6.0 Appendices

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East Campus Design Guidelines

Objectives
These guidelines are provided to support campus master planning design principles. This set of design principles, elaborated in the Campus Master Plan, governs the long-term development of the campus. While the nature of the master plan supports ongoing decision-making, the design principles serve as the enduring tenets to structure the campus’s growth.

• ENGAGE SURROUNDING COMMUNITIES
• DIVERSIFY CAMPUS NEIGHBORHOODS
• RESPECT AND REINFORCE NATURAL SYSTEMS
• CREATE STRONG PUBLIC REALM CONNECTIONS
• INTEGRATE DIVERSE OPEN SPACES
• RESPECT CAMPUS CHARACTER AND STRUCTURE
• CREATE A NETWORK OF STUDENT LIFE SPACES
• ENHANCE CAMPUS ACCESS AND WAYFINDING

How to use these guidelines
The guidelines are organized around specific districts and designated building program typologies. Within each district, zoning footprints are assigned a numerical designation (1 through 34) and existing buildings that are to remain are labeled with their building code.

Within each designated district the following criteria and organizing principles are identified:

• Zoning Footprint and Envelope
• Proposed Buildings
• Existing Building
• East Campus Spine
• Proposed Campus Open Space
• Vehicular Streets
• Key Setbacks

The guidelines for each district indicate zoning footprint designations, conceptual building siting, massing, and open space strategies, all of which reflect core tenets of the Campus Master Plan. These are intended to capture the design intent of providing integrated program, building, and open space networks within each district.

At the initiation of a new project, a site will be identified and will include a zoning footprint and a larger parcel area. This parcel area will incorporate landscape and site infrastructure projects that benefit the entire East Campus. The extents of the parcel area will be determined by Planning, Design & Construction and campus leadership.
### East Campus Development Summary

<table>
<thead>
<tr>
<th>District SQF</th>
<th>Building</th>
<th>Zoning Footprint</th>
<th>Parcel Area</th>
<th>Building Use</th>
<th>Potential GSF</th>
<th>Potential ASF</th>
<th>Bed Count</th>
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### Typical Floorplate Dimensions

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<tr>
<th>Building Use</th>
<th>Floorplate Dimensions</th>
<th>Typical GSF/ASF Ratios*</th>
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</thead>
<tbody>
<tr>
<td>Academic</td>
<td>240' x 85'</td>
<td>0.60</td>
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<tr>
<td>Academic / Research</td>
<td>300' x 125'</td>
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<tr>
<td>Administration</td>
<td>240' x 75'</td>
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<tr>
<td>Housing</td>
<td>180' x 60'</td>
<td>0.70</td>
</tr>
<tr>
<td>Parking</td>
<td>180' x 300'</td>
<td>0.70</td>
</tr>
</tbody>
</table>

*An average of 0.65 as a general planning assumption was used to calculate ASF for all program uses. Specific ratios should be applied during a project’s design phase. Typical ratios used by CU Boulder are provided in the table to the left.

### East Campus Design Guidelines

#### 6.1 Existing Campus Buildings

- **A.** Housing and Student Life
- **B.** Housing and Student Life
- **C.** Academic / Research
- **D.** Academic / Research
- **E.** Administration
- **F.** Academic / Research
- **G.** Academic / Research
- **H.** Partnerships / Academic / Research
- **I.** Academic / Athletics / Administration

#### Typical GSF/ASF Ratios*

- **Academic:** 0.55
- **Academic / Research:** 0.60
- **Academic / Research:** 0.60
- **Academic / Research:** 0.70
- **Academic / Research:** 0.70
- **Academic / Research:** 0.70
- **Academic / Research:** 0.70
- **Academic / Research:** 0.70

#### Building Use Typical GSF/ASF Ratio

- **Academic:** 0.60
- **Academic / Research:** 0.55
- **Academic / Research:** 0.60
- **Academic / Research:** 0.60
- **Academic / Research:** 0.55
- **Academic / Research:** 0.60
- **Academic / Research:** 0.55
- **Academic / Research:** 0.60

#### Typical ASF/GSF Ratios

- **Academic / Research:** 0.55
- **Academic / Research:** 0.60
- **Academic / Research:** 0.60
- **Academic / Research:** 0.60
- **Academic / Research:** 0.60
- **Academic / Research:** 0.55
- **Academic / Research:** 0.55
- **Academic / Research:** 0.55

#### Districts

- **Jennie Emilly Canahurs Biotechnology Laboratory**
- **Laboratory for Atmospheric and Space Physics**
- **Aerospace Engineering Sciences**
- **Sustainability, Energy and Environment Complex**
- **Sustainability, Energy and Environment Laboratory**
- **Jennie Smoly Caruthers Biotechnology Laboratory**

### Typical ASF/GSF Ratios*

- **Academic / Research:** 0.55
- **Academic / Research:** 0.60
- **Academic / Research:** 0.60
- **Academic / Research:** 0.55
- **Academic / Research:** 0.60
- **Academic / Research:** 0.60
- **Academic / Research:** 0.60
- **Academic / Research:** 0.60

#### Typical ASF/GSF Ratios

- **Academic / Research:** 0.55
- **Academic / Research:** 0.60
- **Academic / Research:** 0.60
- **Academic / Research:** 0.60
- **Academic / Research:** 0.55
- **Academic / Research:** 0.55
- **Academic / Research:** 0.55
- **Academic / Research:** 0.55
Housing and Student Life

DISTRICT A.

403,649 Total SQF
331,551 Landscape SQF

Zoning Footprint 1
Footprint Area: 20,530 SQF
GSF: 68,100 SQF
ASF: 44,265 SQF
Building use: Academic/Research

Zoning Footprint 2
Footprint Area: 54,800 SQF
GSF: 105,300 SQF
ASF: 94,793 SQF
Building use: Housing

Zoning Footprint 3
Footprint Area: 31,550 SQF
GSF: 68,445 SQF
ASF: 101,535 SQF
Building use: Student Life

- Create student communities scaled to the floor, the building and the district
- Locate student life amenities in residential buildings at the ground level and link these to the campus open space network
- Include amenities on the Gateway Green that attracts pedestrians onto campus
- Locate student life facilities between residential buildings and district wide pedestrian networks
- Orient buildings and outdoor spaces to views of the mountains
- Locate service and vehicle access to prioritize the pedestrian experience
- Orient buildings and massing to reduce solar heat gain and allow adequate solar access to public spaces in the winter

Flexible lawns are framed by canopy trees, shrubs, and patches of perennial planting
Buildings are shaped to form social courtyards
Social program spaces activate the ground floor adjacent to campus open space

Collaborative smaller-scale academic building forms a pedestrian-scaled gateway into campus
Diagonal green space preserves views to mountains and serves as a flexible plaza that can accommodate large outdoor events
Promote facade interest with setbacks and height variation
Activate building edges along the entry green

Activate building edges along the entry green

The massing shown for individual buildings is indicative of the building potential. Building footprints and zoning envelopes show flexibility to increase the height and size, if required, as detailed building designs are prepared.
6.1 East Campus Design Guidelines

Housing and Student Life

DISTRICT B.

545,511 Total SQF
420,490 Landscape SQF

Zoning Footprint 4
Footprint area: 52,200 SQF
GSF: 116,600 SQF
ASF: 156,600 SQF
Building use: Parking

Zoning Footprint 5
Footprint area: 29,245 SQF
GSF: 73,820 SQF
ASF: 47,983 SQF
Building use: Housing

Zoning Footprint 6
Footprint area: 17,992 SQF
GSF: 34,200 SQF
ASF: 22,230 SQF
Building use: Food

Zoning Footprint 7
Footprint area: 41,625 SQF
GSF: 119,000 SQF
ASF: 77,350 SQF
Building use: Housing

Zoning Footprint 8
Footprint area: 27,615 SQF
GSF: 66,950 SQF
ASF: 43,518 SQF
Building use: Housing

Zoning Footprint 9
Footprint area: 8,100 SQF
GSF: 8,100 SQF
ASF: 5,265 SQF
Building use: Food and Student Life

Proposed Buildings
Existing Building
East Campus Spine
Vehicular Street

- Create student communities scaled to the floor, the building and the district
- Orient buildings and outdoor spaces to views of the mountains
- Locate student life amenities in residential buildings at the ground level and link these to the campus open space network, such as residential courtyards
- Locate student life facilities between residential buildings and district wide pedestrian networks
- Locate service and vehicle access to prioritize the pedestrian experience
- Orient buildings and massing to reduce solar heat gain and allow adequate solar access to public spaces in the winter

- Sustainable technologies, such as PV, on the roof of parking garages
- Pedestrian-friendly programs at ground floor of parking garage adjacent to 30th street activates the perimeter and landscape
- Buildings are shaped to form courtyards featuring diverse canopy trees, lawn and shrubland species
- Social program spaces activate the ground floor adjacent to campus open space
- Promote facade interest with setbacks and height variation
- Student life programs are located adjacent to the East Campus Spine
- Activate building edges along the campus spine
- Pedestrian-friendly programs at ground floor of parking garage adjacent to 30th street activates the perimeter and landscape

Landscape buffer along the 30th St

Minimum Distances

545,511 Total SQF
420,490 Landscape SQF

Residential Courtyard

Residential Courtyard

The massing shown for individual buildings is indicative of the building potential. Building footprints and zoning envelopes show flexibility to increase the height and size, if required, as detailed building designs are prepared.
### Housing and Student Life

**DISTRICT C.**

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<thead>
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<th>Zoning Footprint</th>
<th>Footprint area</th>
<th>GSF:</th>
<th>ASF:</th>
<th>Building use</th>
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<td>78,780 SQF</td>
<td>Housing</td>
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<td>11</td>
<td>36,000 SQF</td>
<td>87,400 SQF</td>
<td>56,810 SQF</td>
<td>Student Life</td>
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<td>68,500 SQF</td>
<td>44,525 SQF</td>
<td>Student Life</td>
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<td>Student Life and Housing</td>
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<td>199,150 SQF</td>
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<td>Housing</td>
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</table>

- Create student communities scaled to the floor, the building and the district
- Locate student life amenities in residential buildings at the ground level and link these to the campus open space network
- Design the Campus Heart for year-round activity, including passive recreation, collaboration, and meeting space

- Locate student life facilities between residential buildings and district wide pedestrian networks
- Orient buildings and outdoor spaces to views of the mountains
- Locate service and vehicle access to prioritize the pedestrian experience
- Orient buildings and massing to reduce solar heat gain and allow adequate solar access to public spaces in the winter
- Plaza overlooks and stepdowns to frame the riparian landscape corridor
- Activate building edges along the central spine
- Social program spaces activate the ground floor adjacent to campus open spaces and green corridors
- Student life programs are located adjacent to the East Campus Spine
- Plaza courtyards provide flexible space for outdoor programming
- Residential buildings open out to the Boulder Creek riparian landscape
- Promote facade interest with setbacks and height variation

**6.1 East Campus Design Guidelines**
6.1 East Campus Design Guidelines

Academic / Research

**DISTRICT D.**

594,827 Total SQF
370,302 Landscape SQF

**Zoning Footprint 17**
Footprint Area: 90,540 SQF
GSF: 259,255 SQF
ASF: 168,516 SQF
Building use: Academic/Research

**Zoning Footprint 18**
Footprint Area: 105,050 SQF
GSF: 269,950 SQF
ASF: 175,468 SQF
Building use: Academic/Research

- Create academic neighborhoods in conjunction with adjacent new and existing academic buildings
- Organize massing into building wings with articulated connections
- Design buildings to create a hierarchy of open spaces that link to the district wide open space network
- Locate social amenities at the ground level and provide visual transparency to the district open space network
- Orient buildings and outdoor spaces to views of the mountains
- Consolidate service zones away from pedestrian paths
- Orient buildings and massing to reduce solar heat gain and allow adequate solar access to public spaces in the winter
- Minimum 60’ setback from Colorado Ave
- Tree buffer along Colorado Ave
- Minimum 60’ setback from Colorado Ave
- Meadow and wildflower restoration
- Pedestrian connections from main green spaces to integrate existing buildings

Minimum Distances

- Diagonal gateway green space preserves views to mountains
- Activate building edges along open space
- Proposed building massing includes central courtyard spaces and building edges to face green spaces and the central spine
- Flexible green with diverse canopy trees
- EDA
- H
- G
- I
- B
- C

Flexible green with diverse canopy trees
Meadow and wildflower restoration
Tree buffer along Colorado Ave
Minimum 60’ setback from Colorado Ave
Pedestrian connections from main green spaces to integrate existing buildings

7

**Proposed Building Footing**

- BIOT
  - Jennie Smoly Caruthers Biotechnology
  - The massing shown for individual buildings is indicative of the building potential. Building footprints and zoning envelopes show flexibility to increase the height and size, if required, as detailed building designs are prepared.
6.1 East Campus Design Guidelines

Academic / Research (Option 01)

DISTRICT E.

731,914 Total SQF
546,410 Landscape SQF

Zoning Footprint 19
Footprint area: 73,400 SQF
GSF: 197,400 SQF
ASF: 124,963 SQF
Building use: Academic / Research

Zoning Footprint 20
Footprint area: 63,055 SQF
GSF: 183,610 SQF
ASF: 124,963 SQF
Building use: Academic / Research

- Create academic neighborhoods in conjunction with adjacent new and existing academic buildings
- Organize massing in building wings with articulated connections
- Design buildings to create a hierarchy of open spaces that link to the district wide open space network
- Locate social amenities at the ground level and provide visual transparency to the district open space network
- Orient buildings and outdoor spaces to views of the mountains
- Locate service and vehicle access to prioritize the pedestrian experience
- Orient buildings and massing to reduce solar heat gain and allow adequate solar access to public spaces in the winter

Minimum Distances

Proposed Buildings
Existing Building
East Campus Spine
Vehicular Street

Activate building edges along the central spine
Flexible plaza provides opportunities for outdoor learning and frames views to stormwater pond
Preservation of existing natural features and flood conveyance zones

Pedestrian-scale programs and amenities in parking garage edges activate the landscape and Colorado Ave

N

N

Sustainable technologies, such as PV, on the roof of parking garages

Riparian woodland restoration projections are coupled with extended trail network

Integrate mobility hub for ride shares, bus transit and drop-offs

Existing Campus Buildings
Laboratory for Atmospheric and Space Physics

Zoning Envelope
Proposed Buildings
Existing Building
East Campus Spine
Vehicular Street

North

Parking at the perimeter of district to facilitate a pedestrian-oriented campus

N

Sustainable technologies, such as PV, on the roof of parking garages

Riparian woodland restoration projections are coupled with extended trail network

Integrate mobility hub for ride shares, bus transit and drop-offs
Academic / Research (Option 02)

DISTRICT E.

731,914 Total SQF
504,020 Landscape SQF

Zoning Footprint 19
Footprint area: 77,400 SQF
GSF: 232,200 SQF
ASF: 124,963 SQF
Building use: Academic / Research

Zoning Footprint 20
Footprint area: 63,055 SQF
GSF: 183,610 SQF
ASF: 183,610 SQF
Building use: Parking

Existing Campus Buildings
- Laboratory for Atmospheric and Space Physics (LASP)
- Astrophysical Research Lab (ARL)

Proposed Buildings
- LASP
- ARL

Minimum Distances

- Preservation of existing natural features and flood conveyance zones
- Riparian woodland restoration projections are coupled with extended trail network
- Sustainable technologies, such as PV on the roof of parking garages
- Integrated mobility hub for ride shares, bus transit and drop-offs
- Pedestrian-scale programs and amenities in parking garage edges activate the landscape and Colorado Ave
- Flexible plaza provides opportunities for outdoor learning and frames views to stormwater pond
- Building form responds to natural landscape
- Activate building edges along the central spine

Create academic neighborhoods in conjunction with adjacent new and existing academic buildings
Organize massing into building wings with articulated connections
Design buildings to create a hierarchy of open spaces that link to the district wide open space network
Locate social amenities at the ground level and provide visual transparency to the district open space network
Orient buildings and outdoor spaces to views of the mountains
Locate service and vehicle access to prioritize the pedestrian experience
Orient buildings and massing to reduce solar heat gain and allow adequate solar access to public spaces in the winter

6.1 East Campus Design Guidelines
6.1 East Campus Design Guidelines

Academic / Research

DISTRICT F.

312,534 Total SQF
218,013 Landscape SQF

Zoning Footprint 21
Footprint area: 38,000 SQF
GSF: 105,000 SQF
ASF: 68,848 SQF
Building use: Academic/Research

Zoning Footprint 22
Footprint area: 46,820 SQF
GSF: 93,250 SQF
ASF: 60,613 SQF
Building use: Academic/Research

Zoning Footprint 23
Footprint area: 31,270 SQF
GSF: 102,945 SQF
ASF: 66,914 SQF
Building use: Academic/Research

- Create academic neighborhoods in conjunction with adjacent new and existing academic buildings
- Organize massing into building wings with articulated connections
- Design buildings to create a hierarchy of open spaces that link to the district wide open space network
- Locate social amenities at the ground level and provide visual transparency to the district open space network
- Orient buildings and outdoor spaces to views of the mountains
- Locate service and vehicle access to prioritize the pedestrian experience
- Orient buildings and massing to reduce solar heat gain and allow adequate solar access to public spaces in the winter

Proposed building massing includes central courtyard spaces with maximum building frontage facing green spaces

Lower building massing at the center of the district adjacent to the existing building and plaza

Activate building edges along the central spine

New plaza court features a small, flexible lawn to accommodate diverse student programming

Minimum Distances
### Academic / Research

**DISTRICT G.**

- **613,793 Total SQF**
- **432,770 Landscape SQF**

#### Zoning Footprint 24
- **Footprint area:** 75,000 SQF
- **GSF:** 227,000 SQF
- **ASF:** 147,550 SQF
- **Building use:** Academic/Research

#### Zoning Footprint 25
- **Footprint area:** 24,540 SQF
- **GSF:** 135,605 SQF
- **ASF:** 88,143 SQF
- **Building use:** Academic/Research

#### Zoning Footprint 26
- **Footprint area:** 47,740 SQF
- **GSF:** 148,480 SQF
- **ASF:** 96,512 SQF
- **Building use:** Academic/Research

#### Zoning Footprint 27
- **Footprint area:** 40,640 SQF
- **GSF:** 102,310 SQF
- **ASF:** 66,502 SQF
- **Building use:** Academic/Research

#### Zoning Footprint 28
- **Footprint area:** 44,760 SQF
- **GSF:** 135,605 SQF
- **ASF:** 88,143 SQF
- **Building use:** Parking

- **Minimum Distances**

<table>
<thead>
<tr>
<th>Proposed Buildings</th>
<th>Existing Building</th>
<th>East Campus Spine</th>
<th>Vehicular Street</th>
</tr>
</thead>
</table>

- **Create academic neighborhoods in conjunction with adjacent new and existing academic and research buildings**
- **Organize massing into building wings with articulated connections**
- **Design buildings to create a hierarchy of open spaces that link to the district wide open space network**
- **Locate social amenities at the ground level and provide visual transparency to the district open space network**
- **Orient buildings and outdoor spaces to views of the mountains**
- **Locate service and vehicle access to prioritize the pedestrian experience**
- **Orient buildings and massing to reduce solar heat gain and allow adequate solar access to public spaces in the winter**

#### Programs in parking garage edges activate the surrounding street and landscape

- **Promote facade interest with setbacks and height variation**
- **Sustainable technologies, such as PV on the roof of parking garages**

#### Emergency and Service Access Drive

- **Activate building edges along the central spine**

#### Sustainable Energy Environment Community

- **SECC learning landscape**

#### Minimum Distances

- **Programs in parking garage edges activate the surrounding street and landscape**
- **Linked buildings to provide additional flexibility for program organization**
- **Flexible lawn and plaza node**
- **Meadow and wildflower restoration**

#### Existing Campus Buildings

- **AES: Aerospace Engineering Sciences**
- **SECC: Sustainable Energy Environment Community**

The massing shown for individual buildings is indicative of the building potential. Building footprints and zoning envelopes show flexibility to increase the height and size, if required, as detailed building designs are prepared.
Partnerships

DISTRICT H.

1,247,531 Total SQF
814,863 Landscape SQF

Zoning Footprint 29
Footprint area: 52,570 SQF
GSF: 183,610 SQF
ASF: 119,347 SQF
Building use: Academic/ Research

Zoning Footprint 30
Footprint area: 56,460 SQF
GSF: 205,435 SQF
ASF: 133,533 SQF
Building use: Academic/ Research

Zoning Footprint 31
Footprint area: 68,200 SQF
GSF: 222,420 SQF
ASF: 144,373 SQF
Building use: Academic/ Research

Zoning Footprint 32
Footprint area: 54,270 SQF
GSF: 170,860 SQF
ASF: 111,059 SQF
Building use: Academic/ Research

- Cluster buildings together to provide larger pockets of campus open space
- An outdoor innovation plaza pulls student life outside
- Provide a variety of massing within each project to add human scale to large volume buildings
- Create building footprints that are efficient and still provide natural light into the building interiors
- Design buildings with social spaces and transparency directly facing outdoor gathering spaces
- Orient buildings and outdoor spaces to views of the mountains
- Locate service and vehicle access to prioritize the pedestrian experience
- Orient buildings and massing to reduce solar heat gain and allow adequate solar access to public

Minimum Distances

- New plaza nodes accommodate outdoor collaboration spaces while framing restored riparian corridors
- Extend the existing AES landscape meadow planting
- Establish a new flexible lawn
- Activate building edges along the central open space

Existing Campus Buildings
AES: Aerospace Engineering Sciences
SEEC: Sustainable Energy Environment Community

The massing shown for individual buildings is indicative of the building potential. Building footprints and zoning envelopes show flexibility to increase the height and size, if required, as detailed building designs are prepared.
Academic / Athletics

DISTRICT I.

1,795,966 Total SQF
1,737,001 Landscape SQF

Zoning Footprint 33
Footprint area: 30,281 SQF
GSF: 121,124 SQF
ASF: 78,730 SQF
Building use: Administration

Zoning Footprint 34
Footprint area: 14,105 SQF
GSF: 14,105 SQF
ASF: 9,168 SQF
Building use: Athletics

- Maintain building setback along Marine Street
- Support definition of open space and athletic fields
- Create a pedestrian loop that connects the campus across Boulder Creek, providing access to the new Athletics Hub featuring a new Track & Field stadium for athletes, a recreation soccer field, and recreation outdoor tennis courts
- In the future with proposed reduced building and parking densities, the university should work with the City to re-evaluate right-of-way access off of 30th Avenue onto Marine Street
- Re-locate support functions as liner elements of new parking garages or at WALN and adjacent properties

Proposed Buildings
Existing Building
East Campus Spine
Vehicular Street

Activate building edges along 30th street
East Campus activity circuit and flexible green
Position building to screen parking
Relocated track and field
New soccer field and tennis courts for rec and intramural programming
Riparian woodland restoration

Existing Campus Buildings
ARCE Administrative & Research Center

The massing shown for individual buildings is indicative of the building potential. Building footprints and zoning envelopes show flexibility to increase the height and size, if required, as detailed building designs are prepared.
Objectives
These guidelines are provided to support campus master planning design principles. This set of design principles, elaborated in the Campus Master Plan, governs the long-term development of the campus. While the nature of the master plan supports ongoing decision-making, the design principles serve as the enduring tenets to structure the campus’s growth.

- ENGAGE SURROUNDING COMMUNITIES
- DIVERSIFY CAMPUS NEIGHBORHOODS
- RESPECT AND REINFORCE NATURAL SYSTEMS
- CREATE STRONG PUBLIC REALM CONNECTIONS
- INTEGRATE DIVERSE OPEN SPACES
- RESPECT CAMPUS CHARACTER AND STRUCTURE
- CREATE A NETWORK OF STUDENT LIFE SPACES
- ENHANCE CAMPUS ACCESS AND WAYFINDING

How to use these guidelines
The guidelines are organized around specific districts and designated building program typologies. Within each district, zoning footprints are assigned a numerical designation (1 through 17).

Within each designated district the following criteria and organizing principles are identified:

- Zoning Footprint and Envelope
- Proposed Buildings
- NBC Campus Spine
- Proposed Campus Open Space
- Vehicular Streets
- Key Setbacks

The guidelines for each district indicate zoning footprint designations, conceptual building siting, massing, and open space strategies, all of which reflect core tenets of the Campus Master Plan. These are intended to capture the design intent of providing integrated program, building, and open space networks within each district.

At the initiation of a new project, a site will be identified and will include a zoning footprint and a larger parcel area. This parcel area will incorporate landscape and site infrastructure projects that benefit the entire NBC Campus. The extents of the parcel area will be determined by Planning, Design & Construction and campus leadership.
6.2 North Boulder Creek Design Guidelines

North Boulder Creek Development Summary

<table>
<thead>
<tr>
<th>District SQF</th>
<th>Building</th>
<th>Zoning</th>
<th>Parcel Area</th>
<th>Building Use</th>
<th>Potential GSF</th>
<th>Potential ASF</th>
<th>Bed Count</th>
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<td>1</td>
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<td>C. Total: 404,415 Landscape: 241,096</td>
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District Total: 1,317,825 Landscape Total: 889,422

### Typical Floorplate Dimensions

<table>
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<th>Building Use</th>
<th>Floorplate Dimensions</th>
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<tbody>
<tr>
<td>Housing</td>
<td>180’ x 60’</td>
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<tr>
<td>Parking</td>
<td>180’ x 300’</td>
</tr>
</tbody>
</table>

### Typical ASF/GSF Ratios*

<table>
<thead>
<tr>
<th>Building Use</th>
<th>Typical GSF/ASF Ratio</th>
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</thead>
<tbody>
<tr>
<td>Housing</td>
<td>0.63</td>
</tr>
<tr>
<td>Parking</td>
<td>0.96</td>
</tr>
<tr>
<td>Dining</td>
<td>0.70</td>
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</tbody>
</table>

*An average of 0.65 as a general planning assumption was used to calculate ASF for all program uses. Specific ratios should be applied during a project’s design phase. Typical ratios used by CU Boulder are provided in the table above.
**Housing and Student Life**

**DISTRICT A.**

331,442 Total SQF  
232,892 Landscape SQF

**Zoning Footprint 1**  
Footprint Area: 50,830 SQF  
GSF: 151,681 SQF  
ASF: 98,527 SQF  
Building use: Housing

**Zoning Footprint 2**  
Footprint Area: 21,770 SQF  
GSF: 65,460 SQF  
ASF: 42,549 SQF  
Building use: Housing

**Zoning Footprint 3**  
Footprint Area: 38,815 SQF  
GSF: 83,650 SQF  
ASF: 54,372 SQF  
Building use: Housing

**Zoning Footprint 4**  
Footprint Area: 47,080 SQF  
GSF: 131,366 SQF  
ASF: 85,387 SQF  
Building use: Housing

- Create student communities scaled to the floor, the building and the district
- Locate student life amenities in residential buildings at the ground level and link these to the campus open space network
- Locate student life facilities to connect residential buildings with district wide pedestrian networks
- Orient buildings and outdoor spaces to maximize views of the mountains, reduce solar heat gain, and allow adequate solar access in the winter
- Locate service and vehicle access to prioritize the pedestrian experience
- Create a unified pedestrian scaled experience within the district
- Locate parking at the perimeter of the district

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**NBC Campus Design Guidelines**

6.2 North Boulder Creek Design Guidelines

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**The massing shown for individual buildings is indicative of the building potential. Building footprints and zoning envelopes show flexibility to increase the height and size, if required, as detailed building designs are prepared.**
Housing and Student Life

DISTRICT B.

- 581,968 Total SQF
- 415,454 Landscape SQF

Zoning Footprint 5
Footprint area: 14,640 SQF
GSF: 43,502 SQF
ASF: 28,548 SQF
Building use: Parking

Zoning Footprint 6
Footprint area: 39,080 SQF
GSF: 139,040 SQF
ASF: 85,046 SQF
Building use: Housing

Zoning Footprint 7
Footprint area: 48,050 SQF
GSF: 98,440 SQF
ASF: 63,068 SQF
Building use: Housing

Zoning Footprint 8
Footprint area: 33,000 SQF
GSF: 100,025 SQF
ASF: 65,016 SQF
Building use: Housing

Zoning Footprint 9
Footprint area: 48,050 SQF
GSF: 101,617 SQF
ASF: 66,051 SQF
Building use: Housing

Zoning Footprint 10
Footprint area: 39,540 SQF
GSF: 95,990 SQF
ASF: 63,986 SQF
Building use: Parking

Zoning Footprint 11
Footprint area: 67,300 SQF
GSF: 149,734 SQF
ASF: 110,327 SQF
Building use: Housing

- Create student communities scaled to the floor, the building and the district supported by a unified pedestrian scaled experience
- Locate student life amenities and facilities in residential buildings at the ground level and link these to the campus open space and pedestrian networks
- Build a robust network of bioswales and rain gardens to provide stormwater infiltration while providing an enhanced open space network
- Locate service and vehicle access to prioritize the pedestrian experience
- Locate parking at the perimeter of the district
- Orient buildings and outdoor spaces to maximize views of the mountains, reduce solar heat gain, and allow adequate solar access in the winter

A flexible plaza space anchors the social heart of Terrace Green and provides space for outdoor dining, markets, student events, and enjoyment of the Boulder Creek landscape. Athens St becomes the primary connection through NBC - providing shared vehicular and pedestrian access. Bioswales + perennial planting improve water quality while framing generous pedestrian zones

19th St is a primary pedestrian connection between NBC, main Campus, and the Goss/Grove neighborhood. Active programs in the ground floor of buildings along 19th St promotes indoor-outdoor connections and interactions

Buildings are shaped to form courtyards opening out to the Boulder Creek landscape

Terrace Green

The massing shown for individual buildings is indicative of the building potential. Building footprints and zoning envelopes show flexibility to increase the height and size, if required, as detailed building designs are prepared.

Minimum Distances

- 19th St is a primary pedestrian connection between NBC, main Campus, and the Goss/Grove neighborhood.
- Active programs in the ground floor of buildings along 19th St promotes indoor-outdoor connections and interactions.
- Buildings are shaped to form courtyards opening out to the Boulder Creek landscape.
- Terraces Green
- The massing shown for individual buildings is indicative of the building potential. Building footprints and zoning envelopes show flexibility to increase the height and size, if required, as detailed building designs are prepared.

Promote facade interest with setbacks and height variation

Integrate pedestrian connections from the Boulder Creek landscape into district pedestrian walks

Buildings step down towards views of Boulder Creek

Minimum Distances
Mixed Use

404,415 Total SQF
241,096 Landscape SQF

Zoning Footprint 12
Footprint Area: 37,400 SQF
GSF: 149,600 SQF
ASF: 97,240 SQF
Building use: Parking

Zoning Footprint 13
Footprint Area: 37,400 SQF
GSF: 116,700 SQF
ASF: 75,855 SQF
Building use: Housing

Zoning Footprint 14
Footprint Area: 37,400 SQF
GSF: 116,700 SQF
ASF: 75,855 SQF
Building use: Housing

Zoning Footprint 15
Footprint Area: 37,400 SQF
GSF: 116,700 SQF
ASF: 75,855 SQF
Building use: Housing

Zoning Footprint 16
Footprint Area: 37,400 SQF
GSF: 107,700 SQF
ASF: 70,005 SQF
Building use: Housing

Zoning Footprint 17
Footprint Area: 37,400 SQF
GSF: 73,200 SQF
ASF: 47,580 SQF
Building use: Housing

- Create student communities scaled to the floor, the building, and the district
- Organize massing into building wings with articulated connections
- Design buildings to create a hierarchy of open spaces that link to the district wide open space network
- Create a unified pedestrian scaled experience within the district.

Future development of zoning footprints 15 and 16 will require strategic property acquisitions.

The massing shown for individual buildings is indicative of the building potential. Building footprints and zoning envelopes show flexibility to increase the height and size, if required, as detailed building designs are prepared.

- Create student communities scaled to the floor, the building, and the district
- Organize massing into building wings with articulated connections
- Design buildings to create a hierarchy of open spaces that link to the district wide open space network
- Create a unified pedestrian scaled experience within the district.

- Locate social amenities at the ground level and provide visual transparency to the district open space network
- Orient buildings and outdoor spaces to maximize views of the mountains, reduce solar heat gain, and allow adequate solar access in the winter
- Consolidate service zones away from pedestrian paths

Minimum distances:
- Maintain a tree buffer along Folsom St
- Establish strong East/West and North/South pedestrian walks
- Parking at the perimeter of the district
- New Athletics + Rec Hub connects back to Sewall and Folsom Field
- Social program spaces activate the ground floor adjacent to the pedestrian spine
- Pedestrian-friendly activation programs at ground floor of parking garage adjacent to Arapahoe
- 

6.2 North Boulder Creek Design Guidelines

404,415 Total SQF
241,096 Landscape SQF
Regent Drive Design Guidelines

Objectives
These guidelines are provided to support campus master planning design principles. This set of design principles, elaborated in the Campus Master Plan, governs the long-term development of the campus. While the nature of the master plan supports ongoing decision-making, the design principles serve as the enduring tenets to structure the campus’s growth.

- ENGAGE SURROUNDING COMMUNITIES
- DIVERSIFY CAMPUS NEIGHBORHOODS
- RESPECT AND REINFORCE NATURAL SYSTEMS
- CREATE STRONG PUBLIC REALM CONNECTIONS
- INTEGRATE DIVERSE OPEN SPACES
- RESPECT CAMPUS CHARACTER AND STRUCTURE
- CREATE A NETWORK OF STUDENT LIFE SPACES
- ENHANCE CAMPUS ACCESS AND WAYFINDING

How to use these guidelines
The guidelines are organized around specific districts and designated building program typologies. Within each district, zoning footprints are assigned a numerical designation (1 through 7) and existing buildings that are to remain are labeled with their building code.

Within each designated district the following criteria and organizing principles are identified:

- Zoning Footprint and Envelope
- Proposed Buildings
- Existing Building
- Regent Drive Spine
- Proposed Campus Open Space
- Vehicular Streets
- Key Setbacks

The guidelines for each district indicate zoning footprint designations, conceptual building siting, massing, and open space strategies, all of which reflect core tenets of the Campus Master Plan. These are intended to capture the design intent of providing integrated program, building, and open space networks within each district.

At the initiation of a new project, a site will be identified and will include a zoning footprint and a larger parcel area. This parcel area will incorporate landscape and site infrastructure projects that benefit the entire Regent Drive. The extents of the parcel area will be determined by Planning, Design & Construction and campus leadership.

Existing Campus Buildings
- EC: Engineering Center
- DLC: Gallogly Discovery Learning Center
- Drescher Engineering Lab
- RA: Regent Autopark
- RA: Koelbel (Leeds School of Business)
- KOBL: Fiske Planetarium and Science Center
- OBSV: Sommers-Bausch Observatory
- COM: Communication Disorders
- EVNT: CU Events Center
- C4C: Regent Administrative Center
- RGNT: Center for Community
Regent Drive Development Summary

<table>
<thead>
<tr>
<th>District SQF</th>
<th>Building</th>
<th>Zoning Footprint</th>
<th>Parcel Area</th>
<th>Building Use</th>
<th>Potential GSF</th>
<th>Potential ASF</th>
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<td>Parking</td>
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Typical Floorplate Dimensions

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Typical ASF/GSF Ratios*

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<td>Student Life</td>
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*An average of 0.65 as a general planning assumption was used to calculate ASF for all program uses. Specific ratios should be applied during a project’s design phase. Typical ratios used by CU Boulder are provided in the table above.
Administration / Parking

**DISTRICT A.**

952,286 Total SQF
599,436 Landscape SQF

**Zoning Footprint 1**
- Footprint area: 59,500 SQF
- GSF: 238,000 SQF
- ASF: 238,000 SQF
- Building use: Parking

---

- Leverage buildings to define campus open space and streetscape
- Create a unified pedestrian scaled experience, including safe crossings, along the entire length of Regent Drive
- Utilize ground floor space with programs that activate the streetscape and campus open space
- Locate parking at the perimeter of the district
- Create an active edge of programs facing Regent Drive

---

Create a gateway experience

Parking at the perimeter of the district to facilitate a pedestrian-oriented campus

Buffer landscape planting to screen the garage. Pedestrian-scale program and amenities along garage edges activate the landscape and Colorado Ave

Sustainable technologies, such as PV on the roof of parking garages

Create an active edge facing the bike path

Preserve zone for stormwater management

Create a new stormwater pond that has storage capacity during rain events, and an elevated walkway

Replace the surface parking with pocket landscapes

Establish a consistent streetscape along Regent Drive

Create a gateway experience

Minimum Distances

Existing Campus Buildings
- EC: Engineering Center
- DLC: Gallogly Discovery Learning Center
- ITLL: Drescher Engineering Lab
- RA: Regent Autopark

Regent Drive Design Guidelines

The massing shown for individual buildings is indicative of the building potential. Building footprints and zoning envelopes show flexibility to increase the height and size, if required, as detailed building designs are prepared.
6.3 Regent Drive Design Guidelines

Academic / Student Life

**DISTRICT B.**
1,160,100 Total SQF
831,874 Landscape SQF

**Zoning Footprint 2**
Footprint area: 114,398 SQF
GSF: 191,612 SQF
ASF: 124,547 SQF
Building use: Academic

**Zoning Footprint 3**
Footprint area: 37,147 SQF
GSF: 134,048 SQF
ASF: 87,131 SQF
Building use: Academic

**Zoning Footprint 4**
Footprint area: 57,532 SQF
GSF: 230,128 SQF
ASF: 149,583 SQF
Building use: Academic

**Zoning Footprint 5**
Footprint area: 53,875 SQF
GSF: 138,136 SQF
ASF: 89,788 SQF
Building use: Academic

- Leverage buildings to define campus open space and streetscape
- Preserve views of campus open space and mountains
- Create a unified pedestrian scaled experience, including safe crossings, along the entire length of Regent Drive
- Utilize ground floor space with programs that activate the streetscape and campus open space
- Orient building to open onto the courtyard north /south pedestrian walk and mountain views
- Ground floor active programs facing Regent Dr
- Implement traffic calming measures to ensure a safe pedestrian experience
- Maintain a minimum ROW of 105ft
- Establish a consistent streetscape along Regent Dr
- New business green with flexible lawn and perennial planting
- Existing Campus Buildings
  - Koelbel (Leeds School of Business)
  - Fiske Planetarium and Science Center
  - Sommers-Bausch Observatory
  - Communication Disorders
  - CU Events Center
- New Observatory Hill landscape showcases views to the Front Range
- Maintain views to KOBL from Regent Dr
- Buildings are shaped to form courtyards with existing buildings
- Locate building to preserve open space and define the edge of Regent Drive
- Minimum Distances

The massing shown for individual buildings is indicative of the building potential. Building footprints and zoning envelopes show flexibility to increase the height and size, if required, as detailed building designs are prepared.
Administration / Parking

DISTRICT C.

818,546 Total SQF
585,586 Landscape SQF

Zoning Footprint 6
Footprint area: 116,110 SQF
GSF: 436,800 SQF
ASF: 380,510 SQF
Building use: Administration & Parking

Zoning Footprint 7
Footprint area: 21,780 SQF
GSF: 67,120 SQF
ASF: 56,628 SQF
Building use: Administration

- Leverage buildings to define campus open space and streetscape
- Create a unified pedestrian scaled experience along the entire length of Regent Drive
- Utilize ground floor space with programs that activate the streetscape and campus open space
- Locate parking at the perimeter of the district
- Buffer landscape planting to screen the garage
- Create an active program edge along garage facing Regent Dr

Existing surface parking replaced with diverse canopy trees, lawn and perennial planting

Create an active program edge facing Regent Dr

Sustainable technologies, such as PV, on the roof of parking garages

Parking at the perimeter of the district

Establish consistent streetscape along Regent Dr

Landscape buffer planting facing Broadway

Maintain a minimum 100 ft setback along Broadway

Create a gateway experience

Existing Campus Buildings
RGNT Regent Administrative Center
C4C Center for Community

The massing shown for individual buildings is indicative of the building potential. Building footprints and zoning envelopes show flexibility to increase the height and size, if required, as detailed building designs are prepared.
### Other Proposed Buildings

#### Development Summary

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Landscape Typologies

These landscape guidelines are organized by landscape typology and are intended as a reference for designing new campus open spaces.

Each landscape typology includes information regarding key dimensions, materiality, and recommended planting palettes. These new typologies borrow from the historic core of Main Campus and were created to ensure that new open spaces with modern material choices still feel integrated with the existing campus character.

Guidelines for the following typologies are included:

- Shared Transit Streets
- Primary Paths
- Campus Buffer Trails
- Secondary Paths
- Tertiary Paths
- Quads
- Riparian Landscapes
- Storm water Ponds
- Green Courts
- Plaza Courts
- Bike Corrals
- Tree Bank

NBC Floodplain

Additionally, an appendix is included that focuses on the floodplain at NBC. This appendix describes the assumptions that this masterplan took in the conceptual grading and suggested alterations of the Conveyance Zone.

The First Floor Elevations (FFE) in this appendix are approximate and were interpolated from the FFE included in the 2020 NBC Design Guidelines and Master Site Development Plan. The FFE elevations of the proposed footprints of the 30-year Masterplan will need to be finalized by a flood engineer. Any modification to the Conveyance and High Hazard Zones will need to be done in collaboration with FEMA and the City of Boulder.

Sustainability

Care was taken in the landscape guidelines to emphasize a palette of locally sourced materials to lower the embodied carbon of the campus. A native and adaptive planting palette helps to reduce campus irrigation needs during typical years and improves the likelihood of plant survival during periods of drought and stress. As climate change will increase the likelihood of both drought and severe flooding, this master plan is designed to respect existing waterways and expand the stormwater management network. New development within the floodplain will be elevated in alignment with FEMA and City of Boulder requirements.

The maintenance of campus landscapes plays an important role in the case of drought and subsequent fire risk.

Clearing overgrown shrubs, implementing a maintenance regime to reduce flammable plant matter in meadows, and spacing trees to include a 10-12’ buffer between tree crowns will help prevent and slow the spread of wildfires.

Additionally, a canopy analysis was conducted to identify at-risk tree species, areas requiring more diverse tree planting, and pockets of campus with trees likely to experience stress due to climate change. Managing pests that threaten CU's canopy, like the Emerald Ash Borer, and strategic succession planting around at-risk trees are two strategies that CU Boulder is already implementing. Continuing these efforts will improve the resilience of the campus landscape in coming years.
6.5 Landscape Guidelines

Shared Transit Street

Example: East Campus Spine

The East Campus spine connects pedestrians, campus transit, service, and emergency vehicles to the development clusters and green landscape fingers. Attached to this mobility corridor are plazas, activity lawns, flexible outdoor study space, storm water management features, social seating zones, and bicycle corrals.

Material List

- Cast in place concrete paths + scoring detail
- Herringbone pervious brick central spine
- Aluminum, LED light fixtures
- Outdoor furnishings
6.5 Landscape Guidelines

Shared Transit Street

Example: The Walk

The Walk connects pedestrians, campus transit, service, and emergency vehicles to the core of Main Campus. The Walk is designed to be pedestrian and bicycle friendly, offering separated bike lanes, generous paved pedestrian zones, and planted areas that frame seating and bicycle parking. Attached to this mobility corridor are plazas, small pocket lawns, and flexible outdoor study spaces.

Material List

- Cast in place concrete paths
- Herringbone pervious brick central spine
- Aluminum, LED light fixtures
- Outdoor furnishings
New primary paths through campus should be wide enough to accommodate a generous pedestrian path and dedicated bike lanes. Seating, lighting, trash receptacles, and bike racks should be placed throughout these corridors for resting, safety, and convenience. A diverse canopy of native and adaptive trees should line these paths for shade and comfort.

Along the edge of campus, densely planted landscapes buffer the campus core from surrounding roads. These landscapes connect cyclists and pedestrians to transit stops and other key nodes. This trail system features pedestrian paths with separated bike lanes.

Rocky Mountain Mesic Mixed Conifer Forest and Woodland species should be planted on north and east-facing slopes while Rocky Mountain Lower Montane-Foothill Shrubland species should be planted on drier, exposed sites with rockier substrates.

Material List:
- Cast in place concrete paths
- Aluminum, LED light fixtures
- Outdoor furnishings including benches, trash & recycling cans

Material List:
- Cast in place concrete paths
- Aluminum, LED light fixtures
- Outdoor furnishings including benches, trash & recycling cans
Secondary paths connect low traffic pedestrian flows and are typically 8-10 feet wide. Regional canopy trees associated with the Rocky Mountain Mesic Mixed Conifer Forest and Woodland ecotone should be planted for shade, comfort, and habitat creation. The landscapes adjacent to these paths are ideal areas to incorporate low-maintenance landscapes with usable turf, shrubland, and shortgrass prairie species.

### Material List
- Cast in place concrete paths
- Aluminum, LED light fixtures
- Outdoor furnishings including benches, trash & recycling cans

---

Tertiary paths connect low traffic pedestrian flows throughout campus. These paths can be sandstone, and should be no less than 4 feet wide to meet accessibility standards.

The landscapes adjacent to these paths are ideal areas to incorporate a mix of usable turf along with low-maintenance landscapes that combine shrubland and shortgrass prairie plant species.

### Material List
- Cast in place concrete paths or sandstone pavers
- Aluminum, LED light fixtures
Example: Gateway Green

Quads function as central gathering spaces for students. The formal qualities of a Campus Quad create an iconic space for large crowds to gather while also providing passive recreation, aesthetic, and ecological value during other parts of the year.

Where possible, areas planted with shortgrass prairie species will be mixed in with usable turf.

Material List
- Cast in place concrete secondary paths
- Herringbone brick pervious pavers for plazas + primary paths
- Local roughcut sandstone permanent seating elements

Example: East Campus Heart

The East Campus Heart is a new quad that functions as the campus backyard—the ideal place to play frisbee, lawn games, and hang out with friends. The East Campus Heart is composed of a lawn, allées of trees, a flexible plaza with ample seating shaded by a grove of trees, and a pavilion for hosting events. A wet meadow riparian garden with elevated boardwalks frames the Western edge of the quad and provides flood capacity for Boulder Creek.

Material List
- Cast in place concrete secondary paths
- Herringbone brick pervious pavers for plazas + primary paths
- Elevated boardwalk
The Western Great Plains Riparian Woodland and Shrubland ecosystem is a biodiversity corridor running through campus along Boulder and Bear Creeks. Today, sections of this landscape corridor require restoration including the removal of invasive species and planting of native and adaptive shrubs, grasses, and trees. Restoring this landscape will create more breeding ground for declining bird populations and expand the campus’ capacity to serve as a carbon sink. Students will enjoy trails, picnic areas, and overlooks designed to highlight—and not interfere—with this sensitive habitat.

Material List

- Cast in place concrete paths
- Overlook features and elevated boardwalks
- Rough cut local sandstone seating features

Stands of trees and patches of shrublands, meadow restoration zones, and water features carve out scenic social spaces throughout this landscape typology. For shrublands on dry sites that require minimal irrigation, a mix of native and adaptive plant species—specifically drawing from the Rocky Mountain Lower Montane-Foothill Shrubland ecosystem—should be planted. Landscape depressions and water bodies are ideal places for riparian and wet meadow restoration projects.

Material List

- Cast in place concrete paths
- Rough cut local sandstone seating features
- Pervious herringbone brick plaza node
Green Courts are framed by residential buildings, student life buildings, and in a few cases, academic buildings. Deciduous canopy trees and conifers found commonly throughout Colorado’s Rocky Mountain Mesic Mixed Conifer Forest and Woodland provide shade and create space in Residential Courtyards and Green Courts throughout Campus. These landscapes are mostly defined by clusters of canopy trees and flexible lawns that can hold up to foot traffic within residential areas.

Plaza courts feature flexible surfaces and are typically framed by canopy trees to create shade and a sense of enclosure around gathering spaces. In shaded, cooler regions of courtyards, tree and shrub species associated with the Rocky Mountain Mesic Mixed Conifer Forest and Woodland ecosystem should be planted.

Green Courts
- Deciduous canopy trees and conifers
- Shade and space
- Clusters of canopy trees and lawns
- No trees in plaza courts

Plaza Courts
- Flexible surfaces
- Canopy trees
- Shade and enclosure

Material List
- Pervious herringbone brick pavers
- Sandstone edging
- Outdoor furnishings including benches, table & chairs, and trash & recycling cans

Material List
- Pervious herringbone brick pavers
- Local sandstone masonry walls and seating elements
- Precast concrete capstone
- Flexible furnishings
Every major campus cluster should include a bike corral that accommodates a minimum of 40 parked bicycles and a maximum of 150 parked bicycles. Bike corrals will use pervious surfaces for additional stormwater management in most locations. Permanent seating in the form of seat walls frames this node and planting screens create shade, protection from wind, and provide aesthetic and ecological value. Trees should be carefully selected so their fruits and leaf litter do not interfere with bike performance.

Material List
- Cast in place concrete paths
- Rough cut local sandstone seating features
- Pervious herringbone brick plaza nodes

As East Campus is developed, a permanent nursery could be folded into the landscape north of Innovation Plaza. This nursery can be tied to and complement academic programming and research goals from SEEC while also serving as a campus resource for succession planting. The riparian landscape at East Campus will remain undeveloped through the 30-year master plan and can begin ecological restoration treatments now. Through a phased planting approach, East Campus will begin developing a mature canopy while boosting the biodiversity and beauty of the campus in the interim.

Material List
- Crushed gravel paths
- Site walls
Historic and Contemporary Planting Palette

The University of Colorado Boulder sits at the base of the foothills in what used to be a High Plains prairie landscape. Over time, the campus was gradually planted with trees that borrow from neighboring ecotones and regions which shape the campus's present-day character. The planting at CU today represents a diverse palette of native and adaptive plant species. There are opportunities for meadow restoration projects, specifically on East Campus, which will recall the historic landscape of Boulder while also creating habitat for important animal species.

Boulder and Bear Creeks shape the two riparian corridors that run through campus. Today, some stretches of these riparian corridors need invasive species removal and restoration projects to boost the beauty and biodiversity of the campus landscape.

CU Boulder has been recognized for many years with the Tree Campus USA designation and is engaged in tree preservation efforts against threats such as the Emerald Ash borer. Continued tree monitoring and strategic succession planting of at-risk trees will ensure that the cultivated forests and canopy networks continue to provide shade, comfort, and shape the identity of campus well into the future.
Historic Campus Material Palette

The Historic sections of campus consistently utilize a palette of sandstone walls, vitreous clay barrel tile, variegated limestone trim and decorative pieces, black wrought iron light fixtures, sign posts, and railings. Sandstone is sourced locally from Front Range quarries and unites the vernacular landscape with the campus. Limestone is quarried in Indiana, Kansas, and Texas and is used to contrast the warmth of the sandstone and red tiles. For capstones and retaining wall details, precast concrete can be used or sandstone with skate rail deterrents.

Materiality of the Historic Campus Core

New Development and Open Space Material Palette

As new sections of campus are developed, material choices will integrate new development and open spaces with the historic campus core. Modern material updates such as coated aluminum light fixtures and railings will complement the historic black wrought iron details on Main Campus while requiring less maintenance. In residential courts, plaza courts & nodes, and along primary paths, benches can offer a comfortable place to rest while offering a modern alternative to metal fixtures. Flexible seating can function as a visual counterpart to the buff, pink, and reddish tones of local stone and brick.

Herringbone pattern pavers can be used to highlight pedestrian zones while other paving patterns may be used in plazas and gathering nodes. Elevated paths can be used for lookout features to provide recreation opportunities in ecologically sensitive landscapes—particularly on East Campus.

Today, the trail system on East Campus features several rough-cut local sandstone seats. These seating elements can be repeated throughout East Campus, Will Vill, and NBC to celebrate local geology while mimicking the color and texture of the sandstone masonry walls of Main Campus. Roughly textured paving can be integrated throughout paved areas to signal to students and cars when there is a shared mobility corridor threshold.

Bioswale + New Permanent Seating on East Campus

Rough Cut Sandstone New Pavers on East Campus

Light Fixtures + Concrete

Existing Meadow at East Campus

Flexible Seating at Plaza Nodes

CU bike corrals, cast-in-place concrete paths, sandstone seat walls, light fixtures, and wrought iron benches + trash receptacles

Materiality of the Historic Campus Core

6.5 Landscape Guidelines
Today NBC sits within the 100-year floodplain. Future construction will need to be raised two feet above the 100-year base flood elevation to be at the Flood Protection Elevation (FFE) required by the City of Boulder Land Use Code. For this masterplan, First Floor Elevations (FFE) calculated in the 2020 NBC Design Guidelines and Master Site Development Plan were used as a guide for interpolating the FFE of the 30-year masterplan footprints and the conceptual grading of the site.

This masterplan assumes that the city will vacate the ROW along Athens, Grandview, 19th and 20th Streets. Through CU’s acquisition of these streets, the Conveyance Zone along 19th Street can be relocated to 18th Street in coordination with FEMA and the City of Boulder. Relocating the conveyance zone to 18th Street will create a flush condition between the proposed open space heart at NBC with the first floor of the adjacent buildings and the streetscape. Throughout NBC, this master plan proposes to elevate most of the streetscapes to be flush with the FFE of the new buildings to create a desirable urban condition and then slope down to meet existing grade at property edges. The two proposed buildings in the northwest corner of NBC that sit west of 18th Street will be the only place at NBC where the buildings are planned to sit several feet higher than the adjacent street in order to accommodate the new conveyance zone.

The drawing to the left describes the interpolated FFE and the change in elevation in needed to meet this height.
The adjacent and following field maps designate outdoor spaces for both recreation and athletic activities. The CMP team has proposed uses and activities for these spaces, but specific programming and ownership of these fields and courts shall be determined by the university and key stakeholders such as Athletics, Recreation Services, and Housing Facilities Services.

On Main Campus, Farrand Field and Folsom Field are preserved along with the practice football field next to Folsom Stadium, the basketball courts east of CU Events Center, and the three fields in Kittredge. At NBC, four fields shared by Athletics and Recreation are reorganized to allow for the proposed new Lacrosse Stadium to be located outside of the conveyance and high hazard flood zones. Additional space for outdoor sports courts, such as recreational basketball and tennis courts, is also included in this area.

Athletics:
1 Football Stadium 360’ x 160’
1 Football Practice Field 360’ x 160’
2 Athletics & Rec Practice Fields 360’ x 160’
1 Lacrosse Stadium 400’ x 250’
1 Soccer Stadium 400’ x 265’

Recreation:
4 Multiuse Fields (varying dimensions)
7 Basketball Courts
4 Tennis Courts
At East Campus, the Track & Field Stadium and Ski facilities are relocated to the northern portion of this campus to accommodate new development occurring to the south. These facilities are strategically positioned outside of the High Hazard and Conveyance Flood Zones. To the west, a new recreation soccer field and 4 recreation tennis courts are potential uses that could reside in this area with more restrictive flood designations.

The existing Athletics soccer field on East Campus is relocated to NBC.

**Athletics:**
- Track & Field Stadium with Ski Facilities

**Recreation:**
- 1 Soccer Field 400’ x 265’
- 4 Tennis Courts
At Williams Village, the two existing multiuse recreation fields will remain while two new multiuse fields for recreation and intramural sports will be introduced on what was formerly surface parking lots along Baseline road.

Rugby will be moved from the Business Field on Main Campus to the Eastern edge of Williams Village. Existing volleyball and basketball courts in the South of Williams Village will be preserved while new bocce ball courts will be added to main promenade.

**Athletics:**
None

**Recreation:**
- 4 Multiuse Fields 296’ x 124’
- 1 Rugby Field 440’ x 263’
- 1 Volleyball Court
- 2 Basketball Courts
- 2 Bocce ball Courts
Within the Historic District, the existing buildings create microclimates allowing for more diverse tree planting than Colorado planting zones may suggest.

The Pinaceae family, which includes cedar, pine, and spruce, is the most prevalent tree family in the Historic District—comprising 26% of the canopy. To ensure long-term canopy resilience, it is important to keep each tree family under 30%. In total, over 90 different tree species are represented in the Historic district—with blue spruce the most common, comprising 12% of the canopy.

*Spruce and Ash trees are highlighted due to their significance on campus and their likelihood of experiencing stress due to pests & climate change.*

Silver Maple 4% / Acer saccharinum

Silver Maple is a historic planting that is in the process of being replaced with other tree varieties more suited to Colorado.

Blue Spruce 12% / Picea pungens

Blue spruce is found growing in USDA plant hardiness zones 1-7. As plant hardiness zones shift northward, Blue Spruce is likely to experience increased stress and slower growth. Spruce trees are more sensitive to climate change than fir trees.

Ash 9% / Fraxinus spp.

CU is currently treating select Ash trees in anticipation of the Emerald Ash borer. Continued preventative efforts and succession planting will ensure the campus tree canopy remains robust into the future.
Today NBC has many un-inventoried trees along Boulder Creek. According to the 2020 NBC Design Guidelines and Master Site Development Plan, there is a need for ecological restoration and invasive species removal along Boulder Creek at this location.

Out of the inventoried trees, over 60% of them are Ash trees which will need continued EAB treatment until construction begins for the new development at NBC. For these new structures to meet floodplain requirements, few of the existing trees will be able to remain.

Spruce and Ash trees are highlighted due to their significance on campus and their likelihood of experiencing stress due to pests & climate change.

**Blue spruce 6% / Picea pungens**

Blue spruce is found growing in USDA plant hardiness zones 1-7. As plant hardiness zones shift northward, Blue Spruce is likely to experience increased stress and slower growth. Spruce trees are more sensitive to climate change than fir trees.

**Box elder 8% / Acer negundo**

Box elder is a fast-growing plant that can thrive in understories, full sun, and drought conditions. The Box elder is considered a highly adaptable tree to climate change. The biggest mortality risk for Box Elders in CO is fire.

CU currently is treating select Ash trees in anticipation of the Emerald Ash borer. Continued preventative efforts and succession planting will ensure the campus tree canopy remains robust into
Grandview is another district that features a large number of Ash trees—making up over 32% of the total canopy cover. Continued EAB treatment and succession planting in this district will minimize potential canopy loss.

*Spruce and Ash trees are highlighted due to their significance on campus and their likelihood of experiencing stress due to pests & climate change.

Canopy Analysis | Grandview

Grandview is another district that features a large number of Ash trees—making up over 32% of the total canopy cover. Continued EAB treatment and succession planting in this district will minimize potential canopy loss.

*Spruce and Ash trees are highlighted due to their significance on campus and their likelihood of experiencing stress due to pests & climate change.

Siberian Elm 6% / Ulmus pumila
Siberian Elm trees are considered to be invasive in Colorado—growing quickly and creating toxic conditions for other plants. In winter, heavy branches are prone to breaking and can cause damage to the campus. Planting Hybrid American Elms and Chinese Elms are a better choice moving forward.

Juniper 19% / Juniperus spp.
Juniper trees show more climate sensitivity when planted at lower elevations. Drought-induced juniper diebacks are predicted as a result of climate change but can be mitigated with irrigation. Given their sensitivity to temperature fluctuations, it will be important to limit Juniper plantings going forward.

Ash 32% / Fraxinus spp.
CU currently is treating select Ash trees in anticipation of the Emerald Ash borer. Continued preventative efforts and succession planting will ensure the campus tree canopy remains robust into the future.
The Pinaceae family, which includes cedar, pine, and spruce, is the most prevalent tree family in the Farrand District—comprising 28% of the canopy. Future plantings should make limited use of trees in the Pinaceae family to ensure adequate tree family diversity. In particular, blue spruce makes up 15% of the canopy in Farrand and should be sparingly used in the future as it is likely to be stressed due to climate change.

**Ash 5% / Fraxinus spp.**
CU currently is treating select Ash trees in anticipation of the Emerald Ash borer. Continued preventative efforts and succession planting will ensure the campus tree canopy remains robust into the future.

**Blue Spruce 15% / Picea pungens**
Blue spruce is found growing in USDA plant hardiness zones 1-7. As plant hardiness zones shift northward, Blue Spruce is likely to experience increased stress and slower growth. Spruce trees are more sensitive to climate change than fir trees.

**Honey Locust 8% / Gleditsia triacanthos**
With an ability to tolerate high temperatures, Honey Locust trees are well suited for rising temperatures. This tree can tolerate drought, although it grows best in moist valleys and streams.

**Apple 10% / Malus spp.**
Apple trees are relatively drought-tolerant and perform well in CO. Apple trees tend to flower later in the season, and if winter chilling periods become warmer, they are likely to experience an even later budbreak.
The Pinaceae family, which includes cedar, pine, and spruce, is the most prevalent tree family in Kittredge—comprising 37% of the canopy. In future plantings, trees from other families should be selected in lieu of the Pinaceae family to create more canopy diversity in this district. Given that blue spruce, which makes up 18% of the canopy at Kittredge, and other trees in the Pinaceae family are likely to experience stress with climate change, more varied plantings will ensure the sylvan character of Kittredge remains for many more generations.

**Full tree canopy**

**Un-inventoried trees**

**Spruce (Picea spp.)**

**Ash (Fraxinus spp.)**

*Spruce and Ash trees are highlighted due to their significance on campus and their likelihood of experiencing stress due to pests & climate change*

**Eastern Cottonwood 8% / Populus deltoides**

Eastern Cottonwood is less adaptable to climate change than other trees due to its susceptibility to pest outbreaks, drought, disease, and fire. It is best suited to riparian corridors and depressions with consistent moisture.

**Ash 8% / Fraxinus spp.**

CU currently is treating select Ash trees in anticipation of the Emerald Ash borer. Continued preventative efforts and succession planting will ensure the campus tree canopy remains robust into the future.

**Austrian Pine 11% / Pinus nigra**

This tree is known to thrive in urban conditions and to survive periods of drought. Due to the tree’s susceptibility to tip blight in the Midwest, along with Dothistroma needle blight, it is recommended to limit planting of this tree going forward.

**Blue Spruce 18% / Picea pungens**

Blue spruce is found growing in USDA plant hardiness zones 1-7. As plant hardiness zones shift northward, Blue Spruce is likely to experience increased stress and slower growth. Spruce trees are more sensitive to climate change than fir trees.
The most common tree on East Campus is the Ash tree, comprising 10% of the canopy. Many of the existing Ash trees line the roads and parking lots and will gradually be removed as the 30-year masterplan is constructed. Planting a diverse palette of trees equipped to adapt to the stresses of climate change throughout East Campus will go far to shape the long-term character of this district. Today, riparian restoration projects throughout the Boulder Creek corridor can begin immediately to add more beauty and biodiversity to the Campus. Until East Campus is developed, native trees should be exclusively planted in this area to withstand the harsher climatic conditions of this district.

**Eastern Cottonwood 9% / Populus deltoides**
Eastern Cottonwood is less adaptable to climate change than other trees due to its susceptibility to pest outbreaks, drought, disease, and fire. It is best suited to riparian corridors and depressions with consistent moisture.

**Austrian Pine 11% / Pinus nigra**
This tree is known to thrive in urban conditions and to survive periods of drought. Due to the tree’s susceptibility to tip blight in the Midwest, along with Dothistroma needle blight, it is recommended to limit planting of this tree going forward.

**Honey Locust 6% / Gleditsia triacanthos**
With an ability to tolerate high temperatures, Honey Locust trees are well suited for rising temperatures. This tree can tolerate drought, although it grows best in moist valleys and streams.
A large portion of the trees at Williams Village are un-inventoried, so the actual percentages of the tree species breakdown may differ from this analysis. There are several Ash trees in the South-West corner of the district which will need continued monitoring and treatment for EAB. Several of the other tree species commonly found at Williams Village, such as the Honey Locust and Hawthorne trees, are equipped to adapt to rising temperatures and periodic drought. Other species commonly found here, such as Birch trees, should be limited or avoided in future plantings as they are likely to be stressed by elevated temperatures.

<table>
<thead>
<tr>
<th>Tree Species</th>
<th>Percentage</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spruce</td>
<td>10%</td>
<td></td>
</tr>
<tr>
<td>Ash</td>
<td>26%</td>
<td></td>
</tr>
<tr>
<td>Honey Locust</td>
<td>11%</td>
<td></td>
</tr>
<tr>
<td>Birch</td>
<td>19%</td>
<td></td>
</tr>
<tr>
<td>Hawthorne</td>
<td>11%</td>
<td></td>
</tr>
</tbody>
</table>

*Spruce and Ash trees are highlighted due to their significance on campus and their likelihood of experiencing stress due to pests & climate change.*
6.6 Service and Emergency Routes

Service and Emergency Routes

[Map showing various routes and zones marked with symbols like Transit Center, Mobility Hub, Primary Roads, Secondary Roads, Vehicular Entry, Service Routes, Service/Emergency Routes, Proposed Parking, and Proposed Buildings.]
6.7 Utility Considerations

CONFLICTS AND PHASING

CONFLICTS DIAGRAM

INFRASTRUCTURE EXHIBITS
University of Colorado Boulder Master Plan: Thermal, Data and Power Utilities

Introduction
This memo accompanies the July 2021 draft presentation of the University of Colorado Boulder comprehensive master plan (Sasaki Associates). It explains the investments needed in thermal, data and power utilities to provide for demolitions and new construction illustrated in the Sasaki plan.

The presentation of utility investments supports the university’s commitment to eliminate its greenhouse gas emissions by 2050. The recommendations for energy systems that follow assume that all new buildings illustrated in the master plan will be highly energy efficient with energy use intensities by building type as described in the university’s Energy Master Plan, or better. Each new building should meet these requirements:

- Where hydronic heating and cooling systems are implemented, systems should be designed to use district supplied 130°F hot water at 150psi (even if steam serves the building at time of construction) and district supplied 44°F chilled water at 150psi,
- Energy Recovery for all exhaust and relief air,
- Natural gas shall not be used for space conditioning or hot water heating,
- Building submetering of all utilities, and
- Include energy performance standards into all external lease agreements for any CU owned properties.

This memo:
1. Explains the utility investment phasing needed for East Campus and the North Boulder Creek District of Main Campus to conform to the development illustrated in the master plan. The extent of projected development suggests the opportunity for a partnership of university and developer(s) specific to utilities or accompanying a larger partnership for campus growth.
2. Identifies potential conflicts between existing utilities and the locations for new construction illustrated in the Sasaki master plan.

Main Campus
The Sasaki plan generates underground utility conflicts on Main Campus, but most can be accommodated with slight modifications to the illustrated building footprints. There are two buildings on the plan that would cause major utility conflicts and can be seen in the attached CMP Utility Conflicts drawing. Utility Conflict #1) The new building on the western edge of the Business Field and located south of the ITLL (Building 445) and, Utility Conflict #2) the new building south of Koelbel (Building 430) are above a network of thermal, data, and power utilities. AEI suggests that as development is pursued in these areas, further investigation is needed to resolve these utility conflicts.

Williams Village
Conflicts between the Sasaki plan’s illustration of new buildings and existing power, data, and thermal utilities are minor with the exception of Utility Conflict #3) immediately south of the Heating Plant (Building 611). AEI recommends that future design efforts in this area modify the building footprint to resolve this conflict

Grandview Development
The plan for the Grandview development lacks the density to justify a free standing district energy system and the distance of this campus to the Main Campus makes it impractical to establish a satellite energy system. Therefore, the university’s carbon reduction commitment is best pursued through design of energy buildings efficient buildings in this area.

The Sasaki illustration for the Grandview development shows power and IT utility conflicts of a significant magnitude. Should the Grandview development be constructed as illustrated, it necessitates design of a new utility pathway network. If the university determines a new utility pathway network in this area is cost prohibitive, the proposed development scheme will need to be modified.
East Campus
The Sasaki plan illustrates many and significant conflicts between proposed new building locations and power and IT utilities. AEI proposes that power and IT pathways be modified to follow the pathways that will be created for the anticipated hot water and chilled water. Infrastructure elements on East Campus that constrain development are noted below with recommended means of resolving them:

- Much of the existing high voltage distribution from the East Campus Power Distribution Center (ECPDC) conflicts with the footprint of new buildings and will need to be relocated.
- The illustrated growth of East Campus will trigger the need for additional power capacity.
- There are high voltage distribution lines from the ECPDC to the Electrical Supply Building (ESB) on Marine Street. It is anticipated that the power distribution in the ESB will be sufficient for the northern part of the East Campus.
- The network core router for East campus is located in the Biotech building (BIOT). Two additional core routers are located on main campus in the Engineering (ECOT) complex and the Information Science (INFO) building. The Space Science building (SPSC) and Computing Center (COMP) also host critical data centers.
- Computing Center (COMP) contains a BRAN fiber rack, and BRAN fiber routes through the Computing Center from the Engineering building (ECOT), then north and west towards the vicinity of 33rd and Pearl Street. CU has also allocated a portion of the fiber strands in this BRAN assembly, which feed the Center for Innovation & Creativity (CINC) building and the High Performance Computing Facility (HPCF – supercomputer).
- The existing IT infrastructure entrance points onto East Campus are at the TB16 “hut” at the northeast corner of 30th Street and Colorado Avenue, and from the north via BRAN into the Computing Center. Also see CU Boulder -CMP Utility Conflicts exhibit indicating additional east campus buildings with 3rd party IT infrastructure as of September 2021.
- Most buildings on the UCB campus also have a copper presence from Lumen/CenturyLink.

The following recommends utilities investment phasing to support the Sasaki master plan illustration of building, road, and landscape development on East Campus.

Phase 1
- All three East Campus thermal plants in Jennie Smoly Caruthers Biotech, Sustainability, Energy, and Environment Community Building (SEEC), AERO, and LASP Space Technology Research Center (LSTR) will be employed. They will be linked to start the process of creating a single, districtwide energy system. SPSC should be connected to this system early in development so the consistent cooling demand can be supported by the district system. Thermal and power pathways will be direct buried.
- Pathways for chilled water, hot water, power, and data should be laid out (and reserved) to protect continued access as the campus is built out.
- To avoid disruption of the IT corridor on the south portion of 33rd Street for planned development, an alternate route and new fiber will be installed as an enabling project.

Phase 2
- Building development will occur at the southwest corner of East Campus. As today’s plants serving that area reach the end of their useful lives (are retired), a new district energy plant will be constructed on the campus centrally located to the Phase 1 loop, and it will use heat recovery chillers and electric or natural gas hot water generators. The plant will be designed to be zero combustion ready. The plant could be situated in numerous East Campus locations, but the parking garage is an ideal location given its centrality to the existing plants and the fully built out campus. If this plant is paired with geothermal, it could be buried into the bottom of the parking garage and would not need to be provisioned for industrial steam boilers, combustion turbines or large cooling towers.
- To avoid disruption of the BRAN fiber route for planned development in the 33rd Street area, an alternate route and new fiber will be installed as an enabling project. It should follow the new thermal energy and power pathways.
• Power and IT will be designed to follow the layout of hot water and chilled water piping pathways.

Phases 3 and 4
• The master plan development generally goes from west to east. Thermal utilities will be expanded to the northwest and northeast to support campus buildout. The district energy plant may be connected to a geothermal system to allow the plant to deliver heating and cooling with zero combustion. Specific geothermal field site boundaries will require further refinement and factor in preservation of existing natural vegetation along the Boulder Creek corridor.
• Thermal utility capacity will be expanded to serve campus growth.
North Boulder Creek District of Main Campus

The Sasaki plan illustrates many and significant conflicts between proposed new building locations and power and IT utilities. AEI proposes that power and IT pathways be modified to follow the pathways that will be created for the anticipated hot water and chilled water. Infrastructure elements on North Boulder Creek District that constrain development are noted below with recommended means of resolving them:

- Existing overhead power lines (owned by Xcel) bring power to an underground location near the practice facility, and existing below grade power lines (owned by Xcel) that bring power to an underground location near the practice facility.
- The illustrated growth of North Boulder Creek District of Main Campus may trigger the need for additional power capacity.
- Underground distribution on the north side of the Kruce-Boedecker Field (a major utility corridor).
- Data feed from Willard Distribution Router.

The following recommends utilities investment phasing to support the Sasaki master plan illustration of building, road, and landscape development on the North of Boulder Creek District of Main Campus. The ownership for these utilities could be structured similar to Williams Village.

Phase 1

- Pathways for chilled water, hot water, power, and data should be laid out to protect continued access as the campus is built out.
- Establish an easement and relocate the existing overhead power lines underground. Power for buildings will be provided from Main Campus. Power will follow technology pathways to the utility pathway and feed buildings as they are constructed.
- Provide new dedicated data feed from Willard Distribution Router to distribution node in small chiller plant. All new fiber to be from this node and follow thermal utility pathways. Fiber can also be provided to campus from the east from the Folsom Street IT feed and follow established utility pathways.
- Steam from main campus will be converted to hot water and pumped to the development via existing pumphouse on the south end of the site. A small chiller plant sized to serve the first development will be incorporated with chilled water and hot water pathways established for future developments.
- Depending on the scale of the next development, chilled water and hot water can be served from this network.

Phase 2

- A new district energy plant will be constructed to serve increased demand for chilled water and hot water. This plant will use heat recovery chillers and electric or natural gas hot water generators. The plant will be designed to be zero combustion ready.
- Thermal and power pathways will be direct buried and/or incorporated as tunnel systems in buildings.
- The athletic field's construction does not necessarily trigger the need to install the geothermal system which allows for zero combustion. The cost of the geothermal is substantial in comparison to repairs made for the field if it is constructed before the site is utility system is ready to connect to it. Additionally, another location could be found at a later date since the field is small relative to the green space in this area of campus.

Phase 3

- Relocate the underground distribution on the north side of the Kruce-Boedecker Field as development reaches this portion of the site.
- The district energy plant will be connected to a geothermal system to allow the plant to deliver heating and cooling with zero combustion.
- Thermal utility capacity will be expanded to serve campus growth.
North Boulder Creek District and East Campus Phasing

This exhibit explains the utility investment phasing needed for East Campus and the North Boulder Creek District of Main Campus to conform to the development illustrated in the master plan. The extent of projected development suggests the opportunity for a partnership of university and developer(s) specific to utilities or accompanying a larger partnership for campus growth. As the university pursues new development and utility planning to support that development, intra-university collaboration will be required to coordinate utility pathways with circulation, green space, and tree planting plans.

The exhibit highlights the following for each campus:

1. Phase 1 - Utility pathways and plant locations established and installed thermal utilities
2. Phase 2 - Installed thermal utilities and plant
3. Phase 3 – Installed thermal utilities (East Campus only)
4. Full build – the final state including geothermal field, pump house, plant, and thermal utilities
North Boulder Creek District 30-Year Vision

Proposed Framework
Phase 1

Utility corridors (establish layout)

District energy plant site reserved

Hot water and chilled water piping

Existing steam converter and pump house

Geothermal and pump house site reserved

Proposed new fiber to distribution node in small chiller plant

Electric feed from main campus

Legend:
- Campus utilities
- Utilities pathway
- Technology
- Electrical

IT feed to NBC

IT feed

Existing fiber from Willard

Electric feed from main campus
District energy plant constructed and shares site w/proposed parking garage.

Demolish existing steam converter and pump house.

Proposed new fiber to distribution node in small chiller plant.

Existing fiber from Willard.

Electric feed from main campus.

Legend:
- Campus utilities
- Utilities pathway
- Technology
- Electrical
North Boulder District 30-Year Vision

Proposed Framework

- Campus utilities
- Utilities pathway
- Technology
- Electrical

Legend:

- District energy plant
- Geothermal and pump house
- IT feed
- Electric feed from main campus
- Hot water and chilled water piping
- Existing fiber from Willard
- Retire chiller plant, retain distribution node

IT feed to NBC
Proposed Framework
Phase 1

District energy plant site reserved

Geothermal and pump house site reserved

Utility corridors (establish layout)

BRAN fiber route to be preserved

Legend:
- Campus utilities
- Utilities pathway
- Proposed geothermal field
- Technology

Hot water and chilled water piping

Colorado Ave

Arapahoe Ave
Proposed Framework
Phase 2

- East Campus 30-Year Vision
- Proposed geothermal field
- Technology

Legend:
- Campus utilities
- Utilities pathway
- Proposed geothermal field
- Technology

- Geothermal and pump house site reserved
- BRAN fiber route to be preserved
- Utility corridors
- Alternate route and new fiber
- Hot water and chilled water piping
- District energy plant constructed
Proposed Framework

- District energy plant
- BRAN fiber route to be preserved
- Geothermal and pump house
- Hot water and chilled water piping

Legend:
- Campus utilities
- Utilities pathway
- Proposed geothermal field
- Technology
6.8 Design Studies

63 LANDSCAPE SCALE COMPARISONS

67 JILA CONNECTIONS

69 EAST CAMPUS ROAD REALIGNMENT
Landscape Scale Comparisons

These landscape scale comparisons are intended as a reference for understanding the scale of future open spaces compared to historic open spaces on main campus.
Norlin Quad – Scale Comparison

NORLIN QUADRANGLE
PLAN DIMENSIONS: 1200’ X 580’
AREA: 3.5 ACRES

UNIVERSITY OF VIRGINIA THE LAWN
PLAN DIMENSIONS: 950’ X 200’
AREA: 2.9 ACRES

THE OHIO STATE OVAL
PLAN DIMENSIONS: 1250’ X 600’
AREA: 15+ ACRES
East Campus 30-Year Vision

Scale Comparisons

Baker Hall & Libby Hall

Dalton Trumbo Fountain

Mary Rippon Theater

Sewall Field

Farrand Field
Williams Village 30-Year Vision

Scale Comparisons
MyCampus survey results identified the East-West sidewalk between JILA and Engineering as a corridor of pedestrian-vehicular conflict, mostly due to bike traffic. The following explorations aimed to design a safer connection between JILA and Engineering for both pedestrians and bicyclists.
Main Campus 30-Year Vision

Engineering and JILA Sidewalk Connector
East Campus Road Realignment

A defining element of the proposed framework for East Campus is the realignment of Discovery Drive to serve as a central pedestrian-priority spine that connects the campus from West to East. The following slides look at a phasing approach for existing and proposed buildings and roads.
East Campus Framework

Phasing Approach

Near and Midterm Phases

Later Phases

Arapahoe Ave
Colorado Ave
Foothills Parkway
Phasing and Implementation

Proposed Buildings and Roads
6.9
CU Boulder South
CU Boulder South is a 308-acre parcel at the southeast edge of the city acquired by the university in 1996 with no particular immediate use in mind. In September 2021, and in the final stages of the writing of this document, Boulder City Council approved the annexation of the property into the Boulder city limits. One provision of the annexation is the ability for the city to use a portion of the site to build flood protection for downstream residents.

University development at CU Boulder South is contingent upon the city’s ability to receive permitting approval for flood mitigation work on the site. Consistent with the annexation agreement, the CMP anticipates development at CU Boulder South to include project types such as housing, transportation, and recreation and athletic facilities, in addition to academic and research space. CU Boulder acknowledges the CU Boulder South Guiding Principles from the 2015 Boulder Valley Comprehensive Plan as the mutually agreed development concepts for the property. A micro master plan specific to the CU Boulder South site will be developed as the city’s flood mitigation plans are further developed and gain permitting approvals.

At the time of the writing of this document, there are multiple potential avenues through which deannexation of the site could occur, which would remove the property from city limits, eliminate the ability for the university to connect to city utilities, and undo any land transfer, flood protection and open space provisions. These possibilities include:

- As part of the annexation agreement, the city holds a three-year deannexation option period. If the city is unable to move forward with the construction of flood protection due to permitting or other issues, the city has the option to deannex the site. This option period carries with it two one-year extension options.
- City Council’s approval of the annexation faces a potential referendum. If a petition submitted by opponents of the annexation gains certification, the referendum would put deannexation before the voters, likely as part of the November 2022 election.
- The annexation could face potential legal challenges from opponents that could delay CU Boulder’s ability to develop on the site or cause deannexation.

The University of Colorado Board of Regents in August 2021 authorized CU Boulder leadership to execute the annexation agreement once finalized with the city. As approved, the CU Boulder South annexation carries with it multiple provisions aimed at providing mutual benefits for both the university and community of Boulder. These include flood protection for 2,300 downstream Boulder community members, protection and restoration of critical riparian habitat and well-planned housing-centered development on a limited portion of the site. The annexation agreement explicitly sets the requirements and conditions for the annexation, including numerous binding covenants that set limits on building sizes, heights and locations, as well as an actively managed multimodal traffic plan.

Key provisions of the annexation agreement include:

- The university’s commitment to the transfer of 155 acres to the city for flood protection and open space.
- City construction of flood protection for 2,300 downstream Boulder residents and 1,100 homes.
- The preservation of 119 acres for permanent open space, and the transfer of the needed water rights for habitat restoration and maintenance.
- A limit on future development to 129 acres of the 308-acre parcel, with no development of habitable spaces allowed within the 500-year floodplain, except for accessory uses to serve visitors to the recreation fields.
• A required minimum 2-to-1 square footage ratio of housing to non-housing buildings to ensure that housing will always be the predominant use.

• A 750,000-square-foot cap on the amount of non-housing development allowed.

• No non-residential development is allowed prior to the construction of at least 150 units of housing.

• The dedication of five acres for the development of permanently affordable housing available to community members who qualify, not just university affiliates.

• Preservation and protection of valuable wetlands and natural habitat, including lands near the sensitive state habitat area.

• The implementation of performance-based transportation plans and trip caps to limit future traffic.

• The creation of a multimodal hub with connections to the larger transportation network.

• Dedication of two acres of land for a public safety facility.

• Provision of continued shared recreation uses for the community and university, including parks, trails and fields.

• A prohibition on the university connecting to utilities prior to the expiration of the city’s de-annexation option period.

• A limit on the number of nighttime events at lighted recreation facilities.

• A requirement that all lighted recreation and event facilities must comply with a minimum setback of 250 feet from the state natural area and existing dwelling units on adjacent properties.

• A requirement that the university employs physical and technological measures, such as radio frequency identification (RFID)-activated gates, to prevent use of the roadways on the property as a bypass between Highway 93 and Foothills Parkway.

• A requirement that development of the site be phased from north to south and that construction of access to the site from Highway 93 will not occur until development occurs on the southern half of CU Boulder’s developable area.

• A commitment by the university and city that the Vision Zero Action Plan will inform future design and construction of State Highway 93 access.

The university will embark on a micro master planning effort around its future site plans before any development begins. CU Boulder development at the site will not occur until after the city’s flood protection project is built. The city maintains review and comment periods for those site plans as well as for each phase of future development at CU Boulder South to ensure compliance with the binding annexation agreement.