purpose
GENERAL USE
Assembly
Exhibition
Food Facility
Lounge
Merchandising
Recreation
Meeting Room
SUPPORT
Central Computer / Telecommunications
Shop
Storage
Vehicle Storage
Hazardous Waste Service
RESIDENTIAL
Sleep/Study
Apartment
House
## RESEARCH & INNOVATION ECOSYSTEM WORKSHOP 1 FINDINGS

### ENVIRONMENTS WHICH SUPPORT THE RESEARCH ENTERPRISE

The ability to share spaces, services and resources will encourage interdisciplinary research, save resources and assist in diversifying the research portfolios.

<table>
<thead>
<tr>
<th>Leveraging opportunities to share spaces, resources, services and technologies will not only improve efficiency and avoid costs but promote collaborative research culture; the first step in achieving this is undertaking an inventory of facilities and equipment</th>
<th>Flexible and modular labs promote the ability to share use across multiple programs and collaborations</th>
<th>Develop co-working spaces and colocation opportunities will promote interdisciplinary collaboration, foster academic-industry exchange, attract research talent and enrich student research experiences</th>
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<tbody>
<tr>
<td>Learning in research requires flexible spaces for students to experiment with new ideas, showcase their work, and find and pursue their passions</td>
<td>Integrating research support functions (e.g., grant identification and support, contracting, business development, etc.) into a seamless system will allow research teams to focus their time on discovery and improve research productivity</td>
<td></td>
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</tbody>
</table>
RESEARCH & INNOVATION ECOSYSTEM WORKSHOP 2

BASELINE INFORMATION
This information was shared at the outset of the workshop as a common base of knowledge for group activities.

ACTIVITIES

VALIDATE SPACE TYPES
Teams examined a variety of proposed spaces and assessed their fit for each space type category.

IDENTIFYING TRAVEL DISTANCES
Teams identified which spaces should be located within a 5-minute, 15-minute and beyond 15-minutes travel radius.

CREATING RESEARCH NEIGHBORHOODS
Using a campus map with predetermined neighborhoods, teams identified the primary 5-minute radius and 15-minute radius in each neighborhood. They then placed each Lego tower within the 5-minute, 15-minute and beyond 15-minutes circles to indicate the prioritization of functionality.

DATASOURCE: CU BOULDER OFFICE OF CONTRACTS & GRANTS

<table>
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<th>AWARD Type</th>
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<th>Intl, Other</th>
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RESEARCH & INNOVATION ECOSYSTEM
### RESEARCH & INNOVATION ECOSYSTEM WORKSHOP 2 FINDINGS

#### CREATING RESEARCH NEIGHBORHOODS

Research ecosystems centered around a theme bring together diverse disciplines with a common link and encourages multi-disciplinary collaborative work, creativity, and resource efficiency.

<table>
<thead>
<tr>
<th>Thematic clusters enable critical masses, drawing people together across departments and should be sprinkled densely across campus</th>
</tr>
</thead>
<tbody>
<tr>
<td>The farther dispersed the facility function from the research core, the more specialized and more intensive the investment</td>
</tr>
<tr>
<td>All campuses are fully integrated with research, learning, and living spaces</td>
</tr>
<tr>
<td>Specialized core facilities should exist across each campus, located adjacent to but outside the core workplace of that research neighborhood</td>
</tr>
<tr>
<td>Expose students to research and innovation opportunities starting in their first year at CU Boulder</td>
</tr>
<tr>
<td>Research neighborhood cores include a mix of generic spaces that include labs, classrooms, food, and meeting spaces</td>
</tr>
</tbody>
</table>
RESEARCH & INNOVATION ECOSYSTEM WORKSHOP 3

BASELINE INFORMATION
This information was shared at the outset of the workshop as a common base of knowledge for group activities.

ACTIVITIES

UNIQUE & SHARED RESOURCES
To identify unique and shared research resources, each group identified the ideal density for core facilities across campus (building scale, neighborhood scale, campus location, single location).

Multidisciplinary neighborhood clusters were created by identifying themes from the list of core facilities.

SOLUTIONS MATCHING
Teams matched facility solutions to the applicable building templates. Building templates reflected a commonly understood and cohesive facilities need.

FACILITY DNA
Teams were assigned building templates and asked to assemble the "DNA" of their ideal building using a combination of facility solutions.
CREATING RESEARCH NEIGHBORHOODS

Curating meaningful interactions between people to generate unique collaborative opportunities dictates the future design of research spaces. This will be achieved through interweaving labs, teaching labs, shared core facilities, immersive environments, coworking and social spaces.

THEMATIC CLUSTERS

Thematic approaches can be applied to all research building templates as a strategy to integrate disciplines and programs around a common purpose and vertically integrate the research and learning missions. Examples of thematic approaches include Environment, Air & Water; Improving the Human Condition; Wellbeing; Life Sciences; Arts; Aerospace; and Surfaces & Materials.

CRITICAL MASS APPROACH TO TECHNOLOGY

The use and function of technology drive scale of placement across the university, where everyday use lower risk assets are in building neighborhood scales, and storage, high-investment, and invaluable assets centralized in single or campus-based locations.
The mission of the Federated Flexibility team was to develop and test various scenarios regarding the degree to which facilities and services could be shared.

Driven by academic units, student life and administrative functions, and with the goal to drive interdisciplinary collaboration and improve operational efficiencies, the team investigated a variety of scenarios in a hub and node model. Conceived as a constellation of university-wide facilities, the model tested the creation of hubs as home bases for academic units and nodes as thematic clusters of generic and specialized spaces, with integrated administrative services collocated in the ways that best serve students, faculty and staff.

We used location data (where people are) and space typology information to inform which resources, facilities and services could be shared and collocated over time.

**KEY FINDING**

**DISTRIBUTED SERVICES**

Services that support students, faculty and staff should be distributed across campus in order to improve access. At the building scale, concierge services should provide support for the most in-demand needs, while more specialized services are clustered at the neighborhood scale.
FEDERATED FLEXIBILITY

The tool will model changes to the accessibility of services and environments by incorporating a ratio of non-scheduled space per building or building clusters.

<table>
<thead>
<tr>
<th>NAME</th>
<th>POSITION</th>
<th>DEPARTMENT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Andrea Straccia</td>
<td>Director, Leeds Residential Academic Program</td>
<td>Leeds, Business</td>
</tr>
<tr>
<td>Betsy Johnson</td>
<td>Instructor</td>
<td>ENVD</td>
</tr>
<tr>
<td>Bobby Braun</td>
<td>Dean / Professor / Chair, SMEAD Space Technology</td>
<td>Engineering</td>
</tr>
<tr>
<td>Chris Ewing</td>
<td>Assistant Vice Chancellor, Planning, Design &amp; Construction</td>
<td>Infra. &amp; Sustain.</td>
</tr>
<tr>
<td>Cory Hillard</td>
<td>Senior Associate Athletic Director / CFO</td>
<td>Athletics</td>
</tr>
<tr>
<td>Courtney Fell</td>
<td>Learning Experience Designer</td>
<td>OIT</td>
</tr>
<tr>
<td>David Cavalieri</td>
<td>Assistant Director, Endpoint Integration</td>
<td>OIT</td>
</tr>
<tr>
<td>Jan Becker</td>
<td>Facilities Planner</td>
<td>Planning, Design &amp; Construction</td>
</tr>
<tr>
<td>Jennifer Sullivan</td>
<td>Senior Assistant Dean, Admin. &amp; Program Development</td>
<td>Law</td>
</tr>
<tr>
<td>Jessica Doty</td>
<td>Senior Director, Administrative Services</td>
<td>Student Affairs</td>
</tr>
<tr>
<td>Jessica Helzer</td>
<td>Assistant Dean, Advancement, Law School</td>
<td>Advancement</td>
</tr>
<tr>
<td>Jim White</td>
<td>Interim Dean / Professor, Geological Sciences</td>
<td>Arts &amp; Sciences</td>
</tr>
<tr>
<td>Jon Leslie</td>
<td>Associate Vice Chancellor</td>
<td>Strat. Relations &amp; Comm.</td>
</tr>
<tr>
<td>Karen Regan</td>
<td>Assistant Vice Chancellor</td>
<td>RID</td>
</tr>
<tr>
<td>Katherine Erwin</td>
<td>Chief Human Resources Officer</td>
<td>HR</td>
</tr>
<tr>
<td>Kevin Griffin</td>
<td>Director of Space Optimization</td>
<td>Planning, Design &amp; Construction</td>
</tr>
<tr>
<td>Kristi Wold-McCormick</td>
<td>University Registrar</td>
<td>Enroll. Management</td>
</tr>
<tr>
<td>Leslie Reynolds</td>
<td>Interim Dean/ Associate Professor</td>
<td>Graduate School</td>
</tr>
<tr>
<td>Louise Vale</td>
<td>Director, Integrity &amp; Compliance</td>
<td>Integrity, Safety &amp; Comp.</td>
</tr>
<tr>
<td>Mark Opp</td>
<td>Chair, IPHY</td>
<td>Arts &amp; Sciences</td>
</tr>
<tr>
<td>Nicole Cattin</td>
<td>UG, CMCI Ambassador / CMCI Student Government President</td>
<td>CMCI Student</td>
</tr>
<tr>
<td>Roxane Sue Ruggles</td>
<td>Assistant Director, CU Events Planning &amp; Catering</td>
<td>Student Affairs</td>
</tr>
<tr>
<td>Rudy Betancourt</td>
<td>Director, Macky Auditorium</td>
<td>College of Music</td>
</tr>
<tr>
<td>Shelly Bacon</td>
<td>Assistant Vice Provost, Advising &amp; Academic Services</td>
<td>U/G Edu</td>
</tr>
<tr>
<td>Waileed Abdalati</td>
<td>Executive Director, CIRES / Professor</td>
<td>Research Institutes</td>
</tr>
</tbody>
</table>
FEDERATED FLEXIBILITY FINDINGS BY WORKSHOP

WORKSHOP 1

WHAT INFRASTRUCTURE DO WE NEED TO ACHIEVE OUR VISION?
Services that enable an efficient campus

INCREASED UTILIZATION: Leveraging a prioritized central scheduling system, coupled with providing flexible workplace environments, improved access to facilities and strengthening connectivity between campus locations will drive improved and consistent utilization.

SCHEDULING TECHNOLOGY: Upgrade and standardize scheduling technology across all units to provide transparency, consistency and better match needs to uses.

SPACE STANDARDS: Develop space standards for all space types that include: offices, classrooms, and labs.

CLASSROOM BASELINE: Standardize classroom technology and provide mobile, flexible furniture in all classrooms for increased room accessibility, efficiency, and adaptability.

MOBILE WORKFORCE: Provide hoteling spaces and a variety of amenities to flexibly align with the workstyles of diverse users.

TRANSPORTATION: Increase connectivity across CU Boulder’s campus and community through frequent, reliable, and interconnected transportation systems.

COMMUNITY PARTNERSHIPS: Invite community partners to use underutilized spaces, particularly on evenings, weekends, and summers.

WORKSHOP 2

HOW DO WE APPLY THIS TO THE CAMPUS SYSTEM?
Service types / optimization solutions and clusters of services

SERVICE NEIGHBORHOODS: Basic concierge services, flexible workplaces and café spaces should be located within a 5-minute travel; more specialized, shared services should be within a 15-minute travel.

ACCESSIBLE SERVICES: Creating easy, decentralized access to flexible workplace environments, concierge academic support and shared administrative services is desired across campus.

ADMINISTRATION: Distributing administrative cores throughout the university provides the best quality of service and connection with the university mission.

THEMATIC CLUSTERS: Organizing the university as thematic clusters with neighborhood cores and provision of specialized services based on function will improve access, collaboration, and resource efficiency.

WORKSHOP 3

HOW WILL IT BE APPLIED IN THE PLANNING TOOL?
Space utilization targets and optimization strategies mix of support services by building typology

ACCESSIBLE CONCIERGE: Concierge support can be found in each building to provide high level support to the most in-demand services for that building’s population.

CONSISTENT SERVICES: IT walk-in, safety, and communications support can be found in each building either via a concierge or departmental representative.

SERVICE DIVISION: General concierge support can be shared across students, faculty and administration; specialized support services are geared to students, faculty and administration.

ROLE OF THE CONCIERGE: The concierge role is to facilitate resolution through providing help on the spot or referring individuals to departmental representatives for specialized high touch services.
FEDERATED FLEXIBILITY WORKSHOP 1

BASELINE INFORMATION
This information was shared at the outset of the workshop as a common base of knowledge for group activities.

ACTIVITIES

INDIVIDUAL & WITH A PARTNER
Six categories identified in the Deep Dive Phase (learning in research, interdisciplinary research through shared resources, entrepreneurship, translation and commercialization, engaged collaborative and community research, high performance research environments, and supporting the $2B research enterprise) participants answered “what do we need to do to make these optimization strategies successful?”, first individually and then with groups.

EFFICIENCY & OPTIMIZATION SOLUTION
Small groups responded to solutions that would increase efficiency and optimization options resulting in increased university efficiency.

ALL
Each group received a campus map and colored dots associated with each a category and identified the top places on campus to initiate the discussed interventions.
### FEDERATED FLEXIBILITY WORKSHOP 1 FINDINGS

**OPTIMIZING OUR FACILITIES**

Leveraging a prioritized central scheduling system, coupled with providing flexible workplace environments, improved access to facilities and strengthening connectivity between campus locations will drive improved and consistent utilization.

<table>
<thead>
<tr>
<th>Upgrade and standardize scheduling technology across all units to provide transparency, consistency and better match needs to uses</th>
<th>Develop space standards that span offices, classrooms, and labs</th>
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<tr>
<td>Provide hoteling spaces and a variety of amenities to flexibly align with the workstyles of diverse users</td>
<td>Increase connectivity across CU Boulder’s campus and community through frequent, reliable, and interconnected transportation systems</td>
<td>Invite community partners to use underutilized spaces, particularly on evenings, weekends, and summers</td>
</tr>
</tbody>
</table>
FEDERATED FLEXIBILITY WORKSHOP 2

BASELINE INFORMATION
This information was shared at the outset of the workshop as a common base of knowledge for group activities.

ACTIVITIES

VALIDATE SPACE TYPES
Teams examined a variety of proposed spaces and assessed their fit for each category. Teams then identified which of these spaces should be located within a 5- and 15-minute travel radius.

IDENTIFYING TRAVEL DISTANCES
Using a campus map with predetermined neighborhoods, teams identified the primary 5-minute radius and 15-minute radius in each neighborhood. They then placed each Lego tower within the 5-minute and 15-minute circles to indicate the prioritization of functionality.
FEDERATED FLEXIBILITY WORKSHOP 2 FINDINGS

OPTIMIZING OUR FACILITIES

Organizing the university as thematic clusters with neighborhood cores and provision of specialized services based on function will improve access, collaboration, and resource efficiency.

- **Neighborhood cores** should be designed to be human-centric, enabling interaction, community, and security with work, study, meeting and support spaces.

- **Neighborhood outskirts** are destination and specialized spaces, including departmental homes, advising, and student housing.

- Create easy access to services for the most vulnerable populations with services like additional advising & support for first year students in neighborhood cores.

- More than any other space, food and drink is desired within 5 minutes from any campus location as a base to study, socialize, and replenish.

- Administration, while not needed in university cores, is best interwoven throughout the university to provide the best quality of service and connection with the university mission.
FEDERATED FLEXIBILITY WORKSHOP 3

BASELINE INFORMATION
This information was shared at the outset of the workshop as a common base of knowledge for group activities.

ACTIVITIES
Participants validated the service offerings identified for student, administrative, and faculty services, proposed additional services, and identified crossover opportunities.

UNIQUE & SHARED RESOURCES
Participants validated the service offerings identified for student, administrative, and faculty services, proposed additional services, and identified crossover opportunities.

CONSTELLATION OF SERVICES
Groups first placed services into the most appropriate building types. They then considered which services might better be clustered in a one-stop shop.

SERVICES ADMINISTERED
Based on the service clusters they developed teams, determined how services should be administered (e.g., concierge/generalist, department representative, service department).
FEDERATED FLEXIBILITY WORKSHOP 3 FINDINGS
OPTIMIZING OUR FACILITIES

Concierge support can be found in buildings within a 5-minute radius. They provide high level support to the most in-demand services for that building’s population.

CONSISTENT SERVICES
IT walk-in, safety, and communications support can be found in each building either via a concierge or departmental representative.

SHARED CONCIERGE SUPPORT
General concierge support can be shared across students, faculty and administration; specialized support services are geared to students, faculty and administration.

ROLE OF THE CONCIERGE
The concierge role is to facilitate resolution through providing help on the spot or referring individuals to departmental representatives for specialist high touch services.
The mission of the Integrative Facilities team was to develop and test scenarios that investigated how different learning, research, service and auxiliary functions could be integrated to create various forms and themes for development.

The team investigated the intersection of residential academic experiences, learning environments, community facilities, commercial partnerships and other mixed-use typologies to create sustainable and vibrant living, learning, working experiences. We used a series of programmatic variables to create a projected portfolio of mixed use developments over time.

KEY FINDING

MIXED-USE APPROACH TO DEVELOPMENT

The mixing of uses at the building, neighborhood and campus scales will enrich and diversify experiences, helping to grow, cultivate, and retain talent. Each campus location should be fully built out with mixed-use learning, research, residential facilities that facilitate health, wellbeing, community involvement, and collaboration.
INTEGRATIVE FACILITIES TEAM

The tool will model different mixed-use developments and drive the ratios of programmatic mixes by themes, residential, retail, cultural, community, and civic functions by campus geography.

<table>
<thead>
<tr>
<th>NAME</th>
<th>POSITION</th>
<th>DEPARTMENT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Al Smith</td>
<td>Associate Dean, Undergraduate Affairs</td>
<td>Leeds, Business</td>
</tr>
<tr>
<td>Amanda Rochette</td>
<td>Assistant Director, Operations &amp; Finance</td>
<td>Law</td>
</tr>
<tr>
<td>Ann Schmiesing</td>
<td>Senior Vice Provost, Academic Resource Management</td>
<td>Academic Affairs</td>
</tr>
<tr>
<td>Anthony Price</td>
<td>Director, Recreation Services</td>
<td>Student Affairs</td>
</tr>
<tr>
<td>Bobby Schnabel</td>
<td>Department External Chair / Professor</td>
<td>Engineering</td>
</tr>
<tr>
<td>Christopher Pacheco</td>
<td>Executive Director, Pre-College Outreach &amp; Engagement</td>
<td>ODECE</td>
</tr>
<tr>
<td>Dan Gette</td>
<td>Senior Director, Residential Experience &amp; Services</td>
<td>Student Affairs</td>
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<tr>
<td>David Cavalleri</td>
<td>Assistant Director, Endpoint Integration</td>
<td>OIT</td>
</tr>
<tr>
<td>Derek Bellin</td>
<td>Associate Vice Chancellor, Advancement</td>
<td>Advancement</td>
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<tr>
<td>Derek Silva</td>
<td>Executive Director, Real Estate Services</td>
<td>Infra. &amp; Sustain.</td>
</tr>
<tr>
<td>Donna Caccamise</td>
<td>Research Professor</td>
<td>Research Institutes</td>
</tr>
<tr>
<td>Eric Stade</td>
<td>Professor, Math / Academic Program Director</td>
<td>Arts &amp; Sciences</td>
</tr>
<tr>
<td>Frances Draper</td>
<td>Vice Chancellor Strategic Relations</td>
<td>Strat. Relations &amp; Comm</td>
</tr>
<tr>
<td>Jeffrey N. Cox</td>
<td>Vice Provost</td>
<td>Faculty Affairs</td>
</tr>
<tr>
<td>Jennifer Freeman</td>
<td>Landscape Specialist</td>
<td>Planning, Design &amp; Construction</td>
</tr>
<tr>
<td>Julian Kinsman</td>
<td>Associate Director, Academic Technology Services</td>
<td>OIT</td>
</tr>
<tr>
<td>Keith Julien</td>
<td>Chair, APPM</td>
<td>Arts &amp; Sciences</td>
</tr>
<tr>
<td>Lindsay Schumacher</td>
<td>Facilities Planner</td>
<td>Planning, Design &amp; Construction</td>
</tr>
<tr>
<td>Lori Bergen</td>
<td>Dean</td>
<td>CMCI</td>
</tr>
<tr>
<td>Mary Kraus</td>
<td>Vice Provost / Associate Vice Chancellor</td>
<td>U/G Edu</td>
</tr>
<tr>
<td>Peggy Gordon</td>
<td>Program Support Manager</td>
<td>ENVD</td>
</tr>
<tr>
<td>Samantha Martin</td>
<td>Senator</td>
<td>ASSG Student</td>
</tr>
<tr>
<td>Zack Tupper</td>
<td>Director, Construction &amp; Space</td>
<td>Arts &amp; Sciences</td>
</tr>
<tr>
<td>Heidi Van Genderen</td>
<td>Chief Sustainability Officer</td>
<td>Infra. &amp; Sustain.</td>
</tr>
<tr>
<td>Tom Goodhew</td>
<td>Assistant Director, Facilities Planning</td>
<td>Planning, Design &amp; Construction</td>
</tr>
</tbody>
</table>
## INTEGRATIVE FACILITIES: FINDINGS BY WORKSHOP

### WORKSHOP 1

**WHAT INFRASTRUCTURE DO WE NEED TO ACHIEVE OUR VISION?**
Spaces that create a world-class campus experience

**MIXED PROGRAMMING:** A mixed-use approach to programming facilities, founded around a discernible or thematic identity, will provide a richer level of campus experiences.

**RESIDENTIAL ACADEMIC EXPERIENCES:** Residential academic experiences should be broadened so that they are accessible to a wide variety of students.

**WELLBEING:** A holistic offering of wellbeing services, spanning from physical activity to mental health to relaxation and mindfulness, should be integrated with academic and support functions.

**OPEN WORKPLACES:** An additional workplace options of Informal, lounge "we-work" style spaces cater to students’, faculty and staff increasingly mobile needs.

**ACCESSIBILITY:** Increased access to facilities and event spaces, both for students and external partners are in high demand.

**PRESERVE THE HERITAGE:** Continue to leverage the campus’ history, heritage, and design aesthetic to create unique outdoor environments that attract students and talent.

### WORKSHOP 2

**HOW DO WE APPLY THIS TO THE CAMPUS SYSTEM?**
Themes / mixed use types and space makeup

**MIXED-USE CAMPUSES:** The mixing of uses at the campus location and at the building scale will enrich and diversify experiences, helping to grow, cultivate, and retain talent. There is a desire to diversify campus locations to improve connectivity between campuses.

**CONNECT CAMPUSES:** Physically connect campuses through mixed-use community zones and connected corridors that evoke an enjoyable and direct transit experience.

**COMMUNITY ACCESS:** Incorporate community mixed-use spaces along the campus periphery in easy to access spaces to improve campus accessibility.

**BUILT OUT CAMPUS:** Each campus across CU Boulder is fully built out with mixed-use learning, research, residential facilities that facilitate health & Wellbeing, community involvement, and collaboration.

### WORKSHOP 3

**HOW WILL IT BE APPLIED IN THE PLANNING TOOL?**
Programmatic needs by campus neighborhood

**GROWTH DIRECTION:** Priority mixed use developments have been identified for each of the eight neighborhoods across campus, creating recommendations and planning direction for the type of buildings and programs best suited for each area of campus.

**IN DEMAND MIXED USE BUILDINGS:** Student life, wellbeing and community buildings are the most in demand type of mixed use buildings in every campus location, emphasizing the growth of well rounded experiences that go beyond the classroom to form an inclusive culture.

**HOUSING:** Housing is the only building type selected to belong in each campus neighborhood by at least one group.
INTEGRATIVE FACILITIES WORKSHOP 1

BASELINE INFORMATION
This information was shared at the outset of the workshop as a common base of knowledge for group activities.

ACTIVITIES

INDIVIDUAL & WITH A PARTNER
Six categories identified in the Deep Dive Phase (residential academic experience, learning and research, student life, wellbeing, community, collaboration) participants answered "what types of spaces were needed?", first individually and then with groups.

SMALL GROUPS (4-5 PEOPLE)
Participants discussed the needs identified in the previous exercise and the mix of spaces needed to support the university’s vision for each category, voting for their top choices on a vision board.

ALL
Each group received dots and identified the top places on campus to initiate the discussed interventions.
**INTEGRATIVE FACILITIES WORKSHOP 1 FINDINGS**

**VIBRANT FACILITIES & ENHANCED EXPERIENCES**

A mixed-use approach to programming facilities, founded around a discernible or thematic identity, will provide a richer level of campus experiences.

| Residential academic experiences should be widened so that they are accessible to a wide variety of year-long students, but also include short term experiences for graduates and returning learners |
| A holistic offering of wellbeing services, spanning from physical activity to mental health to relaxation and mindfulness, should be integrated with academic and support functions |
| Informal, lounge “we-work” style spaces cater to students’, faculty and staff increasingly mobile needs |
| Increased access to facilities and event spaces, both for students and external partners are in high demand |
| Continue to leverage the campus’s history, heritage, and design aesthetic to create unique outdoor environments that attract students and talent |
INTEGRATIVE FACILITIES WORKSHOP 2

BASELINE INFORMATION
This information was shared at the outset of the workshop as a common base of knowledge for group activities.

ACTIVITIES
First, teams identified programmatic needs for each of the nine areas on campus.

IDENTIFYING TRAVEL DISTANCES
Teams identified which spaces should be located within a 5-minute and 15-minute and beyond 15-minutes travel radius. Using a campus map with predetermined neighborhoods, teams identified the primary 5-minute radius and 15-minute radius in each neighborhood. They then placed Lego tower within the 5-minute and 15-minute circles to indicate the prioritization of functionality.
INTEGRATIVE FACILITIES WORKSHOP 2 FINDINGS

VIBRANT FACILITIES & ENHANCED EXPERIENCES

Each campus across CU Boulder is fully built out with mixed-use learning, research, residential facilities that facilitate health & Wellbeing, community involvement, and collaboration.

- More than anything other space, food & drink is desired within 5 minutes from any campus location as a base to study, socialize and replenish.
- Maintaining a brick and mortar institution is justified by the need for human interaction, necessitating a relationship-focused design of spaces.
- Physically connecting campuses through mixed-use community zones and connected corridors evokes an enjoyable and direct transit experience while encouraging pedestrian mobility.
- Develop themed neighborhoods and unique campus identities while providing students, faculty, and staff equal access across all university spaces.
- Incorporate community mixed-use spaces along the campus periphery in easy to access spaces to improve campus accessibility.
INTEGRATIVE FACILITIES WORKSHOP 3

BASELINE INFORMATION
This information was shared at the outset of the workshop as a common base of knowledge for group activities.

ACTIVITIES

NEIGHBORHOOD NEEDS
Teams identified the top five typology needs for each of the nine neighborhoods. Then they identified any clear themes that emerged for each neighborhood.
INTEGRATIVE FACILITIES WORKSHOP 3 FINDINGS

VIBRANT FACILITIES & ENHANCED EXPERIENCES

Priority mixed use developments have been identified for each of the eight neighborhoods across campus, creating recommendations and planning direction for the type of buildings and programs best suited for each area of campus.

IN DEMAND MIXED USE BUILDINGS
Student life, Wellbeing and community buildings are the most in demand type of mixed use buildings in every campus location, emphasizing the growth of well rounded experiences that go beyond the classroom to form an inclusive culture.

HOUSING
Housing is the only building type selected to belong in each campus neighborhood by at least one group.
RESILIENT ASSET MANAGEMENT

The mission of the Resilient Asset Management team was to identify and evaluate university buildings and systems based on a fully integrated asset management system as a driver of redevelopment strategies.

In parallel, the team identified critical facilities and infrastructure as a means of both safeguarding the university mission and increasing its sustainability and resiliency. The team also developed alternative strategies for facilities and infrastructure delivery which recognized a range of available forms of state, campus and other funding sources.

Taking into account lifecycle costs, we used facility and infrastructure condition data, capital investment history / projections, and resiliency and sustainability goals to inform how we invest in capital projects over time.

KEY FINDING

ORGANIZING FRAMEWORK FOR RESILIENCY

A three-tiered organizing framework for resiliency includes building operations, facility typologies, and campus system initiatives; a mission dependency index to identify high priority facilities can be constructed using a cross section of condition, criticality (protecting our assets) and safety (protecting our people).
RESILIENT ASSET MANAGEMENT

The tool will model a resiliency framework by incorporating a percentage of capital construction costs for resiliency investments based on building typology.

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--- | --- | ---
Amy Kirtland | Facilities Planner | Planning, Design & Construction
Brandon Boger | Director, EH&S | Infra. & Sustain.
Brian Lindoerfer | Assistant Vice Chancellor, Facilities Operations & Services | Infra. & Sustain.
Cherie Summers | Assistant Dean, Administration | Engineering
Chris Evans | Program Manager, Construction & Renovation | OIT
Dan Jones | Associate Vice Chancellor | Integrity, Safety & Comp.
Heather Bowden | Assistant Professor / Faculty Director, Special Collections, Archives & Preservation | Libraries
Heidi VanGenderen | Chief Sustainability Officer | Infra. & Sustain.
Jack Draeb | U/G Student Representative / Major of Economics | Student Rep
Jason DePaespe | Senior Associate Athletic Director / Internal Operations | Athletics
Jon Reuter | Research Associate Professor / Institutional Veterinarian / Director, Animal Resources | RIO
JT Allen | Director, Facilities, Planning, & Operations | Student Affairs (HDS)
Kathy Ramirez-Aguilar | CU Green Labs Program Manager | Green Labs
Kym Calvo | Director, Compensation & Talent Acquisition | HR
Lee Silbert | Director, Operations & Financial Management, BioFrontiers | Research Institutes
Randy Siders | Executive Associate Director, Finance & Operations, LASP | RIO
Tom Thibodeau | Chair, Global Real Estate Capital Markets / Professor | Leeds, Business
Zack Tupper | Director, Construction & Space | Arts & Sciences
Tom Goodhew | Assistant Director, Facilities Planning | Planning, Design & Construction
## Resilient Asset Management

### Findings by Workshop

<table>
<thead>
<tr>
<th>Workshop 1</th>
<th>Workshop 2</th>
<th>Workshop 3</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>What Infrastructure Do We Need to Achieve Our Vision?</strong>&lt;br&gt;Spaces that create a world-class campus experience</td>
<td><strong>How Do We Apply This to the Campus System?</strong>&lt;br&gt;Scale frame work / requirements by typology</td>
<td><strong>How Will It Be Applied in the Planning Tool?</strong>&lt;br&gt;Resiliency initiatives and policy recommendations by facility type</td>
</tr>
<tr>
<td><strong>Initiative Prioritization:</strong> A hierarchy of resiliency investments should be adopted campus-wide and include a matrixed approach for the learning and research missions.</td>
<td><strong>Mission Dependency Index:</strong> The campus should create a mission dependency index that assesses criticality for all building functions. Assessment of criticality levels could be standardized across the portfolio, but resiliency measures are contingent on facility type.</td>
<td><strong>Asset Inventory:</strong> An asset inventory that maps all critical assets across the university is a necessary next step in setting up a resiliency plan.</td>
</tr>
<tr>
<td><strong>Resiliency Tiers:</strong> Daily operations, mission-critical and unplanned events is a viable organizing framework for resiliency and will be enhanced by learning, research and business operations subcategories.</td>
<td><strong>Communications:</strong> Reliable communication systems are a leading factor in campus functionality; from daily WiFi use, to emergency response, to networked campus systems, communication platforms are a launch point for campus resiliency initiatives.</td>
<td><strong>Criticality Methodology:</strong> A uniform formula to identify high priority facilities can be measured using a cross section of condition and mission dependency criticality (protecting our assets) and safety (protecting our people).</td>
</tr>
<tr>
<td><strong>Safety:</strong> Continue to prioritize and enhance safety and security for campus users.</td>
<td><strong>Strong Foundation:</strong> Build resilience by starting with the campus’ basic functions, including ensuring critical building systems are up-to-date and adequately maintained.</td>
<td><strong>Safety &amp; Preparedness:</strong> Protecting people is the top factor for mission dependency within the resiliency formula, with a direct actionable recommendation for emergency response kits secured across campus and building locations.</td>
</tr>
<tr>
<td><strong>Strong Foundation:</strong> Use a resiliency prioritization index to determine which facilities and assets need to be equipped with backup or enhanced systems.</td>
<td><strong>Communications:</strong> Reliable communication systems are a leading factor in campus functionality; from daily WiFi use, to emergency response, to networked campus systems, communication platforms are a launch point for campus resiliency initiatives.</td>
<td><strong>Community Partnership Agreements:</strong> It is vital to develop partnerships and agreements with community and municipal agencies for two-way service aid agreements in times of emergency.</td>
</tr>
<tr>
<td><strong>Framework:</strong> A three-tiered organizing framework to view asset management on an all building, building typology, and campus system level is a viable approach to campus resiliency.</td>
<td><strong>Facility Prioritization:</strong> Use a resiliency prioritization index to determine which facilities and assets need to be equipped with backup or enhanced systems.</td>
<td><strong>Response Timeline:</strong> Mission disruption occurs on a cascading basis, with severity and disruption occurring immediately in labs, hours for housing, and after days for academic &amp; administrative facilities, requiring a tiered response for campus resiliency.</td>
</tr>
</tbody>
</table>
RESILIENT ASSET MANAGEMENT WORKSHOP 1

BASELINE INFORMATION
This information was shared at the outset of the workshop as a common base of knowledge for group activities.

ACTIVITIES

INDIVIDUAL & WITH A PARTNER
Based on the three categories identified in the Deep Dive phase (basic, mission critical, unplanned events), participants answered “what were the needs of the campus that we needed to safeguard?”, first individually and then with partners.

SMALL GROUPS (4-5 PEOPLE)
Participants discussed the needs identified in the previous exercise and the mix of spaces needed to support the university’s vision for each category, voting for their top choices on a vision board.

ALL
Each group received dots and identified the top places on campus to initiate the discussed interventions.
RESILIENT ASSET MANAGEMENT WORKSHOP 1 FINDINGS

SAFEGUARDING THE UNIVERSITY MISSION & ASSETS

A hierarchy of resiliency investments should be adopted campus-wide and include a matrixed approach for the learning and research missions.

1. **Daily operations, mission-critical and unplanned events** is a viable organizing framework for resiliency and will be enhanced by learning, research and business operations subcategories.

2. **Continue to prioritize and enhance safety and security for campus users**.

3. **Build resilience by starting with the campus’s basic functions**, including ensuring critical building systems are up-to-date and adequately maintained.

4. **Update and enhance telecommunication systems**, from reliable WiFi across campus to rapid emergency response networks.

5. **Use a resiliency prioritization index to determine which facilities and assets need to be equipped with backup or enhanced systems**.
RESILIENT ASSET MANAGEMENT WORKSHOP 2

BASELINE INFORMATION
This information was shared at the outset of the workshop as a common base of knowledge for group activities.

ACTIVITIES
Creating a Mission Dependency Index
Each team received one of five building types (laboratories, athletics/performance/recreation, housing, general learning/student services/administration, and campus support), and ranked:

- What events would most likely adversely affect the functionality of the facility
- Level of severity
- Length of disruption caused to campus
- Level of complexity in bringing the building back on line or ability to temporarily relocate
- What buildings could be considered post-disaster facilities?
- Lastly, each group ranked the level of criticality of their topics buildings using red (high), orange (medium) and yellow (low) criticality dots.

CREATING A MISSION DEPENDENCY INDEX
As partners, participants reviewed the organizing framework for resiliency and added or removed content and categories.
RESILIENT ASSET MANAGEMENT WORKSHOP 2 FINDINGS

SAFEGUARDING THE UNIVERSITY MISSION & ASSETS

A three-tiered organizing framework to view asset management on an all building, building typology, and campus system level is a viable approach to campus resiliency.

Buildings can be assessed and prioritized based on a combined factor of deferred maintenance, utility costs, work orders, a safety risk factor, and a criticality of loss factor.

Reliable communication systems are a leading factor in campus functionality; from daily WiFi use, to emergency response, to networked campus systems, communication platforms are a launch point for campus resiliency initiatives.

Mission disruption occurs on a cascading basis, with severity and disruption occurring immediately in labs, hours for housing, and after days for academic & administrative, requiring a tiered response for campus resiliency.

Floods, followed by security threats post the largest risk to facilities due to the likelihood of the event happening and the criticality of the result.

Disruption in a lab facility creates immediate effects; detailed prevention and response protocols are necessary to mitigate loss in priceless artifacts, data, and revenue.
RESILIENT ASSET MANAGEMENT  WORKSHOP 3

BASELINE INFORMATION
This information was shared at the outset of the workshop as a common base of knowledge for group activities.

ACTIVITIES
Small groups identified specific solutions and recovery measures based on event timelines and the space types involved. They added additional response actions and measures as needed.

EVENT RESPONSE TIMELINE
Small groups identified the components necessary to create a quantifiable criticality formula.

CREATING A UNIFORM ASSESSMENT
Small groups identified specific solutions and recovery measures based on event timelines and the space types involved. They added additional response actions and measures as needed.
RESILIENT ASSET MANAGEMENT WORKSHOP 3 FINDINGS

SAFEGUARDING THE UNIVERSITY MISSION & ASSETS

An asset inventory that maps all critical assets across the university is a necessary next step in setting up a resiliency plan.

CRITICALITY METHODOLOGY
A uniform formula to identify high priority facilities can be measured using a cross section of condition and mission dependency criticality (protecting our assets) and safety (protecting our people).

SAFETY & PREPAREDNESS
Protecting our people is the top factor for mission dependency within the resiliency formula, with a direct actionable recommendation for emergency response kits secured across campus and building locations.

COMMUNITY PARTNERSHIP AGREEMENTS
It is vital to develop partnerships and agreements with community and municipal agencies for two-way service aid agreements in times of emergency.
12 MIXED-USE BUILDING TEMPLATES
# 12 Mixed-Use Building Templates

## Administrative
Administrative department workplaces and home bases

## Athletics
Athletic, student-athlete support and external partnership facilities

## Campus Life
Facilities that focus on dining, support, social, recreation and the overall aspect of being a student in the CU Boulder community

## Community
On and off campus locations that invite the community in for clinics, classes, workplace, health and other functions

## Core Facility Cluster
Core facilities are clustered around a common theme and include high performance research environments and specialized support services

## Cultural
Exhibit, event and auditorium spaces that span from performance to conference to community building

## General Research
Generic, flexible labs, classrooms and workplaces that enable collaborative research and learning in research

## Housing
On-campus housing solutions for students, faculty and staff

## Learning
Shared flexible active classrooms, class labs, immersive and practice spaces, social and study space and workplace environments

## Partnership
Partnership facilities focus on innovation and entrepreneurship, bringing in public and private partnerships for a multi-layered relationship from collaborative projects, mentorship, and student employment

## Unique Facilities
Highly specialized lab environments are found in single locations around campus and include secure/classified space, special collections, and unique core facilities

## Wellbeing
Counseling, emotional support, and dedicated spaces to focus on personal, mental and physical wellbeing
ADMINISTRATION BUILDING TEMPLATE

Administrative department workplaces and home bases

FUTURE DEMOGRAPHICS

Provide a mix of dedicated and open academic support offices for students and expand commuter support to university staff.

PORTFOLIO OF PEDAGOGY

Open lounges, café, and social spaces are distributed throughout the heart of the building, with a variety of workspaces and content creation hubs as part of teach support for faculty.

FEDERATED FLEXIBILITY

Concierge & departmental representatives in other buildings send students to administrative facilities to receive a larger spectrum of services. Administrative units use a concierge to navigate their service needs.

SPACE MAKEUP RATIO

<table>
<thead>
<tr>
<th>28% Academic Support</th>
<th>17% Bookable Study</th>
<th>11% Commuter Support</th>
</tr>
</thead>
</table>

*Additional space type identified by workshop group: Coworking

PARTICIPANT AGREEMENT

- 67% Additional space type identified by workshop group: Coworking

- 88% Academic Support

- 77% Faculty

- Multiple Units
- Students
- Faculty
- Administration

ALLOCATION OF SERVICES

CONCIERGE

- Advancement
- Communications & Mktg
- Finance & Business Strat.
- HR

ENTIRE DEPARTMENT

- ENRMT MGMT
- MENTORING
- SAFETY
- TEACHING SUPPORT
- LEGAL
- FACULTY AFFAIRS
- DISABILITY SERVICES
- HR
- IT
- RESEARCH SUPPORT

- 88% Faculty

- 77% Administration
SCENARIO PLANNING END OF PHASE KEY FINDINGS

ATHLETIC BUILDING TEMPLATE

Athletic, student-athlete support and external partnership facilities

FUTURE DEMOGRAPHICS

Provide an avenue to bring the greater campus community into athletic facilities to share commuter support and top-tier Wellbeing spaces. Academic support is a mix of both dedicated and shared services.

PORTFOLIO OF PEDAGOGY

Provide a full spectrum of academic services, including distance learning to accommodate students traveling for athletic events, robust academic support, and a variety of spaces to congregate for studying and networking.

FEDERATED FLEXIBILITY

An entire spectrum of academic and student services can be found in athletic buildings, including a concierge that assists students with social support and a team of representatives to assist in academic excellence.

SPACE MAKEUP RATIO

<table>
<thead>
<tr>
<th>COMMUTER SUPPORT</th>
<th>ACADEMIC SUPPORT</th>
<th>WELLBEING</th>
<th>HOME BASE</th>
</tr>
</thead>
<tbody>
<tr>
<td>25%</td>
<td>13%</td>
<td>13%</td>
<td>6%</td>
</tr>
</tbody>
</table>

PARTICIPANT AGREEMENT

- 67%
- 71%

ALLOCATION OF SERVICES

CONCIERGE

- Counseling/Support
- Mentoring
- Mediation
- Safety

ADVANCEMENT

- Communications & Mktx
- Finance & Business Strat.
- Human Resources

ACADEMIC ADVISING

- Tutoring Center
- Testing Center

IT WALK-IN

- IT Service Ctr

RETAIL

- Multiple Units
- Students
- Faculty
- Administration

PARTICIPANT AGREEMENT

- 95%
- 63%

Space Make Up Ratio

- 15% Academic Support
- 10% Bookable Study
- 10% Event Center
- 10% Open Study
- 15% Open Lounge, Cafe, Social
- 10% Seminar Room
- 10% Shared Flexible Workplace
- 10% Active Classroom
- 5% Distance Learning Immersive Envt
**SCENARIO PLANNING END OF PHASE KEY FINDINGS**

**COMMUNITY BUILDING TEMPLATE**

On and off-campus locations that invite the community in for clinics, classes, workplace, health, and other functions.

**FUTURE DEMOGRAPHICS**

Half of the community building footprint is dedicated to spaces that engage the community in social and bookable workplaces. Student organizations that have a community engagement focus are housed in these facilities.

**PORTFOLIO OF PEDAGOGY**

Open lounges, café, and social spaces are distributed throughout the heart of the building, with a variety of workspaces and content creation hubs as part of teach support for faculty.

**FEDERATED FLEXIBILITY**

The externally facing services of advancement, marketing & communications have a large presence in community facilities, while other services are administered through a multi-purpose concierge.
CULTURAL BUILDING TEMPLATE

Exhibit, event and auditorium spaces that span from performance, conference to community building.

FUTURE DEMOGRAPHICS

Cultural buildings act as a student home base, providing unscheduled needs throughout the day with commuter support, social, and study spaces.

PORTFOLIO OF PEDAGOGY

Cultural buildings host the lifecycle of creativity, from practice space and studios, content creation, immersive environments, and up to event space.

FEDERATED FLEXIBILITY

Concierge & departmental representatives in other buildings send students to administrative facilities to receive a larger spectrum of services. Administrative units use a concierge to navigate their service needs.

SPACE MAKEUP RATIO

- OPEN LOUNGE, CAFÉ, SOCIAL: 40%
- COMMUTER SUPPORT: 30%
- OPEN STUDY: 30%

PARTICIPANT AGREEMENT

- 67%

ALLOCATION OF SERVICES

CONCIERGE

- Safety
- Facilities
- Teaching Support
- Diversity & Inclusion

DEPARTMENT REPRESENTATIVE

- ADVANCE MENT
- COMS & MKTS
- IT SERVICE CENTER
- IT WALK-IN

PARTICIPANT AGREEMENT

- RETAIL
- Multiple Units
- Students
- Faculty
- Administration

*Additional space type identified by workshop group: Student Org

*Additional space type identified by workshop group: Tiered Lecture
SCENARIO PLANNING END OF PHASE KEY FINDINGS
HOUSING BUILDING TEMPLATE
On-campus housing solutions for students, faculty, and staff

FUTURE DEMOGRAPHICS
Commuter support and student services are in publicly accessible areas to provide commuting students an on-campus experience. Advising services are integrated into student home bases.

PORTFOLIO OF PEDAGOGY
Immersive environments are distributed between study and classroom space. A large open lounge, café, and social area is centrally located to create an internal community.

FEDERATED FLEXIBILITY
Concierge services placed directly in campus housing provide students with a variety of information in a convenient manner, and provide dual services for faculty and staff that reside in these areas as well.

**ALLOCATION OF SERVICES**

**CONCIERGE**
- Academic Advising
- Enrollment Mgmt
- Mentoring
- Tutoring Center
- Student Involvement
- Disability Service
- Safety
- Health & Wellbeing
- Childcare

**DEPARTMENT REPRESENTATIVE**
- Counseling
- 1st Yr Exp
- IT Walk-In

**PARTICIPANT AGREEMENT**
82%

**SPACE MAKEUP RATIO**
- 20% Dedicated Student Home Base
- 20% Open Study
- 15% Academic Support
- 15% Open Lounge, Café, Social
- 15% Wellbeing
- 10% Concourse Support
- 05% Student Union

*Additional space type identified by workshop group: Bookable Study

**DISTANCE LEARNING**

- 82% Academic Advising
- 65% Enrollment Mgmt

**STATES OF DESIGN**

- Multiple Units
- Students
- Faculty
- Administration

88%

82%

82%
SCENARIO PLANNING END OF PHASE KEY FINDINGS

LEARNING BUILDING TEMPLATE

Shared flexible classrooms, class labs, immersive and practice spaces, study space and workplace environments

FUTURE DEMOGRAPHICS

Open study and social areas are easily accessible after class, can be found on each floor, and create a culture around a learning community. The extent of dedicated space is based on degree/program within the building.

PORTFOLIO OF PEDAGOGY

Learning facilities hold the entire spectrum of learning environments, where structured classrooms hold a smaller footprint compared to the wide array of study, creative, and support spaces available to round out a student’s learning experience.

FEDERATED FLEXIBILITY

Academically related services are provided to students through departmental representatives who work together in a cohesive team. Likewise, administrative and faculty services are clustered and provided on site for easy accessibility.

ALLOCATION OF SERVICES

CONCIERGE

Disability Services
Safety
Mentoring

DEPARTMENTAL REPRESENTATIVES

COUNSELING
TUTORING CENTER
FACTORY AFFAIRS
STAFF DEV
IT

ACADEMIC ADVISING
CAREER CENTER
COMM & MKTG
HR

TESTING CENTER
DISABILITY SERVICES
ADVANCE MENT
FIN & BUS STRAT
IT SPECIALIZED

PARTICIPANT AGREEMENT

79%

93%

62%
GENERAL RESEARCH BUILDING TEMPLATE

Generic, flexible labs, classrooms and work-places that enable collaborative research and learning in research.

FUTURE DEMOGRAPHICS

A café is centrally placed with study and workspace surrounding to encourage a culture of collaboration and networking. Student home bases are provided for graduate and undergrad students.

PORTFOLIO OF PEDAGOGY

Research buildings include an equal amount of teaching lab and classroom space, and are coupled with immersive environments to bring new experiences to education. Event centers are available for research showcases.

FEDERATED FLEXIBILITY

Concierges supply facility inhabitants with a variety of services in an efficient manner, while higher-demand research services receive a department representative.

ALLOCATION OF SERVICES

**CONCIERGE**

- Career Center
- IT Walk In Mentoring
- Safety

**FACULTY**

- Comms & Mktg
- Fin & Bus Strat Facilities

**DEPARTMENT REPRESENTATIVE**

- Research Support
- Specialized Support
- Advance MENT
- Teaching Support

**ENTIRE DEPARTMENT**

- Retail

**PARTICIPANT AGREEMENT**

- Multiple Units
- Students
- Faculty
- Administration

*Additional space type identified by workshop group: Bookable Study, Creative Studios, Distance Learning, Open Study, Scaleable Classroom, Shared Flexible Workplace, Testing Center, Tiered Lecture
SCENARIO PLANNING END OF PHASE KEY FINDINGS

GENERAL RESEARCH BUILDING TEMPLATE

Generic, flexible labs, classrooms and work-places that enable collaborative research and learning in research.

RESEARCH & INNOVATION ECOSYSTEM

Colocate learning spaces together while interspersing research facilities to expose students to experiences in research.

SCENARIO PLANNING END OF PHASE KEY FINDINGS

GENERAL RESEARCH BUILDING TEMPLATE

Shared external partnership focused labs, incubators, coworking space for research and entrepreneurial activity.
Facilities that focus on support, social, recreation and the overall aspect of being a student in the CU Boulder community

**FUTURE DEMOGRAPHICS**

Campus Life has everything inside of it, with a third designated as dedicated space to particular student groups. Bookable and open study spaces are interwoven around social areas to enable a seamless flow of activities.

**PORTFOLIO OF PEDAGOGY**

Spaces that support an academic experience can be found in Campus Life buildings. The largest footprint is composed of social, bookable, and open study, complimented by creative studios and academic advising.

**FEDERATED FLEXIBILITY**

Academically related services are provided to students through departmental representatives who work together in a cohesive team. Likewise, administrative and faculty services are clustered and provided on site for easy accessibility.

---

**SPACE MAKEUP RATIO**

- **20%** Open Study
- **15%** Bookable Study
- **15%** Open Lounge, Cafe, Social
- **10%** Dedicated Student Home Base
- **9%** Student Org
- **9%** Academic Support
- **6%** Creative Studios
- **6%** Academic Support

**PARTICIPANT AGREEMENT**

- **100%**

---

**SPACE MAKEUP RATIO**

- **18%** Bookable Study
- **18%** Open Study
- **14%** Creative Studios
- **9%** Seminar Room
- **9%** Dedicated Student Home Base

**PARTICIPANT AGREEMENT**

- **90%**

---

**ALLOCATION OF SERVICES**

- **Enrollment Management**
- **Mediation**
- **Safety**
- **Testing Center**
- **Research Support**

**DEPARTMENT REPRESENTATIVE**

- **Counseling**
- **Diversity & Inclusion**
- **Comms & Marketing**
- **Advance Ment**

**ENTIRE DEPARTMENT**

- **1st Year Experience**
- **Tutoring Center**
- **Career Center**
- **Academic Advising**

**PARTICIPANT AGREEMENT**

- **85%**

---

*Additional space type identified by workshop group: Bookable Practice, Scaleable Classroom*
SCENARIO PLANNING END OF PHASE KEY FINDINGS

WELLBEING BUILDING TEMPLATE

Counseling, emotional support, and safe spaces to focus on personal, mental and physical wellbeing

FUTURE DEMOGRAPHICS

Incorporate social, study, and commuter home bases into Wellbeing facilities to create a culture of Wellbeing over these spaces as well.

PORTFOLIO OF PEDAGOGY

Incorporate academic advising into Wellbeing facilities to create a one-stop-shop for all services a student might need.

FEDERATED FLEXIBILITY

Wellbeing services are expanded to include everything associated with physical and mental well being with a concierge office.

SPACE MAKEUP RATIO

ALLOCATION OF SERVICES

CONCIERGE

IT Walk-In
Mediation
Mentoring
Safety
Diversity & Inclusion

DEPARTMENT REPRESENTATIVE

IT SPECIALISTS
COMM'S & MKTG

ENTIRE DEPARTMENT

COUNSELING SUPPORT
HEALTH & WELLBEING

PARTICIPANT AGREEMENT

67%

*Additional space type identified by workshop group: Academic Support, Student Organization

*Additional space type identified by workshop group: Bookable Study

54%

WELLBEING

23%

OPEN STUDY

15%

OPEN LOUNGE, CAFE, SOCIAL

18%

COMMUTER SUPPORT

29%

ACADEMIC SUPPORT

14%

IMMERSIVE ENVY

14%

OPEN LOUNGE, CAFE, SOCIAL

14%

OPEN STUDY

52%

WELLBEING

14%

EVENT CENTER

14%

SEMINAR ROOM

14%

OPEN LOUNGE, CAFE, SOCIAL

14%

OPEN STUDY

70%

WELLBEING

14%

SEMINAR ROOM

14%

OPEN STUDY

14%

OPEN LOUNGE, CAFE, SOCIAL

59%

WELLBEING

72%

PARTICIPANT AGREEMENT

Multiple Units
Students
Faculty
Administration

72%

PARTICIPANT AGREEMENT

59%

PARTICIPANT AGREEMENT

52%

WELLBEING

29%

ACADEMIC SUPPORT

14%

IMMERSIVE ENVY

14%

OPEN LOUNGE, CAFE, SOCIAL

14%

OPEN STUDY

67%

COUNSELING SUPPORT

SPECIALIZED IT

IT WALK-IN

MEDIATION

MENTORING

SAFETY

DIVERSITY & INCLUSION

Multiple Units
Students
Faculty
Administration

PARTICIPANT AGREEMENT

59%

PARTICIPANT AGREEMENT
INSIGHTS DRIVING TOOL DEVELOPMENT
PORTFOLIO OF PEDAGOGY

SCENARIO PLANNING 2

A WEEK IN THE LEARNING / TEACHING LIFE

SPACE TIME ALLOCATION RATIOS

UNDERGRADUATE
- Classroom
- Simulation/ VR
- Lecture
- Studio
- Meeting Room
- Informal Study
- Library/ Stacks
- Maker Space
- Safe/ Secure
- Support
- Testing Center
- Food/ Café
- Ideation/ Co-Creation
- Outdoor
- Social

MASTERS
- Classroom
- Class Lab
- Simulation/ VR
- Lecture
- Studio
- Field Work
- Meeting Room
- Informal Study
- Maker Space
- Support
- Commuter
- Food/Café
- Gathering Event
- Ideation/ Co-Creation
- Social

PHD
- Classroom
- Class Lab
- Computer Lab
- Simulation/ VR
- Meeting Room
- Informal Study
- Office
- Bookable Workplace/ Coworking
- Commuter
- Food/Café
- Ideation/ Co-Creation
- Recreation
- Social

LICENSURE & CERTIFICATES
- Classroom
- Media Lab / Recording
- Studio
- Off Campus Instruction
- Simulation Lab
- Lecture
- Maker Space
- Bookable Workplace/ Coworking
- Commuter
- Food/ Café
- Ideation/ Co-Creation
- Recreation
- Retail
- Social

FACULTY
- Faculty Content Creation
- Media Lab / Recording
- Studio
- Simulation/ VR
- Black Box
- Support
- Teaching Practice Space
- Bookable Workplace/ Coworking
- Commuter
- Faculty Lounge
- Food/Café
- Ideation/ Co-Creation

STAFF
- Media Lab/ Recording
- Simulation/ VR
- Black Box
- Support
- Teaching Practice Space
- Bookable Workplace/ Coworking
- Commuter
- Faculty Lounge
- Food/Café
- Ideation/ Co-Creation

Ratio indicates staff time designated to learning

83 STRATEGIC FACILITIES VISIONING SCENARIO PLANNING PHASE SUMMARY
A WEEK IN THE LEARNING

SPACE TIME ALLOCATION RATIOS

- SCHEDULED LEARNING
- SOCIALIZING / NETWORKING
- INFORMAL STUDY / SUPPORT

UNDERGRADUATE
CU Boulder’s largest population spends their time in learning spaces (i.e., active classrooms, hands-on lecture spaces, labs and simulation/VR spaces). Individual work is performed in diverse settings, from cafés to libraries to meeting rooms, and is mixed with social, recreational, and cultural activities due to increased emphasis on group projects and network building.

LICENSURE & CERTIFICATES
Micro term learners spend the bulk of time in learning environments (i.e., active classrooms, lectures, labs, etc.). Study spaces such as coworking zones, meeting rooms, and maker spaces inspire ad-hoc collaborations or individual work. The university’s conference center and hotel function as a home base, offering space for accommodations and professional networking and peer socializing.

MASTERS
Masters students divide their time equally between learning, informal study/support spaces, and socializing/recreational spaces. Master’s students spend a third of their time in a variety of classrooms settings, both as students and as teachers/teaching assistants. Informal study and support spaces mimic real-world settings with coworking and bookable workplaces. Social activities take place off hours in clubs, cafés, and open lobbies.

FACULTY
Faculty spend nearly half their time in workplace settings, labs, student meeting spaces, and content creation spaces (i.e., studios, teacher practice centers, and simulation/VR spaces). The remainder of their time is spent teaching in active and dynamic spaces and socializing with colleagues and faculty lounges, common areas, and cafés.

STAFF
Staff members spend the majority of their time in workplace settings (i.e., open/bookable workplaces, offices, meeting rooms, etc.). To identify with the university mission, social activities such as lunch/coffee breaks, recreational activities, and larger meetings/events take place in the campus community.

PHD
Research projects drive Ph.D. students to divide their time between individual and group activities. Personal work is conducted in open and collaborative workplace environments, whereas online research and data gathering can take place in enclosed drop-in offices/research spaces. Broadening social and professional networks is encouraged in cafés, idea/creation environments, and lounges.

CRITICAL SPACES TO SCHEDULED & INFORMAL LEARNING

<table>
<thead>
<tr>
<th>U/G</th>
<th>MASTER</th>
<th>PHD</th>
<th>LAC</th>
<th>FACULTY</th>
<th>STAFF</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>CLASSROOM (VARYING)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>CLASS LAB</td>
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<td></td>
<td>APARTMENT</td>
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<td></td>
<td>BLACK BOX</td>
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<tr>
<td></td>
<td>COMPUTER LABS</td>
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<td></td>
<td>COMMUTER</td>
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<tr>
<td></td>
<td>FACULTY CONTENT CREATION</td>
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</tr>
<tr>
<td></td>
<td>FACULTY LOUNGE</td>
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<td>FIELD WORK</td>
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<td>FOOD/Café</td>
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<td>GATHERING/EVENT</td>
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<td>MEETING ROOM</td>
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<td>IDEATION/CO-CREATION</td>
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<td>INFORMAL STUDY</td>
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<td>LIBRARY/STACKS</td>
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<td>MAKER SPACE</td>
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<td>OFF CAMPUS INSTRUCTION</td>
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<td>OFFICE</td>
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<td>ONE-STOP-SHOP</td>
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<td>OUTDOOR</td>
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<td>RECREATION</td>
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<td>RETAIL</td>
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<td>SAFE/SECURE</td>
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<td>SIMULATION/VR</td>
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<td>SUPPORT</td>
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<td>TEACHER PRACTICE SPACE</td>
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<td></td>
<td>BOOKABLE WORKPLACE/ COWORKING</td>
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</tbody>
</table>
RESEARCH & INNOVATION ECOSYSTEM

SCENARIO PLANNING 2

ENVIRONMENTS THAT SUPPORT THE RESEARCH ENTERPRISE

5 MINUTE TRAVEL RADIUS
- Café
- Coworking Space
- Collaboration Space
- General Classroom & Class Labs
- Makerspace
- Meeting Space
- Office
- Partner Co-working Space
- Research Grant Concierge
- Research Support Concierge
- Shared Instrumentation & Tech
- Shared Workplace (Grad/ PHD)
- Thematic Clusters / Critical Mass
- Video Conferencing

15 MINUTE TRAVEL RADIUS
- Cold/ Warm Shell
- Core Facilities – Equipment
- General Classrooms & Class Labs
- High Performance Computing
- Hotel/ Conference
- Imaging Facilities
- Maker Space
- Performance / Clinic - On-site
- Research Support (General)
- Specialized Labs
- Specialized Mission Space

BEYOND A 15 MINUTE TRAVEL RADIUS
- Child Care
- Conference & Hotel
- Extended Stay Visitor Housing
- Field Work
- Secure / Classified Space
- Shared Core Facilities
- Specialized Storage/ Collections
- Unique Core Facilities

ENTREPRENEURSHIP, TRANSLATION & COMMERCIALIZATION
HIGH PERFORMANCE RESEARCH ENVIRONMENTS
ENGAGED COLLABORATIVE & COMMUNITY RESEARCH
INTERDISCIPLINARY RESEARCH THROUGH SHARED RESOURCES
LEARNING & RESEARCH
SUPPORTING THE $2B ENTERPRISE & RESEARCH ADMINISTRATION
**RESEARCH & INNOVATION ECOSYSTEM**

**ENVIRONMENTS THAT SUPPORT THE RESEARCH ENTERPRISE**

### 5 MINUTE TRAVEL RADIUS

Thematic clusters emerge around campus. Pockets of drop-in coworking spaces with bookable meeting rooms are colocated with social areas such as cafés and flexible spaces. Thematic clusters accommodate students and faculty with shared flexible spaces, general classrooms and labs, research support concierge services and shared instrumentation/technology labs.

### 15 MINUTE TRAVEL RADIUS

Pedestrian pathways between west and east campus become pathways for exploration and respite. Centralized core facilities provide opportunities for unintentional collaborations and knowledge share. Support spaces and services are housed within the core facility buildings to advance project and research work.

### BEYOND A 15 MINUTE TRAVEL RADIUS

Single buildings providing specialty services such as public-private partnership facilities, childcare, and the conference and hotel center are distributed around the periphery of campus.

---

### SPACE TYPE BY CATEGORY

#### ENTREPRENEURSHIP, TRANSLATION & COMMERCIALIZATION
- Flexible space
- Meeting space
- Partnership space
- Pop-up space
- Presentation space
- Quiet office
- Research lab-applied
- Secure coworking space
- Startup space/ incubator
- Tech transfer

#### HIGH PERFORMANCE RESEARCH ENVIRONMENTS
- Access & sharing of research
- Cold/ warm shell
- Core facility - equipment
- Coworking space
- Dedicated labs
- High performance computing
- Imaging facilities
- National security/ quantum research
- Outdoor
- Quiet workplace
- SCIFS classified space
- Secure classified space
- Specialized spaces*
- Thematic clusters

#### ENGAGED COLLABORATIVE & COMMUNITY RESEARCH
- Café
- Child care
- Classes - office, community
- Clinic - on-site
- Consumer testing - on-site
- Online platform
- Performance / clinic - on-site

#### INTERDISCIPLINARY RESEARCH THROUGH SHARED RESOURCES
- Centralized bio sample repositories
- Collocating specializations
- Core facilities - specialized
- Coworking space
- Neighborhoods
- Pinup space
- Project display
- Research support concierge
- Shared instrumentation / technology

#### LEARNING & RESEARCH
- Co-located core facilities
- Field work
- General class lab
- General classroom
- Immersion program
- Immersive tech
- Internship/ shadow
- Maker space
- Proximity of lab to classroom
- Simulation/ VR learning
- Business dev. & marketing
- Contracting & legal administration
- Core facilities
- Coworking space
- Data management
- Entrepreneurial
- Financial models for collaborative research
- Grant / research support
- Hotel & conference center
- International engagement
- Lab operations management
- License/ patent dev.
- Tech transfer
- Video conferencing

---

**APPENDIX**

**SPACE TYPE BY CATEGORY**

**PRIMARY**

<table>
<thead>
<tr>
<th>5 MINUTE TRAVEL RADIUS</th>
<th>MEETING SPACE</th>
<th>Flexible Space, Partnership Space</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>COWORKING SPACE</td>
<td>Quiet Workplace, Thematic Clusters</td>
</tr>
<tr>
<td></td>
<td>CAFÉ</td>
<td>Research Support Concierge, Shared Inst. / Tech</td>
</tr>
<tr>
<td></td>
<td>GENERAL CLASSROOM</td>
<td>Core Facilities, Immersion Program/ Tech</td>
</tr>
<tr>
<td></td>
<td>GENERAL CLASS LAB</td>
<td>Core Facilities, Immersion Program/ Tech, Maker Space, Simulation/ VR Learning</td>
</tr>
<tr>
<td>15 MINUTE TRAVEL RADIUS</td>
<td>CORE FACILITIES</td>
<td>Cold/ Warm Shell, High Performance Computing, Imaging Facilities</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Performance / Clinic</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Research Support Concierge, Shared Inst. / Tech</td>
</tr>
<tr>
<td></td>
<td></td>
<td>General Classroom, Maker Space</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Conf. Center/ Hotel, Grant / Research Support</td>
</tr>
<tr>
<td>BEYOND A 15 MINUTE TRAVEL RADIUS</td>
<td>SPECIALIZED SPACES</td>
<td>Secure Specialized Space</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Child Care</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Field Work</td>
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<tr>
<td></td>
<td></td>
<td>Conf. Center/ Hotel</td>
</tr>
</tbody>
</table>

---

*DARK SPACE, TEMPERATURE, CAGE, VISUALIZATION, ETC.
CU Boulder utilization targets:

Classrooms:
- 35 hours/wk
- 67% seat fill

Teaching Labs
- 20 hours/wk
- 80% seat fill

4,500 full time students could fit in the underutilized classroom spaces.

KEY
- CENTRALLY SCHEDULED
- DEPARTMENTALLY CONTROLLED
- -- CU BOULDER TARGET
### Scenario Planning 2

#### Creating Accessible Environments

<table>
<thead>
<tr>
<th>05 Minute Travel Radius</th>
<th>15 Minute Travel Radius</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Academic Support</strong></td>
<td>Academic Advising Experts</td>
</tr>
<tr>
<td>1st Year Advising W/ Concierge</td>
<td>Academic Support Located Near Housing</td>
</tr>
<tr>
<td>Academic Support Services</td>
<td>Counseling</td>
</tr>
<tr>
<td>Testing Center</td>
<td>Financial Aid</td>
</tr>
<tr>
<td>Tutoring Embed W/in Study Space</td>
<td>Recreation</td>
</tr>
<tr>
<td></td>
<td>Tutoring Center</td>
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<tr>
<td></td>
<td>Upperclassman Advising</td>
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<tr>
<td></td>
<td>Wellness</td>
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<tr>
<td></td>
<td>Writing Center</td>
</tr>
<tr>
<td><strong>Administrative Support</strong></td>
<td>Administrative Services Hub</td>
</tr>
<tr>
<td>IT Support/ IT Help Desk</td>
<td>IT Support/ IT Help Desk</td>
</tr>
<tr>
<td><strong>Flexible Workplace Environments</strong></td>
<td>Faculty Club</td>
</tr>
<tr>
<td>Cafe</td>
<td>Mobile Workplace</td>
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<tr>
<td>Mobile Workplace</td>
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<tr>
<td><strong>Departmental Home</strong></td>
<td>Department Home</td>
</tr>
<tr>
<td>Workplace</td>
<td></td>
</tr>
<tr>
<td><strong>Flexible Unassigned Meetings Spaces</strong></td>
<td>Hotel Showcase</td>
</tr>
<tr>
<td>Conference Rooms</td>
<td></td>
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<tr>
<td>Flexible Touchdown Workplace</td>
<td></td>
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<tr>
<td>Informal Study</td>
<td></td>
</tr>
<tr>
<td>Virtual Meeting Platform</td>
<td></td>
</tr>
</tbody>
</table>

#### Ratio of Spaces

![Ratio of Spaces Diagram]
5 MINUTE TRAVEL RADIUS
1ST Year Advising W/ Concierge
Academic Support Services
Café
Flexible Touchdown Workplace
Informal Study
IT Support
Meeting Rooms
Mobile Workplace
Testing Center
Transportation
Tutoring Embed W/in Study Space
Virtual Meeting Platform
Workplace

15 MINUTE TRAVEL RADIUS
Academic Advising Experts
Academic Support Located Near Housing
Administrative Services Hub
Counseling
Department Home
Faculty Club
Financial Aid
Hotel Showcase
IT Support/ IT Help Desk
Mobile Workplace
Recreation
Torturing Center
Upperclassman Advising
Wellbeing
Writing Center
**SCENARIO PLANNING 2**

**CREATING ACCESSIBLE ENVIRONMENTS**

**SPACE TYPE DISTRIBUTION**

<table>
<thead>
<tr>
<th>PRIMARY</th>
<th>SECONDARY</th>
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<tbody>
<tr>
<td><strong>5 MINUTE TRAVEL RADIUS</strong></td>
<td></td>
</tr>
<tr>
<td>• Tutoring Center</td>
<td>Individual Counseling, Testing Center, Wellbeing, IT Support</td>
</tr>
<tr>
<td>• Conference Room</td>
<td></td>
</tr>
<tr>
<td>• Café</td>
<td>Flexible Touchdown Workplace</td>
</tr>
<tr>
<td><strong>15 MINUTE TRAVEL RADIUS</strong></td>
<td></td>
</tr>
<tr>
<td>• One-Stop-Shop</td>
<td>Admissions, Residential Academic Life, Mentoring/ Faculty Peer, Career Center, New Student Programs/ Orientation</td>
</tr>
<tr>
<td>• IT Support</td>
<td>Development, Communications, HR, Finance, Marketing</td>
</tr>
<tr>
<td>• Faculty Club</td>
<td></td>
</tr>
<tr>
<td>• Community Space, Lounge, Public Welcome/ Reception</td>
<td></td>
</tr>
</tbody>
</table>

**SUPPORT SPACE CLASSIFICATION**

**ACADEMIC SUPPORT**
- Admissions
- Career Center
- Individual Counseling
- IT Support
- Mentoring/ Faculty Peer
- New Student Programs/ Orientation
- One-Stop-Shop For Financial Aid/ Financial Services
- Residential Academic Life
- Testing Center
- Tutoring Center
- Wellbeing

**ADMINISTRATIVE SUPPORT**
- Communications
- Development
- Finance
- HR
- IT Support
- Marketing
- Safety

**FLEXIBLE WORKPLACE ENVIRONMENTS**
- Café
- Coworking
- Faculty Club
- Huddle Room
- IT Support
- Mobile Workplace
- Office Hours in (RAE’s)

**DEPARTMENTAL HOME ENVIRONMENTS**
- Community Space
- Flexible Touchdown Workplace
- Identity
- Lounge
- Public Welcome/ Reception
- Workplace

**FLEXIBLE UNASSIGNED MEETINGS SPACES**
- Conference Room
- Informal Study
**INTEGRATIVE FACILITIES**

**SCENARIO PLANNING 2**

**VIBRANT FACILITIES & ENHANCED EXPERIENCES**

**THE ANATOMY OF A MIXED USE FACILITY**

**WELCOMING THE COMMUNITY**

Mixed-use facilities encourage the community to take an active role as CU Boulder’s partner in research, events, and recreation. Designing facilities with open/public spaces on lower levels and CU Boulder only access on upper floors provides safety and security for students while giving community access to collaborative spaces (i.e., active classrooms, meeting rooms, maker spaces, and cafés).

**DIVERSE RESIDENTIAL ACADEMIC EXPERIENCES**

Co-locating Residential Academic Experiences (RAE) with student life, learning & research, and Wellbeing provides the students with 24/7 access to learning, social, and recreation/support environments.

**DISTRIBUTED STUDENT LIFE**

Student life is equally represented throughout campus and colocated with Wellbeing, collaboration, and learning and research spaces.

---

**MIXED USE TYPOLOGY MAKEUP**

**RESIDENTIAL ACADEMIC EXPERIENCES**

- Active classroom
- Apartment
- Communal
- Faculty/ staff housing
- Food retailer
- Food/café
- Huddle room
- Informal study

**LEARNING & RESEARCH**

- Active classroom
- Advising/ support
- Communal
- Food/ café
- Library

**STUDENT LIFE**

- Active classroom
- Commuter
- Food/ café
- Gathering/ event
- Huddle room
- Informal study
- Night event
- Outdoor
- Retail
- Social
- Student union
- Tutoring center

**WELLBEING**

- Active classroom
- Advising/ support
- Community
- Computer
- Food/ café
- Formal study
- Huddle room
- Ideation/ co-creation
- Informal study
- Project classroom
- Recreation
- Social
- Student union
- Wellbeing

**COMMUNITY**

- Athletics
- Center for teaching & learning
- Conference
- Coworking
- Food/ café
- Hotel
- Ideation/ co-creation
- Library
- Maker space
- Outdoor
- Startup/ partnership
- Town

**COLLABORATION**

- Active classroom
- Black box
- Communal
- Food/ café
- Gathering/ event
- Huddle room
- Ideation/ co-creation
- Maker space
- Retail
- Student union
- Studio
- Telepresence
The results of this workshop were documentation of a brainstorming session with many diverse constituents from the CU Boulder campus and no way constitute a land planning process or commitment from the university for any future development on the property.
RESILIENT ASSET MANAGEMENT

SCENARIO PLANNING

ORGANIZING FRAMEWORK FOR RESILIENCE

EXECUTIVE SUMMARY

PHASE PROCESS BY TEAM

12 MIXED-USE BUILDING TEMPLATES

INSIGHTS DRIVING TOOL DEVELOPMENT

APPENDIX

BASIC RESILIENCY

ALL BUILDINGS

BUILDING SECURITY PROTOCOLS

BUILDING SECURITY SYSTEMS

BUILDING MEP ARE WITHIN THEIR USEFUL LIFE

HEATING, LIGHTING, WATER & AIR CONDITIONING

COMMUNICATION SYSTEMS

NETWORK MAINTENANCE REPORTING

MISSION CRITICAL RESILIENCY

INDIVIDUAL BUILDING LEVEL

Unique resiliency needs dependent on building typologies

LABORATORIES

ATHLETICS, PERFORMANCE & RECREATION

HOUSING

GENERAL LEARNING, STUDENT SERVICES & ADMINISTRATION

CAMPUS SUPPORT

MISSION DEPENDENCY INDEX FOR BUILDING TYPOLOGIES

1. Emergency Response

- Centralized command center, campus surveillance & security
- Emergency response communication systems, plans and app
- Central sheltering plan to accommodate large populations
- Natural disaster/extreme weather responsiveness & facility recovery plans (plains, flood, fire)
- Develop emergency response team familiarity with campus facilities for efficient response

2. Digital Infrastructure & Communication Systems

- Integrate redundancies into campus IT networks
- Universal, campus wide wi-fi and network connectivity
- Cloud-based data warehousing & storage
- Cybersecurity measures to protect sensitive information
- Smart monitoring for real time feedback to solve problems early

3. Physical Infrastructure

- Cluster recoverable buildings to centralize backup generators & measures to provide emergency power
- Micro-grid to provide energy in times of grid outage
- Increase local grid-intertied renewable energy generation and storage to strengthen energy security
- Centralized campus loading dock for logistics and distribution

4. Ongoing Resilience

- Zero emissions transportation systems
- Food security
- Science-based targets for GHG reduction
- Water efficiency programs
- Renewable energy sources and storage
- Zero waste generation systems
- Multi-modal transportation including bike, car, ride and bus share programs
- Centralized materials management, storage & distribution
ASSESSING CRITICALITY BY MISSION

**EVENT SEVERITY TIMELINE**

Events causing buildings to go off line have a cascading effect through an event timeline. Lab environments feel an immediate critical effect with the loss of data and invaluable samples, and after the initial hit the severity of the situation stabilizes. Housing and General buildings both have low impacts to the mission at an event onset, but within a matter of hours the situation escalates for housing with the inability to feed or house people. General buildings can last several days in halted operations, after which is a severe hit in the ability to function as a university.

**CRITICALITY TIMELINE**

- **PREVENTATIVE**
- **QUICK RESPONSE**
- **PLANNED FLEXIBILITY**

**BUILDINGS CRITICAL TO PROTECT**

<table>
<thead>
<tr>
<th>FIRST PRIORITY</th>
<th>SECOND PRIORITY</th>
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</table>

**HOUSING**
- UMC > Food
- C4C > Food
- Williams Village > Density

**LABORATORIES**
- Facilities with freezers
- Facilities with toxic gas

**GENERAL***
- Library > Preserve rare collections
- Administrative Buildings > Preserve university data
- Large academic buildings > Density

**Deferred Maintenance**
- X Utility Cost
- X Work Orders
- X Safety Risk Factor
- X Criticality of Loss

*[GENERAL LEARNING, STUDENT SERVICES & ADMINISTRATION]
FUTURE DEMOGRAPHICS
Baseline Information
Understanding the shift in student population:

- Student enrollment has increased by 38% (10k) over the past 25 years.
  
  CU Boulder ODA

- Boulder populations are expected to stabilize resulting in a marginal enrollment increase over the next 30 years (10%).
  
  Colorado State Demography Office

### KEY

- **GROWTH PROJECTION**
  
  - 0.5% each year for 2019-2023 (provided by ODA),
  
  - 0.25% assumed for 2024-2028, and 0% growth there after

- **STATE DEMOGRAPHIC GROWTH**
  
  Follows state population projection

- **HISTORIC GROWTH**
  
  Does not include online students
Understanding the population breakdown of future students:

- U/G students are expected to remain the largest share of the student population.
- Ph.D. and Masters students are expected to see the largest rates of growth over the next 30 years.
- This would result in a demand for graduate education resources and infrastructure.
In the next 30 years U/G population is expected to grow by 4%. The following projections show the increase of total numbers by 2048:

- **293** Transfers
- **97** First Gen
- **703** International
- **2,055** Low SES

Over the next 30 years the mix of traditional (52%) and non-traditional (48%) students will equalize.
SCENARIO PLANNING 1  FUTURE DEMOGRAPHICS

DEMOGRAPHIC GROWTH OVER TIME

Increased non-traditional growth over time
SCENARIO PLANNING 1 FUTURE DEMOGRAPHICS

CHANGING DEMOGRAPHICS

2018

2048
# Scenario Planning 1: Future Demographics

## New Demographic Themes

<table>
<thead>
<tr>
<th>Theme</th>
<th>Description</th>
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<tbody>
<tr>
<td>Community</td>
<td>Informal gathering spaces were desired across all demographics, with a particular emphasis on food as a community activity.</td>
</tr>
<tr>
<td>Accommodation</td>
<td>Commuter hubs were an overwhelming desire across groups, followed by custom housing solutions including family, RAE, and upperclassmen housing.</td>
</tr>
<tr>
<td>Support</td>
<td>A combination of support, advising, and safe spaces were selected across all minority demographic groups.</td>
</tr>
</tbody>
</table>

### Top Images Selected

- **Food/Café**
- **Social**
- **Commuter**
- **Themed Housing**
- **Advising**
- **Support**
- **Safe**

### # of Votes

<table>
<thead>
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<td>Social</td>
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<tr>
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<tr>
<td>Themed Housing</td>
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<td><img src="image" alt="Votes" /></td>
</tr>
<tr>
<td>Support</td>
<td><img src="image" alt="Votes" /></td>
</tr>
<tr>
<td>Safe</td>
<td><img src="image" alt="Votes" /></td>
</tr>
</tbody>
</table>
**ACCOMMODATIONS**
Accommodations specifically tailored to graduate students which are affordable, support families, and create community

**GRADUATE BUILDING**
The most desired space for graduate students is a graduate building home base with administration, a student lounge, café, health clinic, and writing center

---

**TOP IMAGES SELECTED**

- **CHILD CARE**
- **APARTMENT**
- **THEMED HOUSING**
- **WORKPLACE**
- **FOOD/CAFÉ**
- **SUPPORT**
- **SAFE**
- **GRADUATE BUILDING**

**# OF VOTES**

- **CHILD CARE**
- **APARTMENT**
- **THEMED HOUSING**
- **WORKPLACE**
- **FOOD/CAFÉ**
- **SUPPORT**
- **SAFE**
- **GRADUATE BUILDING**
SCENARIO PLANNING 1  FUTURE DEMOGRAPHICS
INTERNATIONAL STUDENT THEMES

THEME

ACCOMMODATIONS
High quality living environments give international students a balance between the comforts of home and ties to the local community

SUPPORT SERVICES
Support services designed to aid international students with the challenges of a US lifestyle, including visa and tax assistance, health insurance, child care, and English proficiency

SUPPORT
Community spaces facilitate cultural affiliations, peer-to-peer networks, and safe spaces to pray and meditate

TOP IMAGES SELECTED

CHILD CARE  APARTMENT  COMMUTER  DORM ROOM  ADVISING  SUPPORT  TUTORING CENTER  SOCIAL  COMMUNAL  FOOD/CAFÉ  SAFE

# OF VOTES

...
Based on CU Boulder predictions, demographic enrollment changes may include:

- Traditional students decreasing 10% over time
- U/G non-traditional population grow by 26% (low SES, international, first gen, transfer)
- Graduate population (whole population) grow by ~60%
SCENARIO PLANNING 1 FUTURE DEMOGRAPHICS

LOW SOCIOECONOMIC STUDENT THEMES

**THEME**

**CAMPUS HOME BASE**
Touchdown and rest spaces for commuter students as well as affordable housing for upperclassmen allow students to maintain a home on campus.

**NETWORKED CAMPUS**
Facilitate supportive work environments with bookable meeting rooms, café’s with extended hours, and social hubs for student groups.

---

**TOP IMAGES SELECTED**

- **COMMUTER**
- **SAFE**
- **THEMED HOUSING**
- **MEETING ROOM**
- **FOOD/CAFÉ**
- **SOCIAL**

---

**# OF VOTES**

- Community: 3
- Safe: 2
- Themed Housing: 3
- Meeting Room: 2
- Food/Café: 1
- Social: 4
SCENARIO PLANNING 1 FUTURE DEMOGRAPHICS
TRANSFER STUDENT THEMES

THEME

SOCIAL INTEGRATION
Enable transfer students to develop their sense of community on a new campus

ACADEMICS
Create an exciting academic culture that feels personal and lets students maximize every credit hour

TOP IMAGES SELECTED

COMMUTER  SOCIAL  GATHERING/ EVENT  ACTIVE CLASSROOM  HUDDLE ROOM  INFORMAL STUDY  ADVISING

# OF VOTES
FIRST GENERATION STUDENT THEMES

THEME

PEER NETWORKS
Create spaces for students to find their home on campus and develop peer to peer networks

CAMPUS SUPPORT
Develop a networked approach to services, resources, and advising for first generation students and families

TOP IMAGES SELECTED

COMMUTER
SOCIAL
FOOD/CAFE
COMMUNITY
INTERACTION WITH FACULTY
ON-CAMPUS EMPLOYMENT
SUPPORT
SAFE
ADVISING

# OF VOTES

...
SCENARIO PLANNING 1  FUTURE DEMOGRAPHICS

TRADITIONAL STUDENT THEMES

ACADEMIC EXCELLENCE
Learning environments that students enjoy spending time in and a suite of study spaces that facilitate independent and group work

COMMUNITY AFFILIATION
Provide a home on campus that extends beyond the academic to include ample social and recreational spaces
SCENARIO PLANNING 1 FUTURE DEMOGRAPHICS

FUTURE DEMOGRAPHICS MAP

KEY
- FIRST GEN
- GRADUATE
- INTERNATIONAL
- LOW SES
- TRADITIONAL
- TRANSFER

SHIFTING DEMOGRAPHICS
CALL CASE HOME (NEW, CENTRALLY LOCATED BUILDING)

FOCUS ON RESIDENTIAL ACADEMIC LIVING FOR TRADITIONAL STUDENTS
PORTFOLIO OF PEDAGOGY

Baseline Information
ENGAGED LEARNING
Interactive & hands on learning experiences that immerse students in new areas of interest and encourage self exploration

STUDY
Increased study spaces allow students to work in groups in both quiet & focused and informal & interactive environments
SCENARIO PLANNING 1 PORTFOLIO OF PEDAGOGY
UNDERGRAD STUDENT THEMES

**ENGAGED LEARNING**
Formal and informal interactive learning environments that allow students to shift from static to engaged learning

**FLUID COMMUNITY**
In an environment where the lines between learning and social experiences are blurred, a portfolio of multi-use spaces encourage community and allows students to move seamlessly from one activity to the next
**WORKPLACE**
Small classrooms designed to dive into complicated ideas, with writable walls and co-creation space, private, reservable meeting rooms, and spaces for hands-on work and real-world experiences.

**COMMUNITY BUILDING**
Spaces that cultivate community both within a discipline and in the greater graduate student community with informal and flexible spaces for both social and study.
**LIVING**
Affordable housing and recreation spaces close to campus, allowing students to easily get to work, and also get away from work.

**WORKPLACE**
Provide PhD students with a spectrum of workplaces, from individual assigned to informal collaborative spaces.

**ACTIVE EDUCATION**
Education spaces that best enable PhD students to work hands on in their field.

*TOP IMAGES SELECTED*

**APARTMENT**
**RECREATION**
**WORKPLACE**
**INFORMAL STUDY**
**ACTIVE CLASSROOM**
**COMPUTER**
**SHARED LAB**
**FORMAL LAB**
ACADEMIC INTEGRATION
Provide licensure and certificate students the same portfolio and quality of spaces as the larger university

HOME BASE
Enable students to feel a sense of comfort through touchdown and community areas

DISTANCE LEARNING
Reach a larger number of students with distance learning capabilities
SCENARIO PLANNING 1  PORTFOLIO OF PEDAGOGY

PORTFOLIO OF PEDAGOGY

KEY

- U/G
- MASTERS
- PHD
- LICENSURE & CERTIFICATES

BEYOND THE CAMPUS

13% OF THOSE WHO VOTED WOULD LIKE TO START BY DEVELOPING FACILITIES OFF CAMPUS

CONCENTRATE U/G STUDENTS ON MAIN CAMPUS TO BUILD COMMUNITY AND CONNECTEDNESS

INVOLVE LICENSURE & CERTIFICATES INTO THE LEARNING AND RESEARCH CORE OF CAMPUS

PROVIDE SHORT TERM AND AFFORDABLE HOUSING

117  STRATEGIC FACILITIES VISIONING SCENARIO PLANNING PHASE SUMMARY
RESEARCH & INNOVATION ECOSYSTEM

Baseline Information
SCENARIO PLANNING 1 RESEARCH & INNOVATION ECOSYSTEM

RESEARCH AWARDS PROJECTION PER CU BOULDER OFFICE OF CONTRACTS & GRANTS

GROWTH
The overall portfolio grows at 1.5% per year, adjusted for 4% inflation on an annual basis for 30 years.

DIVERSITY
The share of the non-federal expenditures grows from historic average of 25% to 35% over 30 years.

INDUSTRY FUNDING
The share of the non-federal industry awards increases to 10%, more than doubling in total size over 30 years.

KEY
- FEDERAL
- INDUSTRY
- STATE OF CO
- INTL, NON-PROFIT, OTHER
- OTHER UNIVERSITIES
SCENARIO PLANNING 1 RESEARCH & INNOVATION ECOSYSTEM

RESEARCH & INNOVATION ECOSYSTEM THEMES

SYSTEMS APPROACH

Campus wide research infrastructure that supports opportunities and help them flourish, including available startup, pop-up, and lab space, research support systems with grant identification, translation, business development, and campus-centered home bases for researchers and labs

COLLABORATIVE STRUCTURE

Facilitate interdisciplinary research through thematic neighborhoods of shared core facilities, coworking spaces, and colocation
WORKPLACE
A variety of working environments including bookable rooms, thematic coworking space, and high quality quiet workplaces

APPLIED RESEARCH
Dedicated, flexible spaces available to take advantage of opportunities, including an incubator for spin-offs and pop-ups for spontaneous opportunities
SCENARIO PLANNING 1 RESEARCH & INNOVATION ECOSYSTEM

ENGAGED COLLABORATIVE & COMMUNITY RESEARCH

THEME

CU ENGAGEMENTS
There is a preference for creating research engagements on campus as opposed to external locations, and pairing on-campus engagements with multi-media collaborations to engage at a distance.

COMMUNITY ENGAGEMENTS
Community and online engagements to help increase access to the university, with an additional online component such as, "tinder for research projects", to increase research collaborations with external entities.

TOP IMAGES SELECTED

CONSUMER TESTING - AT CU
CLINIC - AT CU
PERFORMANCE SPACE - AT CU

CLASSES - IN COMMUNITY
ONLINE PLATFORM
PARTNERSHIPS
Tie industry work to the classroom with projects, visits, skill shares, & co-location adjacent to classrooms

SELF-GUIDED LEARNING
Draw students in with organic communities that encourage hacking and curiosity, enabling students to find their passion where they were not initially looking
SCENARIO PLANNING 1 RESEARCH & INNOVATION ECOSYSTEM
HIGH PERFORMANCE RESEARCH ENVIRONMENTS

THEME

COLLABORATIVE SPACES
Spaces to intentionally share resources and ideas with fellow researchers, particularly on a day to day working basis

READY ENVIRONMENT
Portfolio of environments that enable high -touch, high performance research the moment opportunities arise

TOP IMAGES SELECTED

- HOTEL/CONFERENCE
- COWORKING SPACES
- CORE FACILITY-EQUIPMENT
- ACCESS & SHARING OF RESEARCH
- OUTDOOR
- COLD/WARM SHELL
- HIGH PERFORMANCE COMPUTING
SCENARIO PLANNING 1  RESEARCH & INNOVATION ECOSYSTEM
INTERDISCIPLINARY RESEARCH THROUGH SHARED RESOURCES

**THEME**

**CORE SPACES**

Bring together different disciplines through centralized thematic neighborhoods designed around high-performance coworking spaces, outfitted with a variety of shared tools & services for project success.

**PERIPHERY SPACES**

Core lab & instrumentation facilities are placed adjacent to workplace neighborhoods for increased research collaboration and efficient use of resources.

---

*TOP IMAGES SELECTED*

- PROJECT DISPLAY
- COWORKING SPACES
- PINUP SPACE
- NEIGHBORHOODS
- RESEARCH SUPPORT
- CORE FACILITIES (ALL)
- INSTRUMENTATION LAB
SCENARIO PLANNING 1 RESEARCH & INNOVATION ECOSYSTEM
SUPPORTING THE $2 BILLION ENTERPRISE

THEME

SUPPORT SYSTEMS
Integrate support functions into a seamless system that supports research endeavors across the university, taking the PI out of the administrative equation and increasing productivity

COLLABORATIVE WORKPLACE
Develop innovative financial models that connect funding silos into a collaborative research system, realized in space by shared core facilities, coworking space, and start-up support

TOP IMAGES
- SUPPORT SYSTEMS
  - GRANT SUPPORT
  - LAB OPERATION MANAGEMENT
  - TECH TRANSFER
  - GRANT IDENTIFICATION
- COLLABORATIVE WORKPLACE
  - CORE FACILITIES
  - COWORKING SPACE
  - FINANCIAL MODELS FOR COLLABORATIVE RESEARCH
  - ENTREPRENEURIAL
  - VIDEO CONFERENCING
SCENARIO PLANNING 1 RESEARCH & INNOVATION ECOSYSTEM

EXECUTIVE SUMMARY PHASE PROCESS BY TEAM 12 MIXED-USE BUILDING TEMPLATES INSIGHTS DRIVING TOOL DEVELOPMENT APPENDIX

KEY

INTERDISCIPLINARY RESEARCH THROUGH SHARED RESOURCES

SUPPORTING THE $2 BILLION ENTERPRISE

HIGH PERFORMANCE RESEARCH ENVIRONMENTS

LEARNING IN RESEARCH

ENGAGE COLLABORATIVE & COMMUNITY RESEARCH

ENTREPRENEURSHIP, TRANSLATION & COMMERCIALIZATION

CREATE HOME BASE AND SUPPORT SERVICES AROUND THE RESEARCH CORES FOR MASTERS & PHD STUDENTS

PROVIDE HOUSING FOR MASTERS AND PHD STUDENTS
## RESEARCH & INNOVATION ECOSYSTEM

**UNIQUE & SHARED RESOURCES**

<table>
<thead>
<tr>
<th>RESOURCES</th>
<th>BUILDING</th>
<th>NEIGHBORHOOD</th>
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### IN ALL THEMATIC HUBS

**ARTS**
- Display
- Performance
- Collections
- Immersive Environments
- Digital Humanities
- Technology-oriented programs

**ENVIRONMENT**
- Clean Room
- Analytics
- Data Visualization

**LIFE SCIENCES**
- Culture
- General bio tools
- Imaging
- Geonomics
- Econ Cytometry
- Freezers

**STUDENT EXPOSURE**
- Robotics
- Performance
- Machining
- Bio work
- Museums

**SURFACE MATERIALS**
- Electron Microscopes
- Mass Spec
- Lasers
- Nano-fabrication
- Clean Room

**WELLBEING**
- Healthy Lifespan
- Psychology
- Mental Health
- Athletics
- Outreach
- Clinics
- Geonomics
- Art
- Exhibit
FEDERATED FLEXIBILITY

Baseline Information
FEDERATED FLEXIBILITY
CAMPUS SPACE ALLOCATION BREAKDOWN PER CU BOULDER FACILITIES MANAGEMENT

ALL SPACES

Support 15%
Health Care Less Than 1%
General Use 10%
Residential 23%
Office 43%

Study 5%
Laboratory 11%
Teaching Lab 4%
Classroom 4%
Special Use 6%

LEARNING/RESEARCH SPACES*

Office 22%
Laboratory 22%
Teaching Lab 7%
Classroom 8%

*Learning / research spaces exclude: residential, general use, health care, support, and special use

FICM CODES

CLASSROOM
- Classroom

LABORATORY
- Class Laboratory
- Open Laboratory
- Research/Non-class Lab

OFFICE
- Office
- Conference Room

STUDY
- Study Room
- Stack
- Open-Stack Study Room
- Processing Room

SPECIAL USE
- Armory
- Athletic / Physical Education
- Athletic Spectator Seating
- Media Production
- Clinic
- Animal Facilities
- Greenhouse
- All Purpose

GENERAL USE
- Assembly
- Exhibition
- Food Facility
- Lounge
- Merchandising
- Recreation
- Meeting Room

SUPPORT
- Central Computer / Telecommunications
- Shop
- Storage
- Vehicle Storage
- Hazardous Waste Service

RESIDENTIAL
- Sleep/Study
- Apartment
- House
Just under a quarter of students are taking at least one summer class at CU Boulder.

### Key

<table>
<thead>
<tr>
<th>Term</th>
<th>Undergraduate</th>
<th>Masters &amp; Professional Degrees</th>
<th>PHD</th>
<th>Certificates &amp; Licenses</th>
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<td>Summer</td>
<td>6,916</td>
<td>605</td>
<td>158</td>
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</table>
CU Boulder utilization targets:

- Classrooms: 35 hours @ 67% utilization per week
- Teaching Labs: 20 hours @ 80% utilization per week
- Classroom sized 0-24 have the highest utilization in both centrally scheduled and departmentally controlled
- Meeting targets would allow space for an additional 6,000 full time students
CU Boulder utilization targets:

- Classrooms sized 0-24 have the highest efficiency in both centrally scheduled and departmentally controlled.
- The greatest utilization increase is classrooms sized 25-49 due to the quantity of classrooms.
- Teaching labs tend to be over scheduled yet have low seat fill.

**KEY**
- CENTRALLY SCHEDULED
- DEPARTMENTALLY CONTROLLED
Diagrams show a sample of a weekly schedule for buildings in the core of campus, on the perimeter of main campus and on east campus.
**FEDERATED FLEXIBILITY / SCENARIO PLANNING 2**

**FEDERATED FLEXIBILITY THEMES**

| Quality space standards in technology & furniture across all classrooms | Reliable transportation to access all of campus efficiently | Partner with external entities to increase space utilization | Space matching based on workstyle & teaching style |
CENTRAL PRIORITIZED SCHEDULING THEMES

STANDARDIZED QUALITY

Universally incorporate updated & standardized technology for class scheduling

All classrooms have a standard technology baseline

PROCESS

Prioritized scheduling in “home” building

Enhanced transparency of the scheduling process and procedures

Incentivize opening departmentally owned space to the central pool
# Optimizing Our Learning Space Use Across Campus Themes

## Technology/Process Upgrades

<table>
<thead>
<tr>
<th>Real time data showing utilization, allowing for real time flexibility</th>
<th>All classrooms have a standard technology baseline and flexible furniture</th>
</tr>
</thead>
</table>

## Offering Expansion

<table>
<thead>
<tr>
<th>Consider Friday only classes to maximize space use</th>
<th>Incentivize hybrid &amp; online courses</th>
<th>Use underutilized space for burgeoning interdisciplinary degrees</th>
</tr>
</thead>
</table>
USING OUR SPACE
OFF HOURS THEMES

INFRASTRUCTURE

Transportation service offered during evening hours to safely access campus facilities

Increased security in off hour utilized spaces

After hours parking allotment to enable campus access

OFFERING EXPANSION

Expand working hours to split a morning & evening shift - enabling longer hours of service and with less office space

Bring community organizations and non-profits on campus for off hour space use
USING OUR FACILITIES OVER SUMMER

STUDENT NEEDS

- Financial aid & tuition incentive applied over summer term
- Residence halls and student services open year round

OFFERINGS

- Offer short, intensive micro-credential courses during the summer semester
- Focus on bottleneck courses
- Partner with community organizations, non-profits, and the city of Boulder during legacy events
- Partner with other academic institutions for resource sharing
PROVIDING WORKPLACE MOBILITY FOR FACULTY, ADMINISTRATION & STAFF THEMES

OFFICING

- Mobile workplace will not negate the need for a home base
- WeWork style hotelling space when working across campus locations
- Pop-up workplaces for unique projects and initiatives
- Ability to notify if an office will be vacant for a day/week/month for use by others

TOOLS & INCENTIVES

- High quality amenities including dual monitors, printers, etc.
- Reliable transportation to access all campus locations
- Incentives for opting into full mobile officing
### Aligning Our Learning Spaces with How We Want to Learn Themes

#### Quality Space

<table>
<thead>
<tr>
<th>A standard baseline of technology across all learning spaces</th>
<th>Flexible, standardized furniture across all learning spaces</th>
</tr>
</thead>
</table>

#### Optimized Space

| Match classes to classrooms based on a teaching/learning assessment | Take advantage of exterior spaces for learning opportunities | Incorporate mobile dividers in large classrooms for flexible sizing |
INTEGRATIVE FACILITIES

Baseline Information
SCENARIO PLANNING 1 INTEGRATIVE FACILITIES

INTEGRATIVE FACILITIES THEMES

ACADEMIC
The majority of mixed use spaces include active classrooms with a mix of applied, creative, and study spaces for students.

COMMUNITY
All mixed-use facilities included informal community gathering spaces, with café’s being the highest desired, additional spaces for student groups to meet, and taking greater advantage of CU’s outdoor spaces.
SCENARIO PLANNING 1 INTEGRATIVE FACILITIES

STUDENT LIFE MIXED-USE THEMES

THEME

ATTRITIONS
Points of interest and events that draw students in, including mixed-use retail, social events, and café's

COMMUNITY
Touchdown space as a home base and informal places for students to gather and work on student projects and extracurriculars

TOP IMAGES SELECTED

- GATHERING/EVENT
- RETAIL
- NIGHT EVENT
- FOOD/CAFÉ
- COMMUTER
- OUTDOOR
- STUDENT UNION
- INFORMAL STUDY
SCENARIO PLANNING 1 INTEGRATIVE FACILITIES

WELLBEING MIXED-USE THEMES

THEME

ACADEMIC
Flexible formal and informal education and study spaces that support learning and innovation

SPECTRUM OF WELLBEING
A spectrum of engagement or withdraw spaces for introverted/extroverted students to mentally regenerate
SCENARIO PLANNING 1 INTEGRATIVE FACILITIES

COMMUNITY MIXED-USE THEMES

THEME

INDEPENDENT LEARNING

Invite the community to freely use creative learning spaces

ENVIRONMENT

Involve the community in CU Boulder’s wonderful campus atmosphere for informal leisurely interactions, which includes opening athletic facilities for general access

PARTNERSHIPS & EVENTS

Capitalize on legacy events in Boulder and create physical ties to community establishments

TOP IMAGES SELECTED

MAKERSPACE
LIBRARY
CENTER FOR TEACHING & LEARNING
OUTDOOR
FOOD/CAFÉ
SPORTS
ATHLETICS
CONFERENCE
STARTUP/PARTNERSHIP
TOWN
SCENARIO PLANNING 1 INTEGRATIVE FACILITIES
LEARNING & RESEARCH MIXED-USE THEMES

**THEME**

**FORMAL LEARNING**
Spaces for engaged learning and easily accessible library services for group study and research

**APPLIED LEARNING**
Encourage creativity and exploration across all disciplines with student driven and partnership lead experiences

**SUPPORT SPACES**
Informal spaces for students to gather and study paired with easily accessible student support services

**TOP IMAGES SELECTED**

- ACTIVE CLASSROOM
- MEDIUM LECTURE
- LIBRARY
- MAKERSPACE
- MEDIA LAB
- STARTUP/ PARTNERSHIP
- ADVISING/ SUPPORT
- WELLBEING
- FOOD/CAFÉ
- COMMUNAL

147 STRATEGIC FACILITIES VISIONING SCENARIO PLANNING PHASE SUMMARY
SCENARIO PLANNING 1 INTEGRATIVE FACILITIES
RESIDENTIAL ACADEMIC EXPERIENCE MIXED-USE THEMES

ACADEMIC
Learning experiences are focused around the active classroom with quiet huddle rooms available for quiet and group study

RESIDENTIAL
Home-style living, including apartment-style residences with communal areas to serve as residence living rooms

TOP IMAGES SELECTED
ACTIVE CLASSROOM, HUDDLE ROOM, MEDIA LAB, APARTMENT, COMMUNAL, FOOD/CAFÉ, OUTDOOR
**SCENARIO PLANNING 1 INTEGRATIVE FACILITIES**

**COLLABORATION MIXED-USE THEMES**

**THEME**

**EDUCATION**
Collaborative education environments that include telepresence to collaborate with top universities across the world

**RETAIL**
Collaborate with industry on campus, strengthening the partnership with retail locations

**COMMUNITY**
Foster collaboration with community-focused spaces aimed at bringing people together for projects and experiences

**TOP IMAGES SELECTED**

- Active Classroom
- Ideation/Co-Creation
- Huddle Room
- Telepresence

- Retail
- Food/Café
- Student Union
- Gathering/Event
- Communal
KEY

- Residential Academic Experience Mixed Use
- Learning & Research Mixed Use
- Student Life Mixed Use
- Wellbeing Mixed Use
- Community Mixed Use
- Collaboration Mixed Use

**INTEGRATIVE FACILITIES**

Distribute mixed use facilities/amenities across campus for highest student body exposure and accessibility.
GROUP ONE

- Housing cluster north of Boulder creek.
- Connect campus locations through buildings, providing a pedestrianized learning journey along the way.
- Diversify WillVill with learning, student life, Wellbeing and community mixed use.
- Renovate West campus with learning/research, student life, Wellbeing mixed use typologies, cluster residential academic experiences on north of Boulder Creek. Create student life mixed use edge alongside the hill, go into community to create an engaged CU presence.
- East Campus becomes dynamic mixed-use campus with housing, learning/research, community and Wellbeing, could develop a thematic approach to science, engineering, and technology.
- South Campus becomes housing for faculty, staff and upper-classmen/graduate students with playing fields, with some learning/research spaces and possible uses for food and alternative energy production.

*The results of this workshop were documentation of a brainstorming session with many diverse constituents from the CU Boulder campus and no way constitute a land planning process or commitment from the university for any future development on the property.
CU Boulder footprint extends into Boulder community. Create community mixed-use spaces on the periphery of campuses, mix leased spaces with Wellbeing and learning and research.

Community mixed-use can become a physical connector between West and Williams Village.

North end of east campus (E1) is developed as a residential academic experience community blended with Wellbeing and student life programs – allowing for students and community to blend and extend into the shopping (Arapahoe).

East campus as a STEAM campus, and fully integrated experience with learning, housing, student life and Wellbeing mixed use.

Develop CU Boulder South for faculty, staff and upper-classmen, graduate housing, and recreational fields.

CU Boulder of the future is about relationships. We become a campus centered around the growth, cultivation and retention of human capital.

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GROUP THREE

- West Campus: Stadium / event center focus
  More general events: concerts other sports
  Community events and rec / Wellbeing
  Mixed-use academic focus.

- Mixed-use developments off campus
  Link West and East Campus in parts of Boulder
  where students live.

- Williams village: general mixed use.

- East Campus: PPP mixed use R&D focus includes
  Wellbeing, learning, and housing.

- South Campus: "The Gateway" Cultural, community,
  natural areas, with faculty /staff/upper classmen
  and grad mixed use housing.

Themed campuses united under a singular university identity.

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with many diverse constituents from the CU Boulder campus and no way
constitute a land planning process or commitment from the university for
any future development on the property.
RESILIENT ASSET MANAGEMENT

Baseline Information
SCENARIO PLANNING 1 RESILIENT ASSET MANAGEMENT

RESILIENCY THEMES

THEME

COMMUNICATION

Updated and reliable communication systems is desired across the board - from dependable WiFi on all corners of campus to rapid response systems in case of emergency - communication has risen as a social necessity in all situations and is necessary for the advancement of CU Boulder.

PHYSICAL ASSETS

The importance of reliable and updated physical assets was voiced across the board to maintain a general quality of life and also ensure the resiliency of CU Boulder’s campus.
COMMUNICATION
Reliable and modern communication systems that extend to every corner of campus, including high speed WiFi that could be reached indoors and outdoors, rapid emergency communication systems, and using the most advanced and technologically relevant systems to cover our most basic communication needs.

BASIC SAFETY
Safeguard people with well known safety standards and protocols across campus, with a focus on where our people spend the most time.
SCENARIO PLANNING 1  RESILIENT ASSET MANAGEMENT

BASIC RESILIENCY

THEME

LOGISTICS
Prioritize systems that enable access to people, places, and things, including campus access regardless of weather and accessing physical and digital materials

NETWORKED SYSTEM
Expand the campus approach from a building focus to a network focus to develop a holistic & prioritized system in building upgrades and maintenance

TOP IMAGES SELECTED

- SNOW PLOWING & DEICING
- CLOUD BASED DATA WAREHOUSING & STORAGE
- LOGISTICS, DELIVERY & STORAGE OF FOOD & SUPPLIES
- BACKUP GENERATORS FOR CLUSTERS OF BUILDINGS
- ENSURING BUILDING MEP SYSTEMS ARE WITHING THEIR USEFUL LIFE
- CRITICAL FACILITY IDENTIFICATION
MISSION CRITICAL RESILIENCY

**TECHNOLOGY**
Preserve the CU Boulder brand with modern technology that both maintains a quality of life and ensures safety.

**SAFETY**
Maintain the mission critical goal of protecting our people with advanced security protocols in all campus environments.

**INFRASTRUCTURE**
Ensure campus activities can continue with centralized & clustered management, updated systems, and maintenance.

**THEME**

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<th>Top Images Selected</th>
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<tr>
<td>Emergency Response Communication Systems</td>
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<td>Ensuring Safe Environments Through Distributed Campus Technology</td>
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<td>Campus Lock Down Protocols in Response to Threats</td>
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<tr>
<td>Building Security Protocols for Student Housing</td>
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<td>Snow Plowing &amp; De-Icing</td>
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<td>Backup Generators for Clusters of Buildings</td>
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<td>Redundent Water &amp; Gas Utilities for Clusters of Buildings</td>
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<tr>
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<td>Building Security Protocols for Research Environments</td>
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<td>Building Security Protocols for Academic &amp; Admin Buildings</td>
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<td>Ensuring Building MEP Systems are Within Their Useful Life</td>
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<td>Centralized Materials Management, Storage &amp; Distribution</td>
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SCENARIO PLANNING 1 RESILIENT ASSET MANAGEMENT

EVENT RESILIENCY

**THEME**

**DIGITAL SECURITY**
Safeguard our sensitive personal and research data with physical and digital solutions

**ONGOING PREVENTION**
Mitigate event occurrences through surveillance, building & communication upgrades, and emission reductions

**EVENT MITIGATION**
Promote preparedness plans for our most likely situations and have systems in place to enable rapid response and recovery

**TOP IMAGES SELECTED**

- Building Security Protocols for Research Environments
- Cybersecurity Measures to Protect Sensitive Information
- Cloud Based Data Warehousing & Storage
- Clustering Core Facilities: High-performance Computing, Data Centers, Freezers
- Ensuring Building MEP Systems are Within Their Useful Life
- Zero-Emission Transportation Systems
- Ensuring Safe Environments Through Distributed Campus Surveillance
- Logistics, Delivery & Storage of Food & Supplies
- Backup Generators for Clusters of Buildings
- Emergency Response Communication Systems
- Flash Flood Mitigation Plans
- Fire Risk
- Government Shutdown
RESILIENT ASSET MANAGEMENT

KEY
- BASIC
- MISSION CRITICAL
- UNPLANNED EVENT

SAFEGUARD AGAINST UNPLANNED EVENTS BY FOCUSING ON HIGH INTENSITY RESEARCH BUILDINGS, ENERGY/UTILITY CENTERS, AND PLACES FOR LARGE EVENTS
SCENARIO PLANNING 2 RESILIENT ASSET MANAGEMENT

UNIQUE NEEDS OF OUR FACILITIES

- **HIGH**
- **MEDIUM**
- **LOW**