

Bothell STEM 4 —

University of Washington
Architectural Commission

August 10, 2020

Agenda—

- WHAT WE HEARD AT UWAC 1
- PROJECT DEFINITION
- SITING THE PROGRAM

UWAC 1

- Appreciate the concept of **“knitting in” building and site**
- Study how the building responds to **shallower slope** conditions
- How do the two institutions **share the building**? Explore **nature as a uniting and healing force**
- Consider how **landscape is shaping the building**
- Explore the **connection/relationship to the north quad**
- Appreciates **moments in nature along the hill** rather than duplication of Discovery Hall north stair
- If there is a **feature stair** facing the trees, make a convincing argument about its **location and purpose**
- **Concerned about the wide building** option
- Consider how **Interior circulation** could shift to allow for **variety of experiences**

Project Definition—

Target Scope and Budget—

PROJECT BENCHMARKS

Detailed analysis of design and construction costs for recent university and community college projects provide a frame of reference for STEM 4. Eight projects of comparable program, size, complexity and geographic location were comprehensively evaluated.

Three were the basis of the 2019 capital budget request for STEM 4:

- WSU Everett
- Edmonds College, SET Building
- Grays Harbor College, STEM Building.

Four additional projects were evaluated:

- Everett Community College, Learning Resource Center
- Olympic College, College Instruction Center
- Shoreline Community College, HSAMCC
- UW Bothell, Discovery Hall.

STEM 4 cost per square foot is based on Option B

**WSU
WSU EVERETT**
\$825/GSF Project Cost



**EDMONDS CC
SET BUILDING**
\$889/GSF Project Cost



**SHORELINE CC
HSAMCC**
\$963/GSF Project Cost



**GRAYS HARBOR COLLEGE
STEM BUILDING**
\$1,106/GSF Project Cost



\$800/ GSF

\$900/ GSF

\$1,000/ GSF

\$1,100/ GSF

\$1,200/ GSF

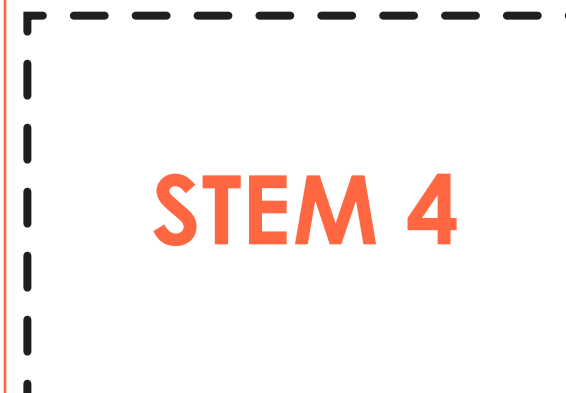
\$1,300/ GSF



**EVERETT CC
LEARNING RESOURCE CENTER**
\$861/GSF Project Cost



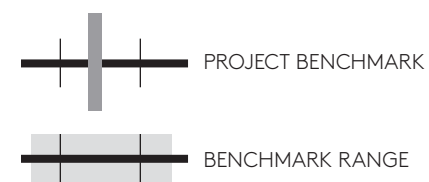
**OLYMPIC COLLEGE
COLLEGE INSTRUCTION CENTER**
\$927/GSF Project Cost



**CC / UWB
STEM 4**
\$1,044/GSF Project Cost
76,000 GSF



**UW BOTHELL
DISCOVERY HALL**
\$1,303/GSF Project Cost

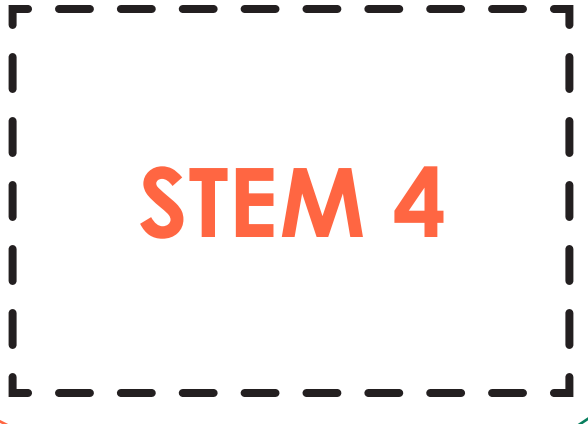


SYSTEM BENCHMARKS-03 SITE

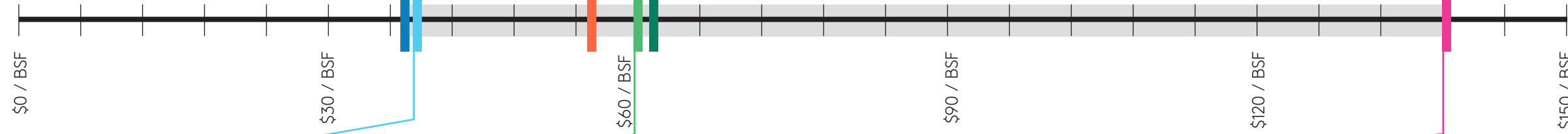
**OLYMPIC COLLEGE
CIC**
\$38/BSF



**CC / UWB
STEM 4**
\$57/BSF
76,000 GSF



**UWB
HSEB - 50% DESIGN BUDGET**
\$62/BSF



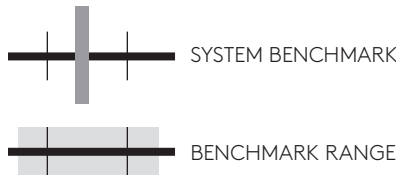
**UW
POPULATION HEALTH FACILITY**
\$39/BSF



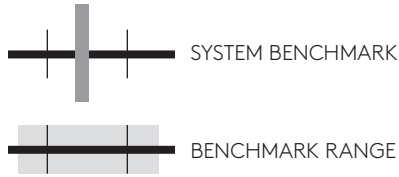
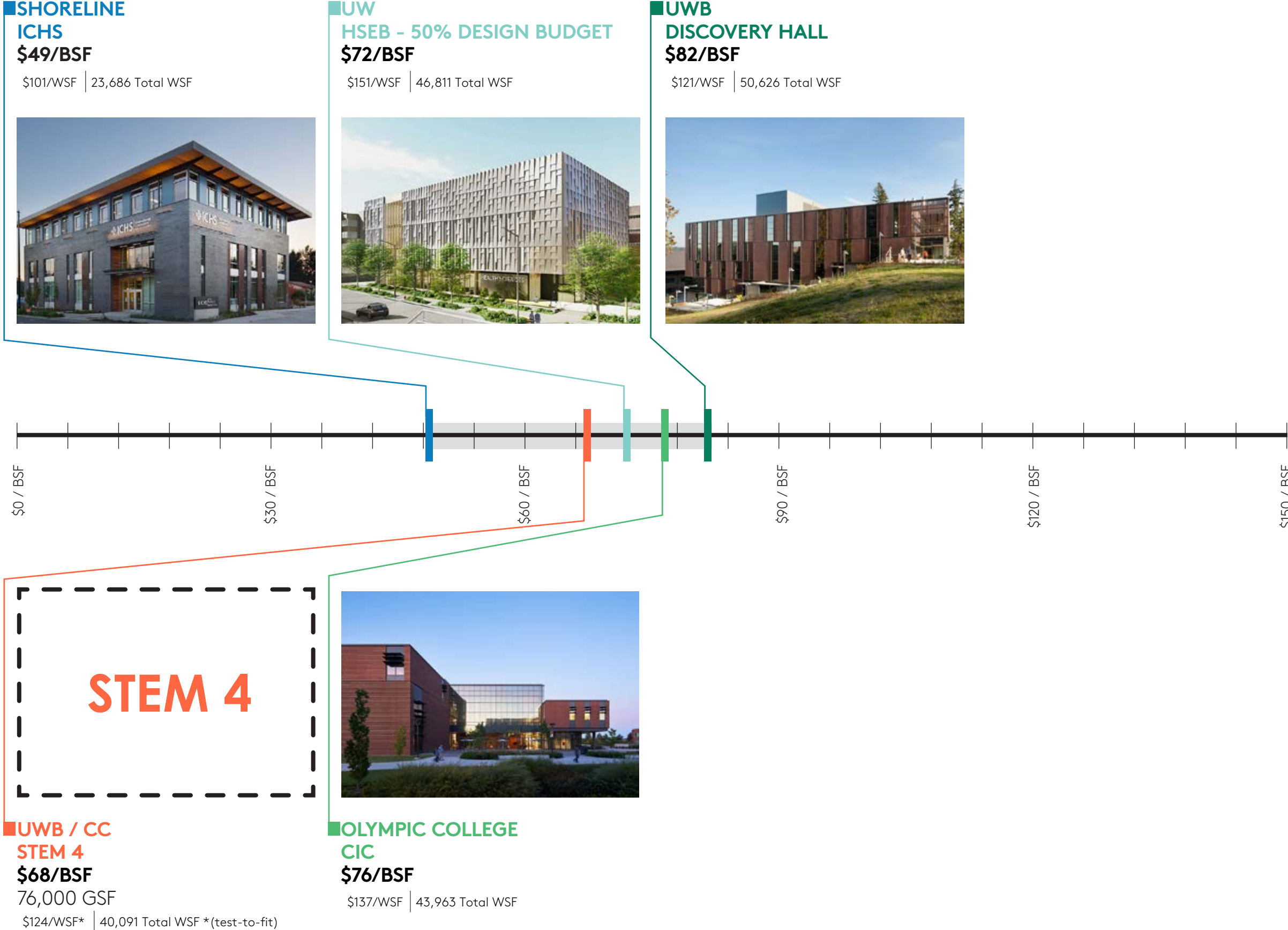
**BAINBRIDGE ISLAND
BLAKELY ELEMENTARY**
\$60/BSF



**UWB
DISCOVERY HALL**
\$139/BSF



SYSTEM BENCHMARKS-
05 EXTERIOR WALL

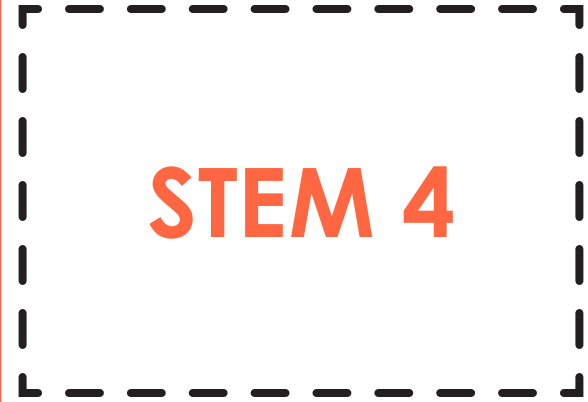


SYSTEM BENCHMARKS-
07 INTERIOR CONSTRUCTION

UW
HSEB - 70% DESIGN BUDGET
\$86/BSF



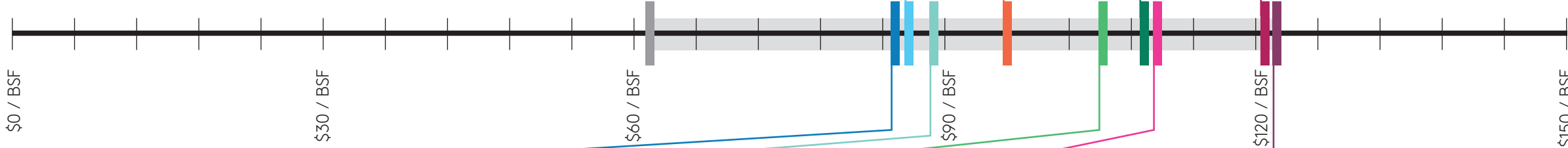
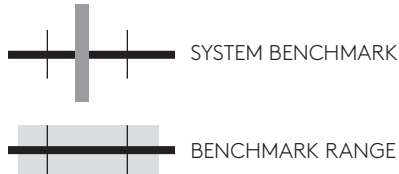
CC / UWB
STEM 4
\$96/BSF
76,000 GSF



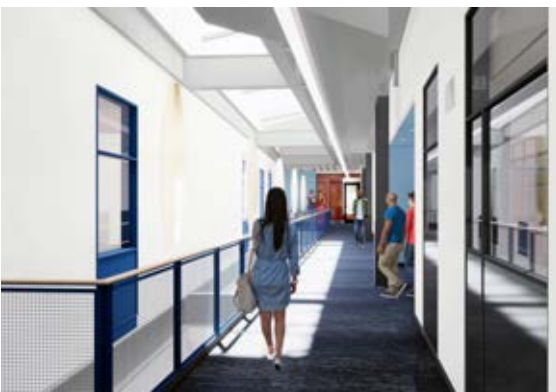
UW
NANO ENGINEERING
\$110/BSF



UW
CSE 2
\$121/BSF



UW
POPULATION HEALTH FACILITY
\$85/BSF



SHORELINE CC
HSAMCC
\$89/BSF



UW
PACCAR HALL
\$105/BSF



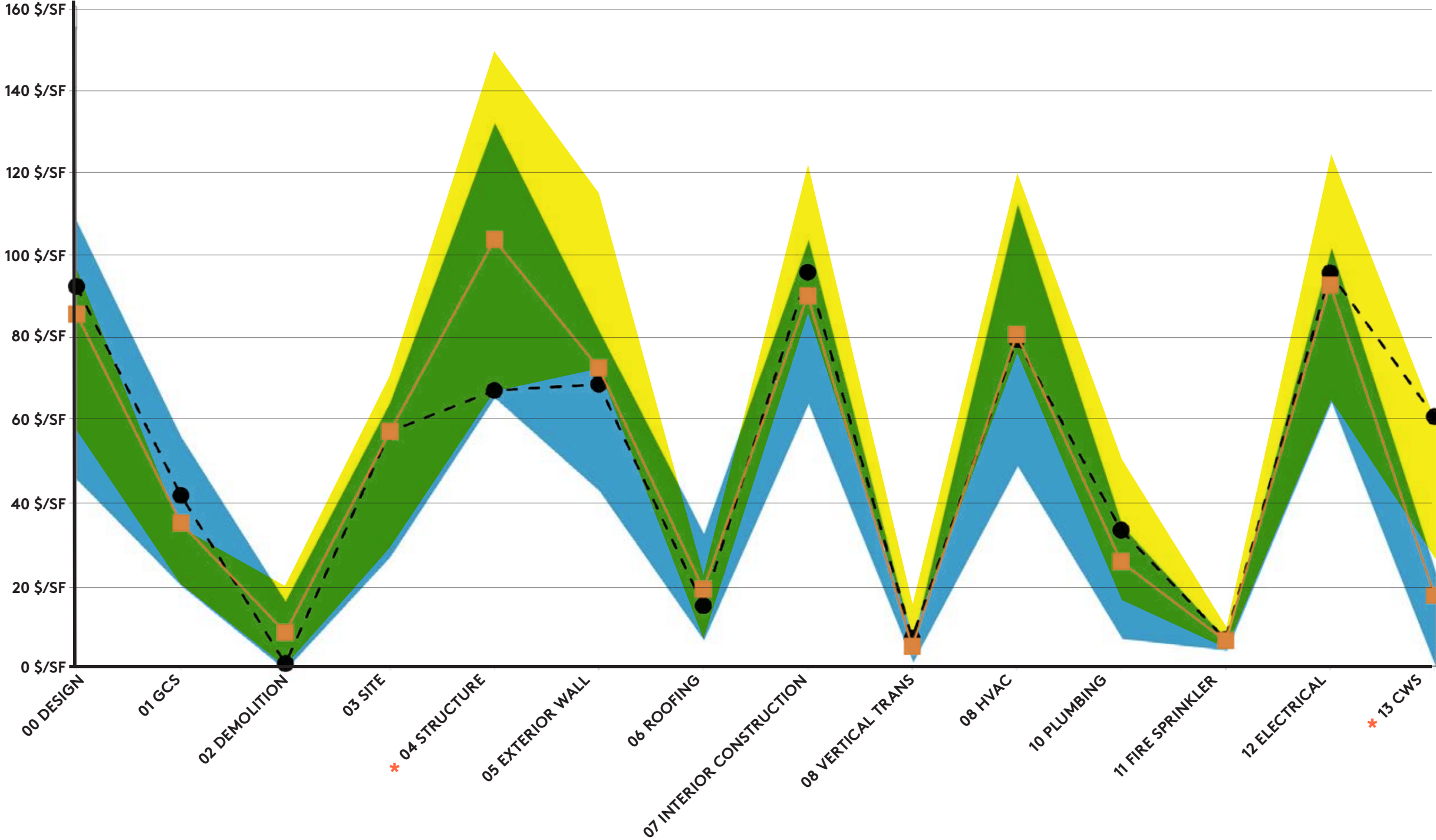
OLYMPIC COLLEGE
CIC
\$110/BSF



UWB
DISCOVERY HALL
\$121/BSF

SYSTEM TARGETS

Target budgets for STEM 4 are based on the project benchmarks, the system benchmarks and the test-to-fit scenario. They provide a road map for the development of the project during the design and construction phases.



* Benchmark projects include the cost of Construction Work Support (CWS) in Structure costs

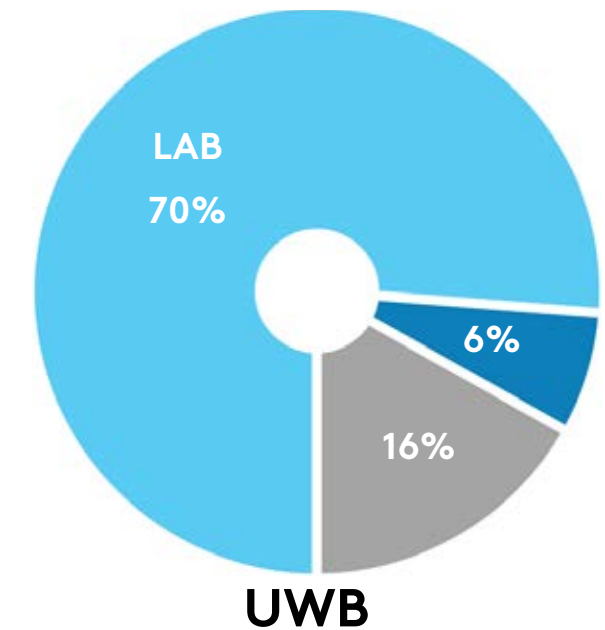
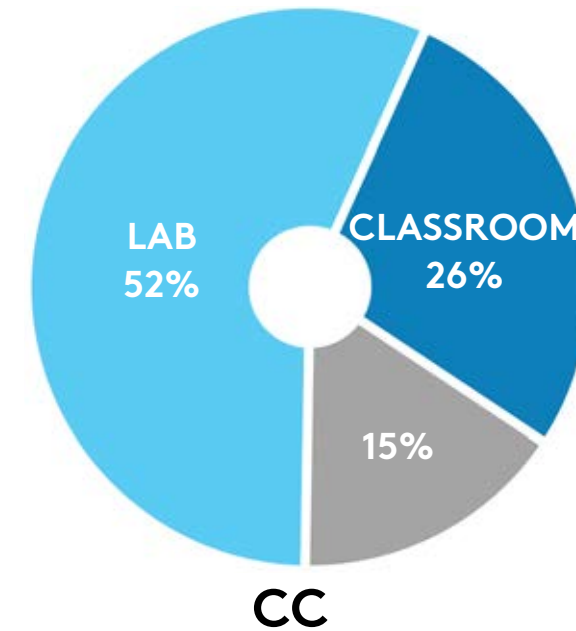
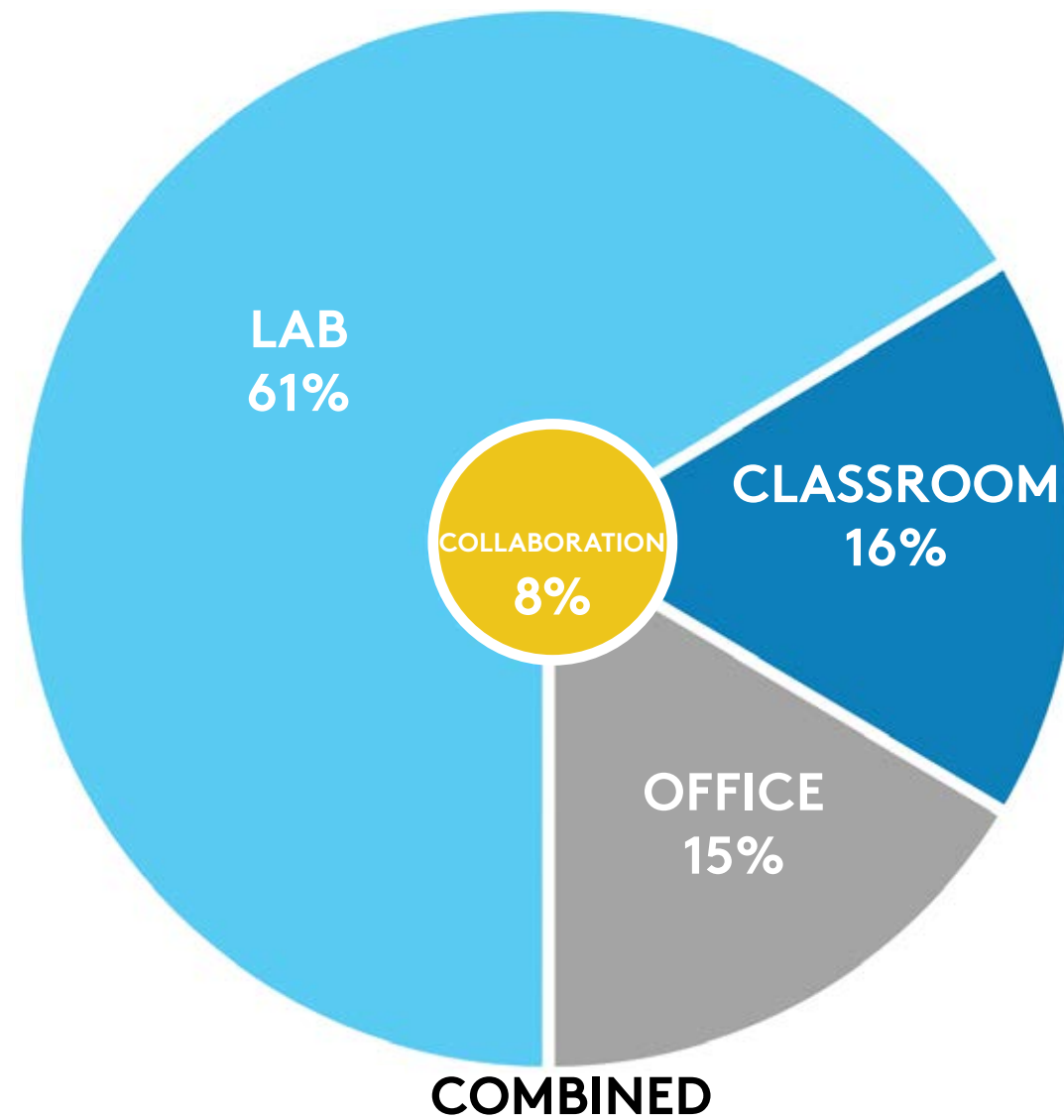
- RANGE OF COMMUNITY COLLEGE COSTS
- RANGE OF UW COSTS
- OVERLAP OF CC & UW COSTS
- STEM 4 TARGET COSTS
- AVERAGE BENCHMARK TARGET

Program—

VISION & GOALS

MEMORANDUM OF UNDERSTANDING

- **Program Growth** - Maximize space for instruction and research in a manner consistent with program goals and institutional standards and values.
- **Flexible Learning Environments** - Create learning environments that support collaboration, active learning, and faculty innovation while building community across students and faculty.
- **Foster Collaboration** - Design a physical environment that promotes interactions between UWB and Cascadia faculty, staff, and students.
- **STEM Presence** - Redistribute STEM facilities across the campus as appropriate to improve operational efficacy, student access and relationships.



GOALS

- Create a national example for STEM education and collaboration between institutions.
- Provide learning environments that inspire students.
- Create academic pathways, research opportunities, and project-based learning experiences
- Support faculty collaboration between institutions.
- Connect STEM 4 to the broader campus to foster interdisciplinary study
- Enable students of both institutions to benefit by sharing ideas and working with each other
- Extend career-oriented learning to serve students' primary goal of success in the job market
- Provide spaces that foster collaboration with external partners in industry.

THEORY



General purpose classrooms will provide student centered, active learning to students across campus including:

- lectures interspersed with small groups learning,
- facilitated project-based learning,
- case studies and
- Digital work sharing



Teaching in Labs

Classrooms will be configured and equipped to support a variety of pedagogies.

- moveable desks for two students provide flexibility for configuring the classroom to support groupings of four, six or eight for small groups learning;
- audio visual support will enable instructors to deliver content to students in multiple formats;
- collaboration tools will provide access to digital (via WIFI) and analog media;
- writable wall surfaces;

- projector screens will be configured to allow simultaneous access to white boards and the projection of subject matter content; and
- come faculty preferred a combination of personal white boards and writable surfaces on multiple walls to enable display of student produced materials in “gallery” format.

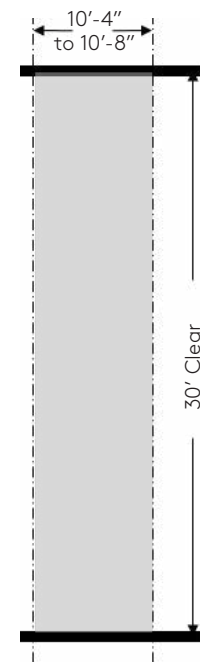


Active Learning

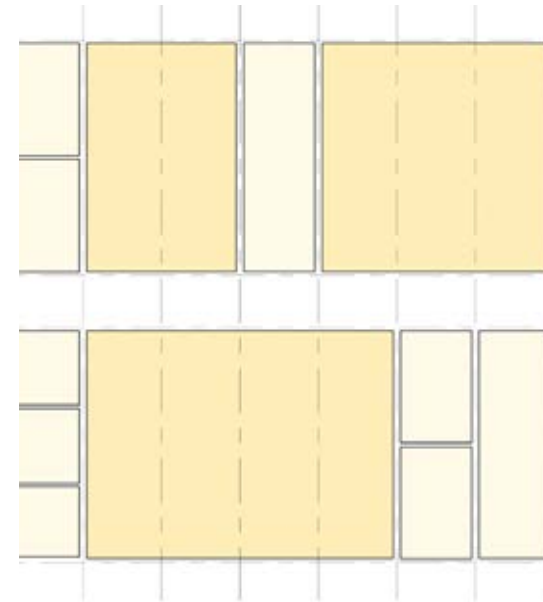


Multi-modal

PRACTICE



Recommended laboratory planning module is 10'-4" to 10'-8" wide by 30'-0" deep.



Modular Planning of Laboratory Space



Labs provide hands-on, experiential learning enabling students to apply subject matter content learned in the classroom. They provide access to space, software, and/or equipment that is not available in general purpose classrooms.

- Labs will be scheduled for teaching and research.
- Some labs will be used by clubs to meet in non-lab times.
- Open labs will enable students to practice on their own schedules.
- Capstone labs provide dedicated space for senior projects.

Modular Planning and Flexibility

Laboratory space is organized based on modular planning principles that set a grid of dimensions by which structural columns, walls and partitions are located.

- They provide flexibility for future modifications that may be required by changes in laboratory designation, equipment or departmental organization.
- They may be combined to produce large, open laboratories or subdivided to produce small instrument or special-use laboratories without requiring reconstruction of structural or mechanical building elements.
- They create laboratory spaces that are not obstructed by columns.

Module dimensions result from analysis of the laboratory bench space, equipment and circulation space.

- They accommodate technical workstations, instruments, and procedures.
- The space between benches is designed to allow people to work back-to-back at adjacent benches, allowing accessibility for disabled persons and movement of people and laboratory carts in the aisle.
- The module provides adequate open space for floor standing equipment.



CONNECT



Study space interspersed throughout building

Shared informal spaces allow students to connect with their peers and faculty. They are the connective tissue between people and institutions.

Students should have the choice of informal spaces for individual study, group study, and for socializing.

- Individual student study enables students to get work done before class.
- Students may want to continue the discussion that started in class in group study.

- Students engage with their peers in social spaces.
- Social space allows students to connect with visiting industry partners.
- Shared break rooms that are connected to faculty suites serving both institutions enable faculty to collaborate regarding pedagogical successes and challenges.



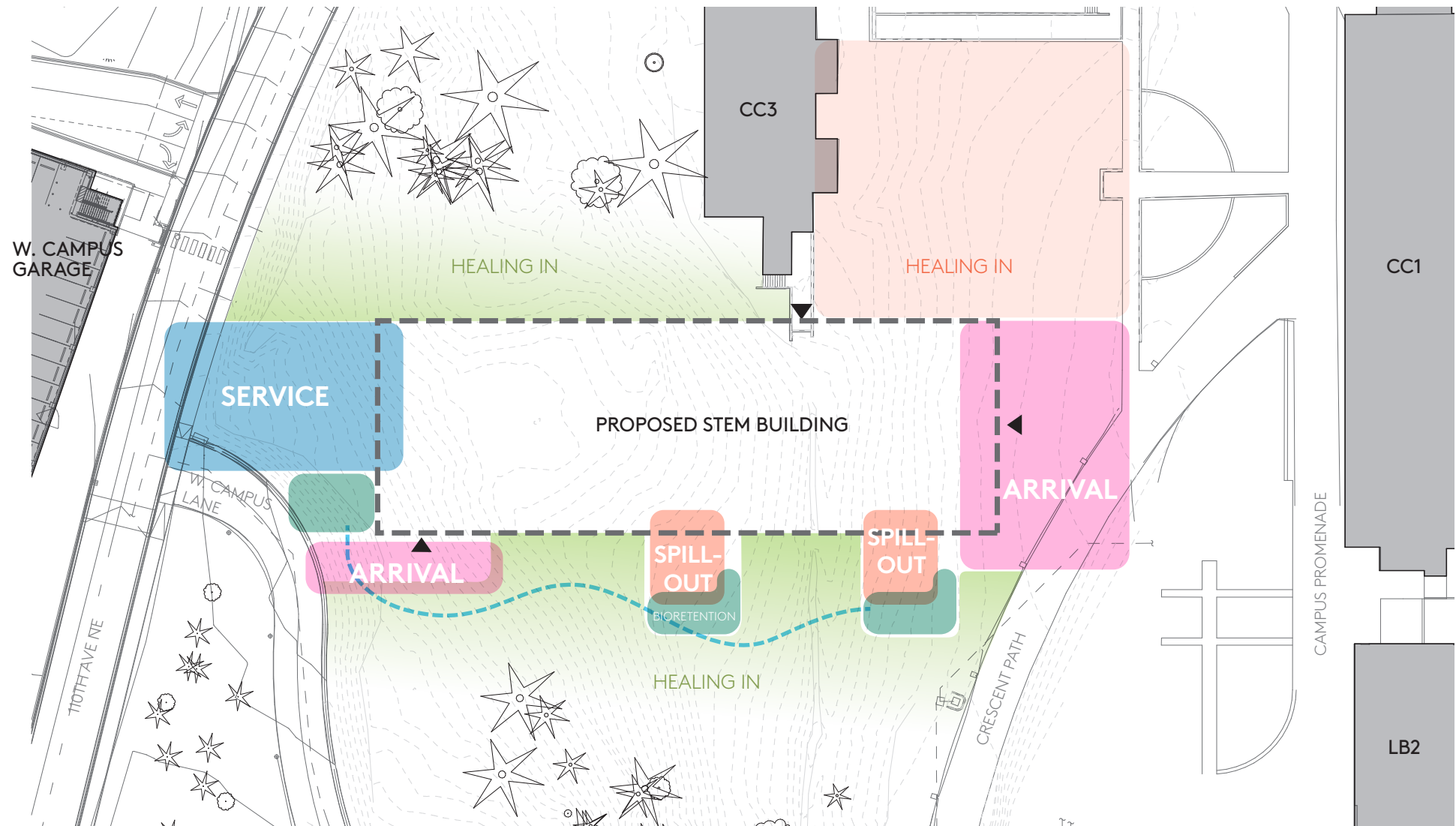
Group and individual spaces

Site—

VISION & GOALS

MEMORANDUM OF UNDERSTANDING

- **Flexible Learning Environments** - Create learning environments that support collaboration, active learning, and faculty innovation while building community across students and faculty.
 - **Foster Collaboration** - Design a physical environment that promotes interactions between UWB and Cascadia faculty, staff, and students.
- These goals identify a clear vision of creating interior and exterior spatial relationships that promote community and creativity. A focus on the environmental impacts of the project also clarifies the need to provide effective and sensitive design interventions.



Guiding Principles

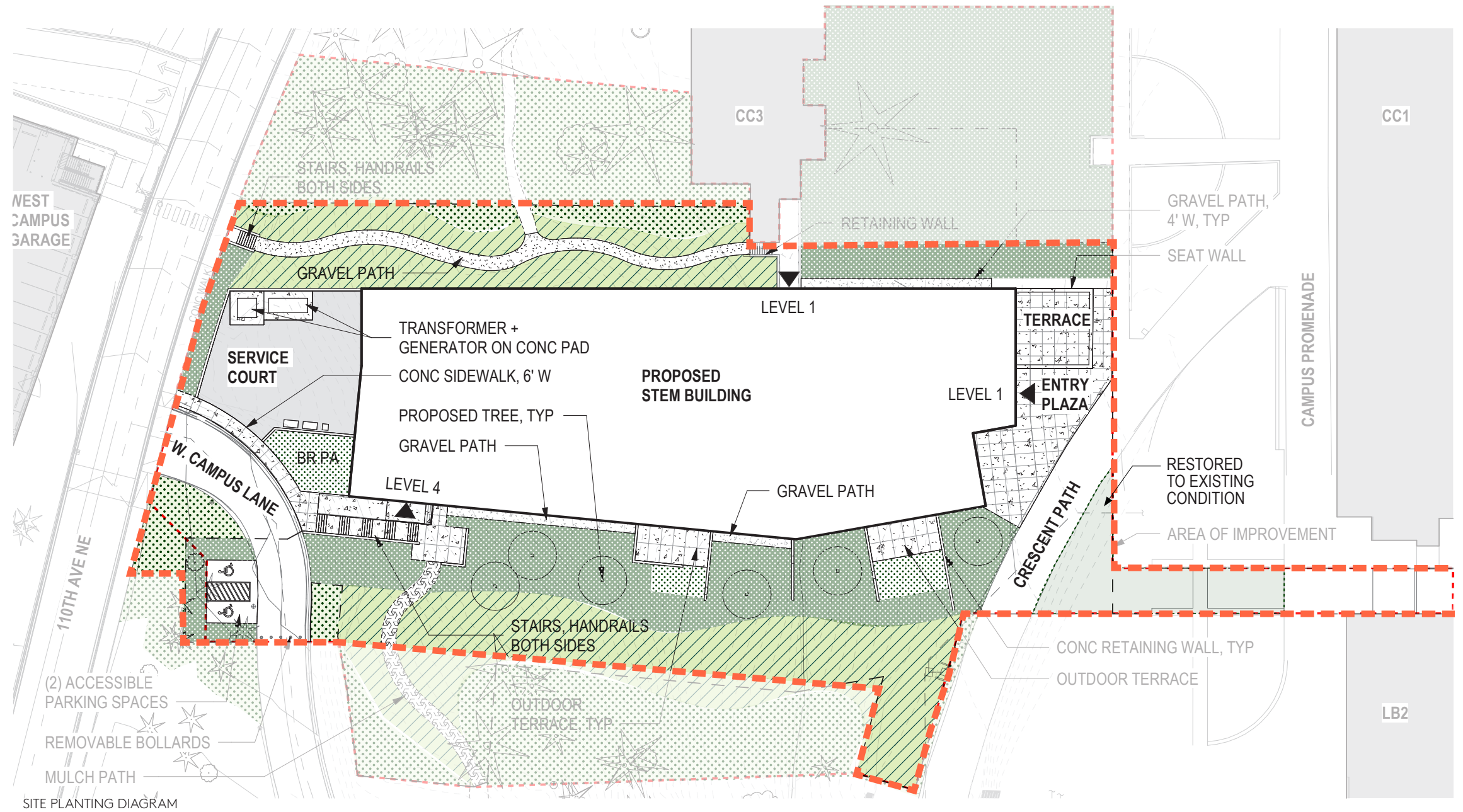
- Through meetings with the campus working group, the design team has heard similar priorities stated.
- Celebrate the forest environment
 - Make the formal design language engage with the site
 - Make stormwater capture and treatment visible
 - Create environmental learning opportunities
 - Connect the site with the Crescent Path and the Cascadia quad.
 - Provide places for gathering, outdoor work spaces, and learning opportunities

Campus Master Plan

The 2017 Campus Master Plan reinforces goals of the MOU and those gleaned from working groups. A cohesive campus character can be achieved by celebrating the forest and finding sensitive ways to work within it. The forest itself also serves as an educational tool, as the site fabric knits into it. The importance of an enriched campus experience for all users is evident in the CMP. A responsibility to develop the site in a sustainable way, another guiding principle,

frames the approach to applying the feedback from campus fit working groups.

PLANTING CHARACTER

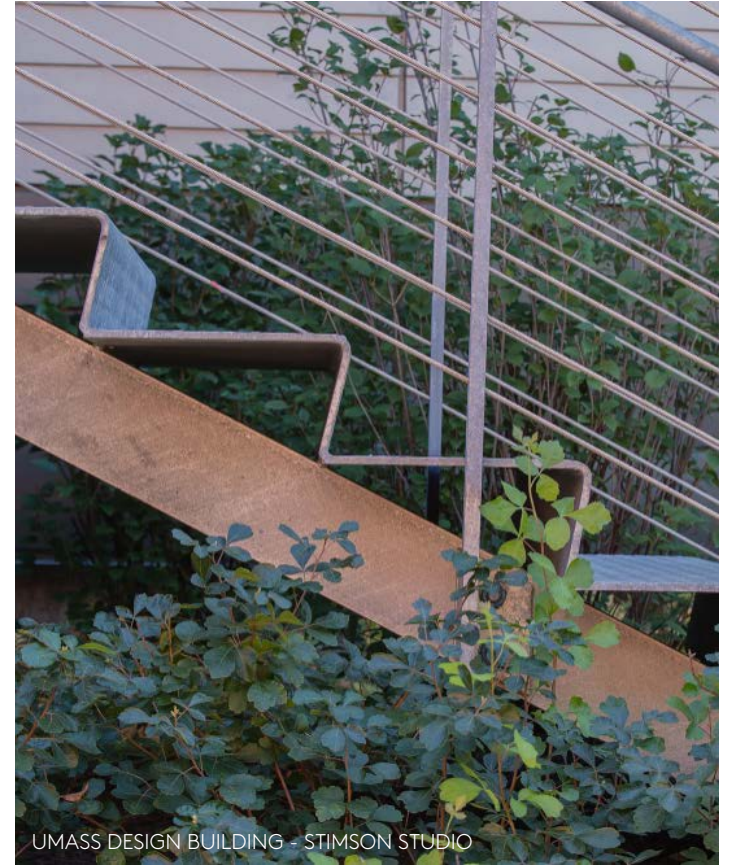
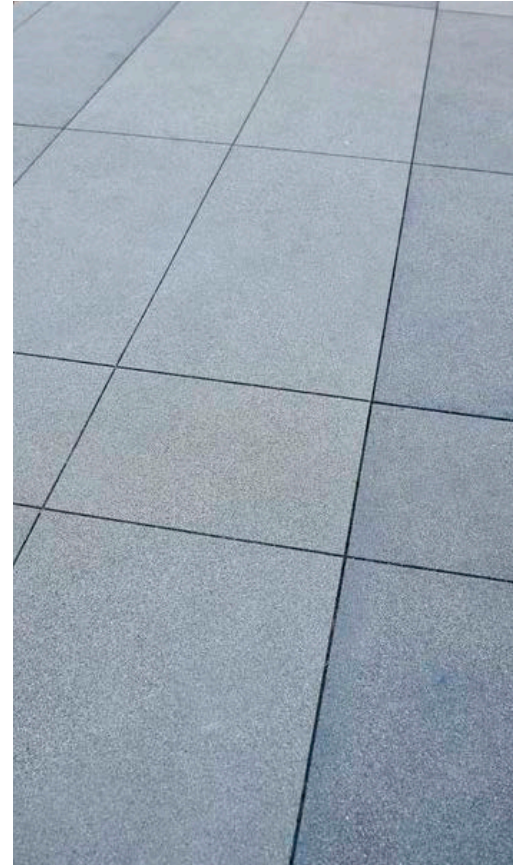


<p>Base Scope</p> <p>Bioretention / Specialized Planting</p> <p>Intensive Planting</p>	<p>Less Intensive Planting</p>	<p>Restoration</p>
<p>TECHNOLOGY CAMPUS</p>	<p>SUQUAMISH MUSEUM</p>	<p>BLAKELY ELEMENTARY SCHOOL</p>

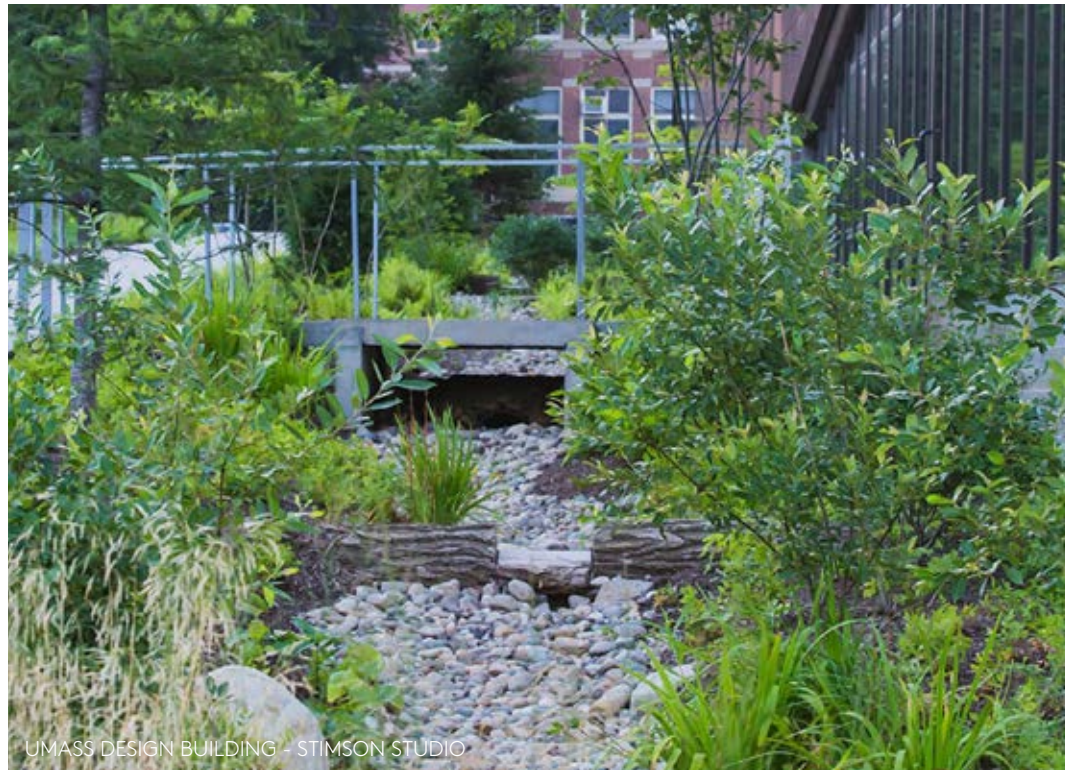
UPLAND FOREST PRECEDENTS



SAINT MARY'S ON THE LAKE



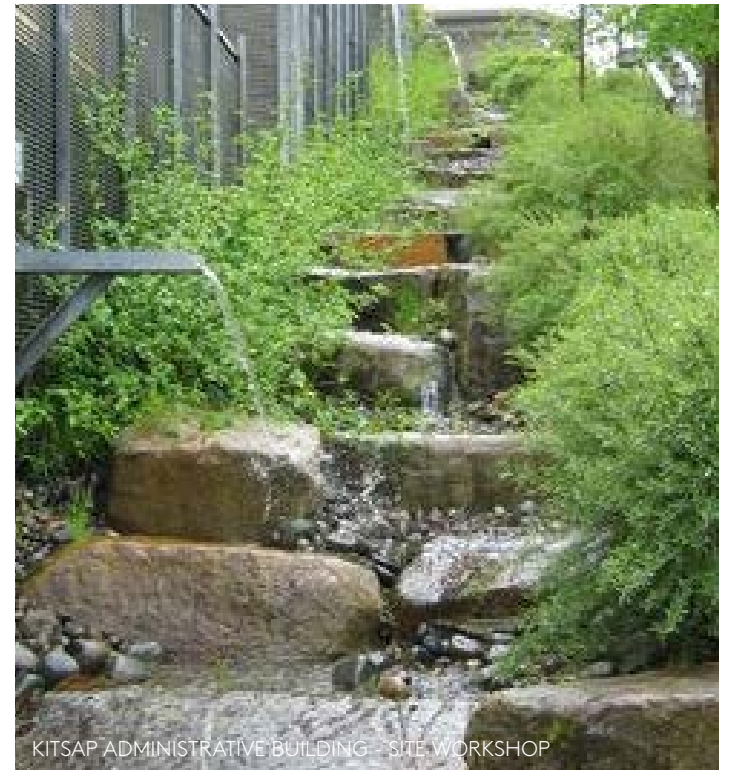
UMASS DESIGN BUILDING - STIMSON STUDIO



UMASS DESIGN BUILDING - STIMSON STUDIO



GOODWILL JOB HEADQUARTERS



KITSAP ADMINISTRATIVE BUILDING - SITE WORKSHOP

EAST END ENTRY PLAZA PRECEDENTS



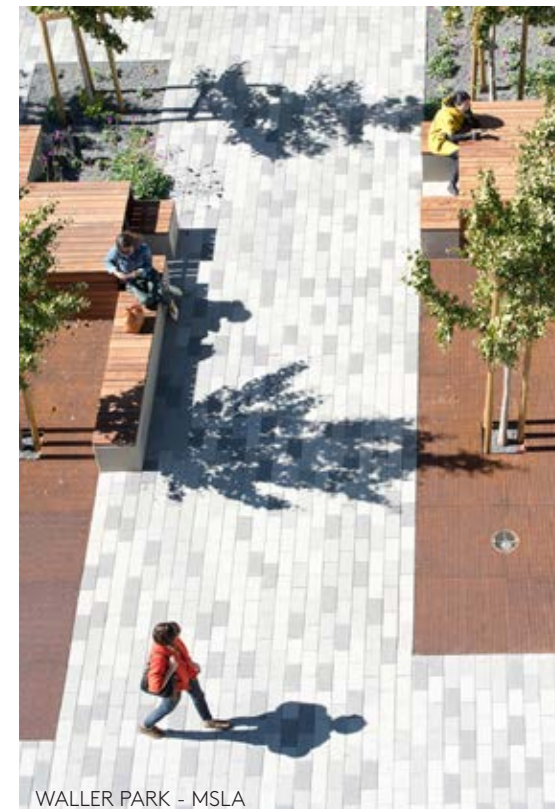
SKY UK HEADQUARTERS - URBAN



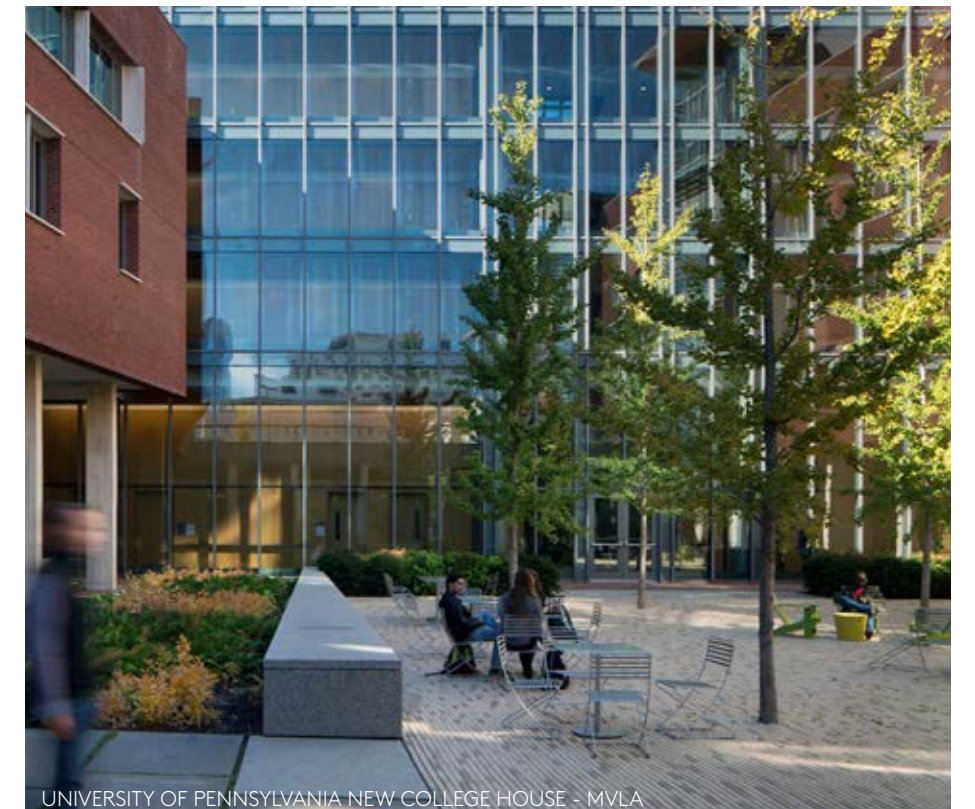
SEATTLE UNIVERSITY LEMIEUX LIBRARY - BERGER PARTNERSHIP



STANFORD MEDICAL SCHOOL - TOM LEADER STUDIO

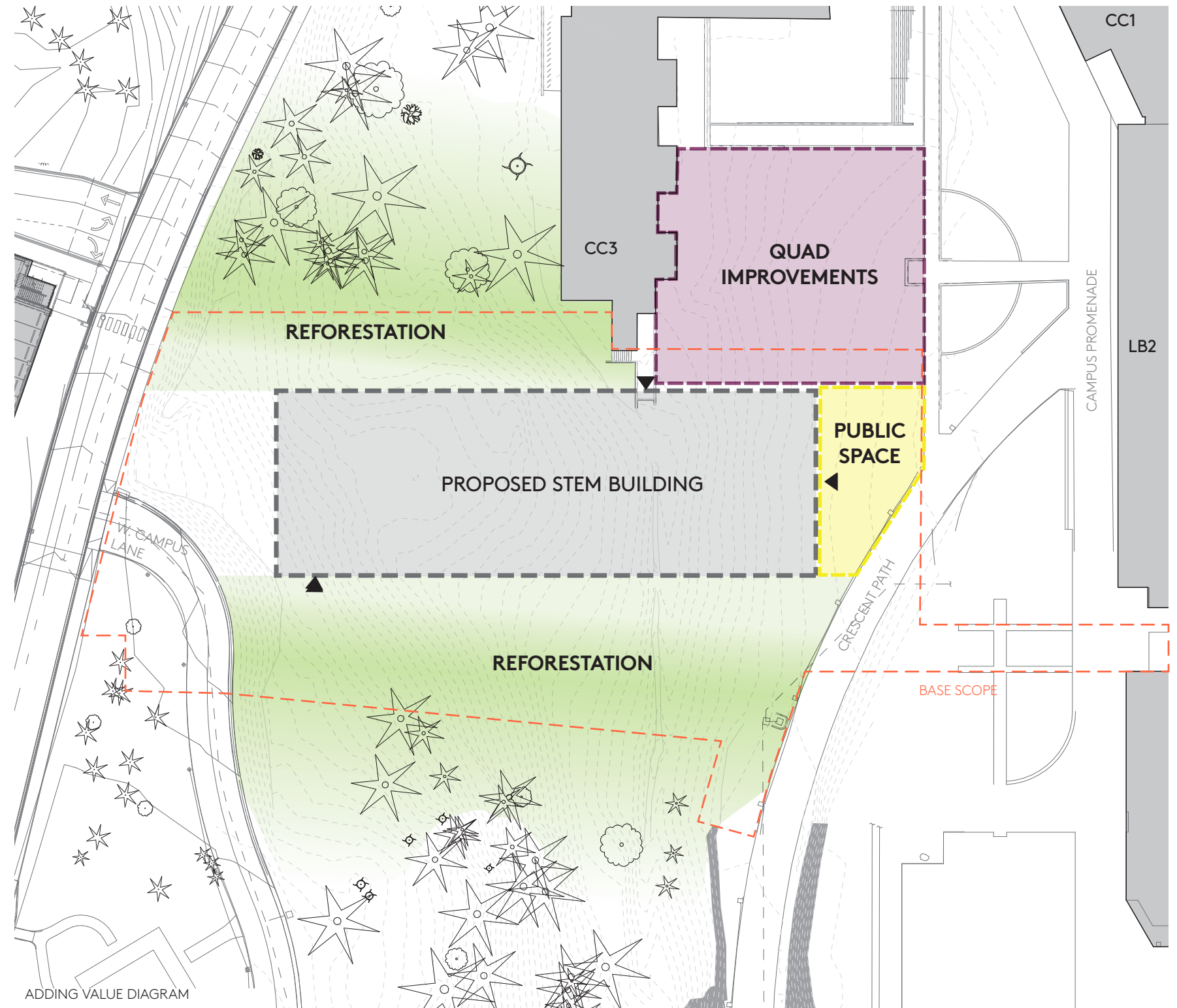


WALLER PARK - MSLA



UNIVERSITY OF PENNSYLVANIA NEW COLLEGE HOUSE - MVLA

ADDING VALUE



Building—

VISION & GOALS

MEMORANDUM OF UNDERSTANDING

- Create *learning environments that support collaboration, active learning, and faculty innovation while building community across students and faculty.*
- *Maximize space for instruction and research in a manner consistent with program goals and institutional values.*
- *Display the campus' commitment to environmental and economic sustainability, including by seeking to minimize life-cycle costs and carbon footprint.*



Peninsula College - Maier Hall

CAMPUS MASTER PLAN

- Modulate and articulate buildings to create human scale at the base and meet the sky at the roofline.
- Provide flat roofs for buildings perpendicular to topography.
- Complement materials and colors in adjacent campus buildings.
- Create safe, human scale spaces that provide calm, contemplative environments.
- Provide active facades, locate programs that connect to adjoining pathways.

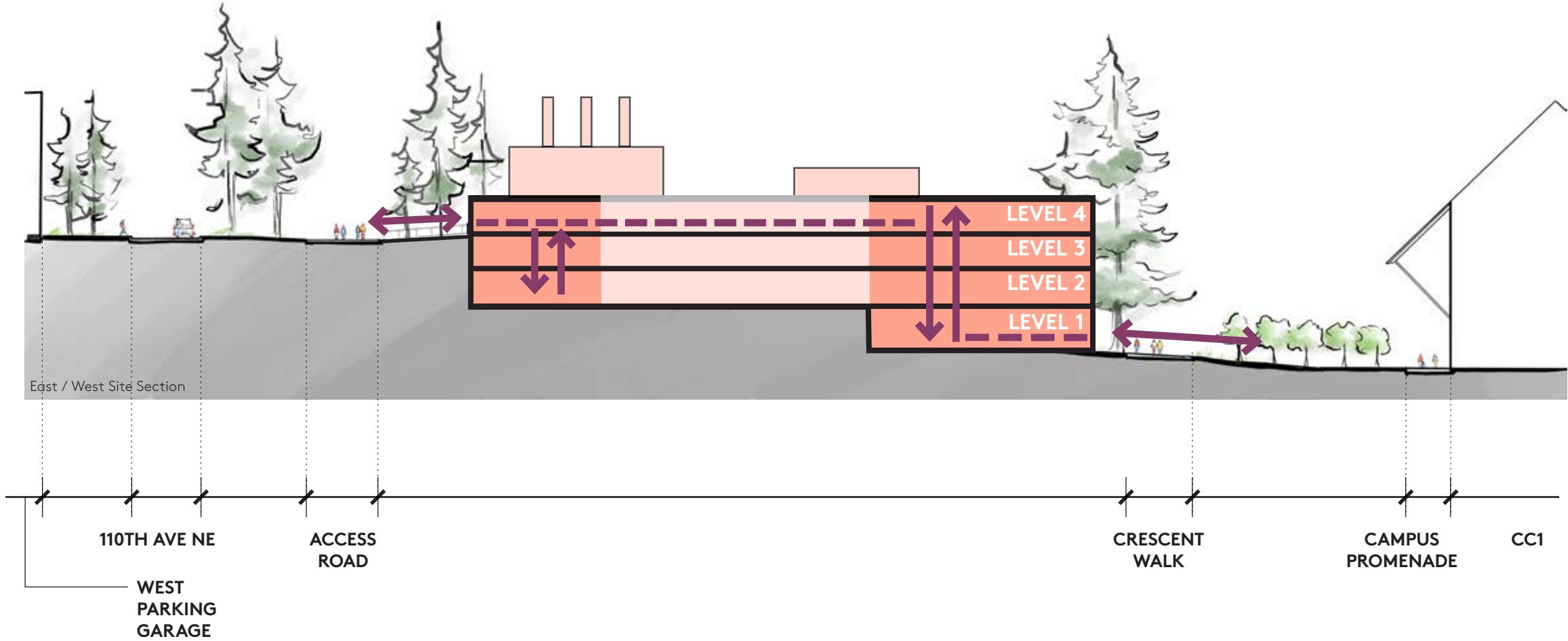
GOALS

- Knit the building into the landscape in terms of its plan, section and articulation.
- Transparency inside and outside that puts, programs on display, creates awareness of career pathways.
- Local views into the forested, hillside environment north and south, regional views over campus to the east.
- Interconnection of interior spaces that facilitate access and wayfinding, creates sense of community within the building.
- Foster engagement in public spaces, entrances, stairs and hallways.
- Program adjacencies and shared spaces that promote interaction between the college and the university.
- Create a variety of type and scales of outdoor and indoor spaces to accommodate program uses.
- Maximize daylight.

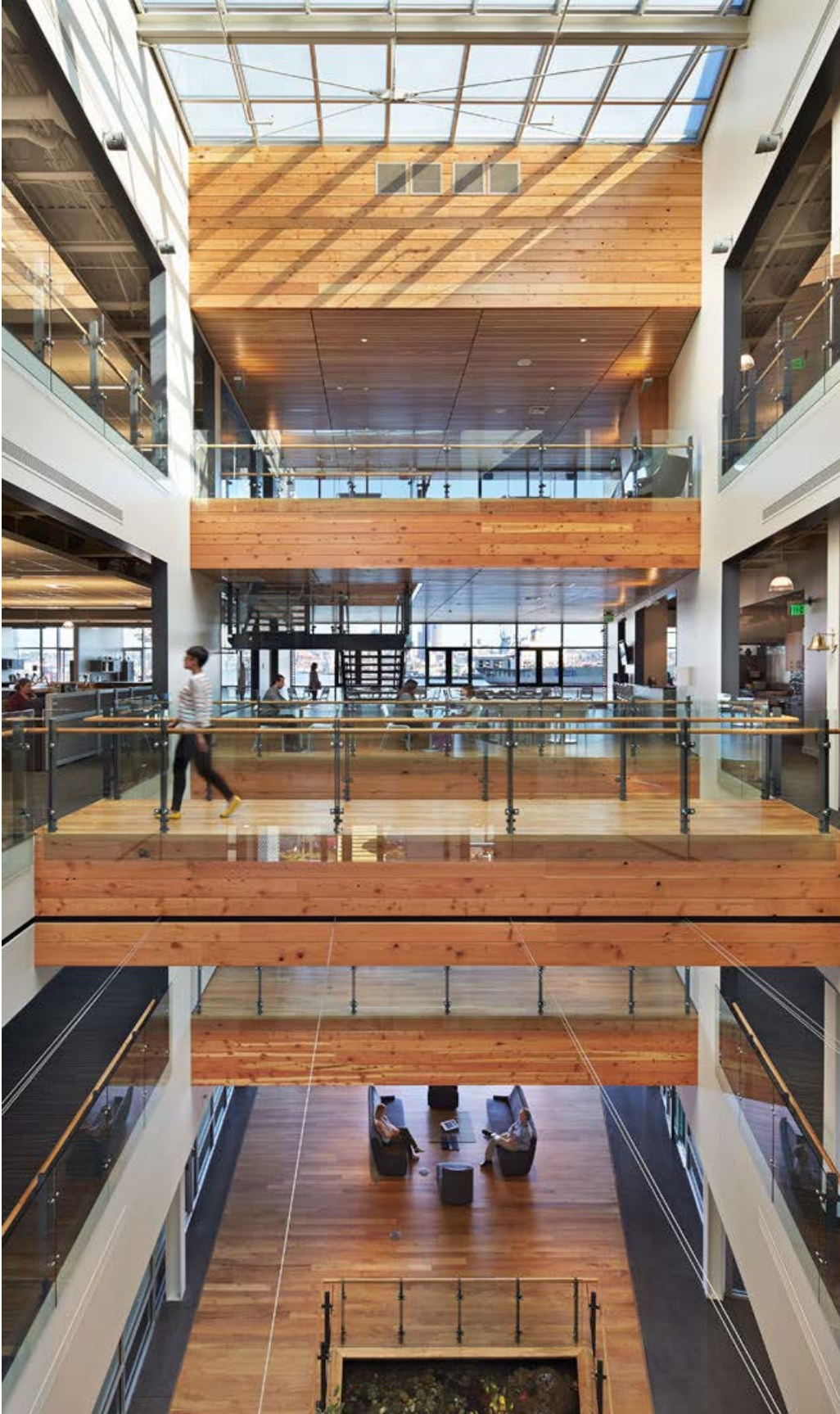
ACTIVE FACADES



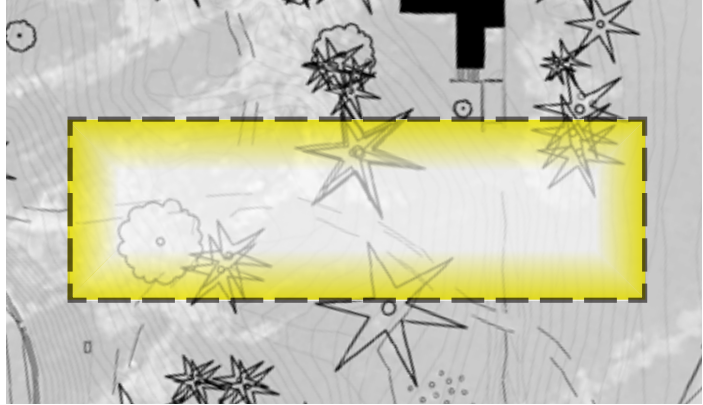
CIRCULATION



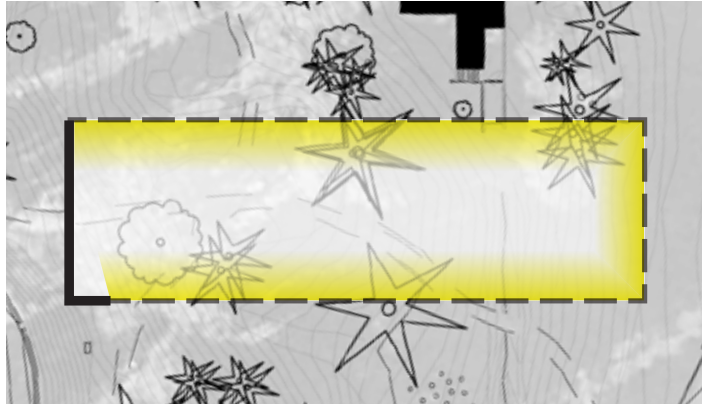
DAYLIGHT



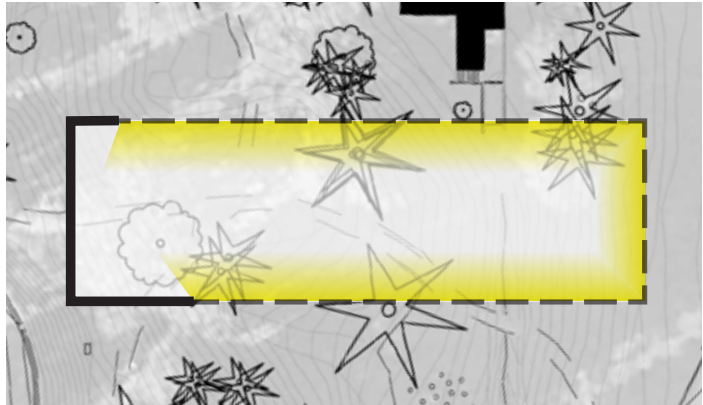
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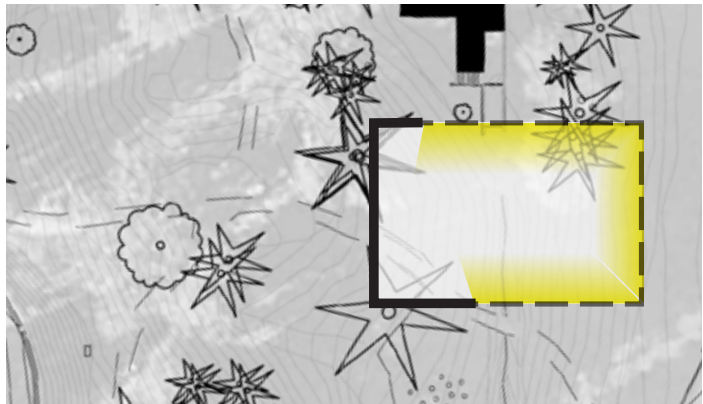
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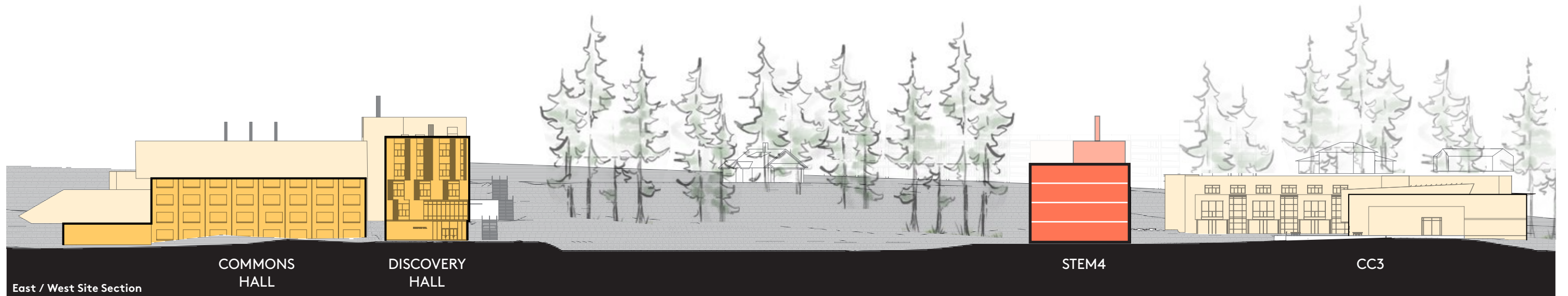
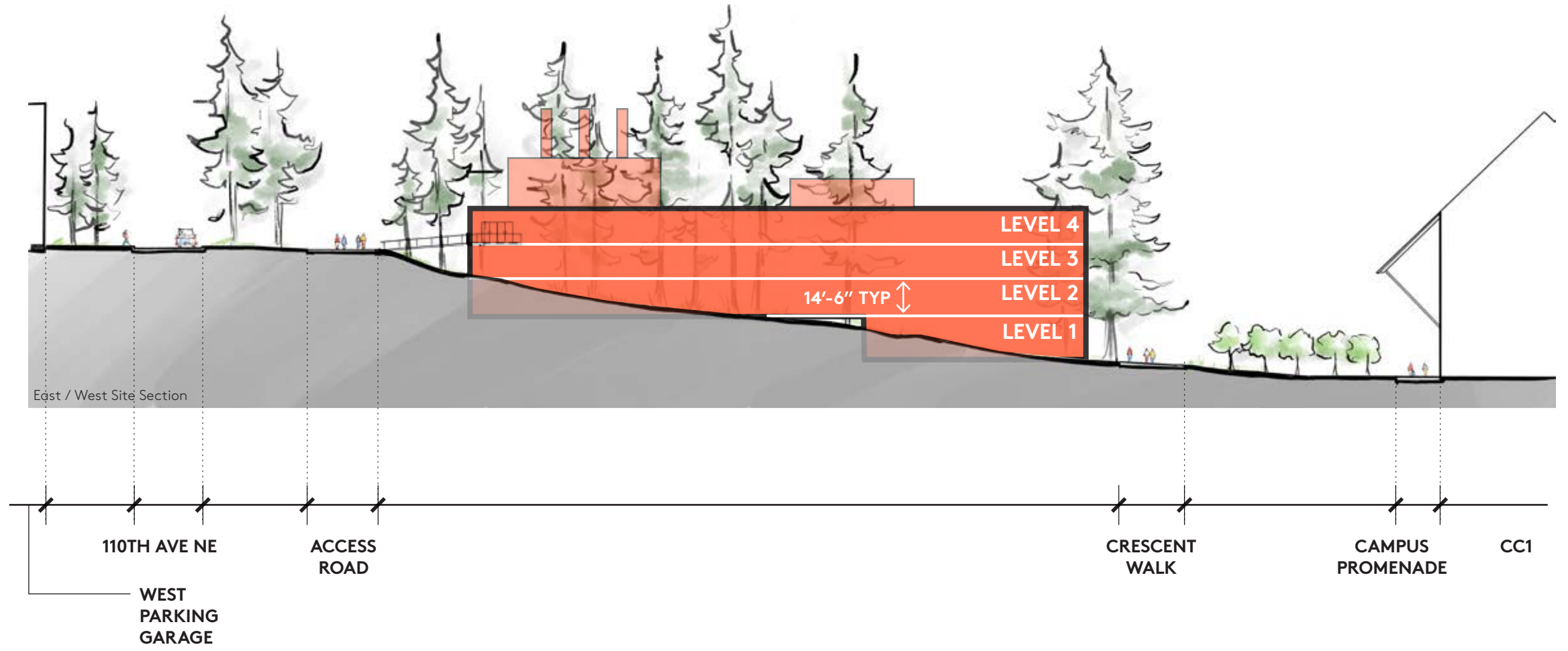
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LEVEL 1

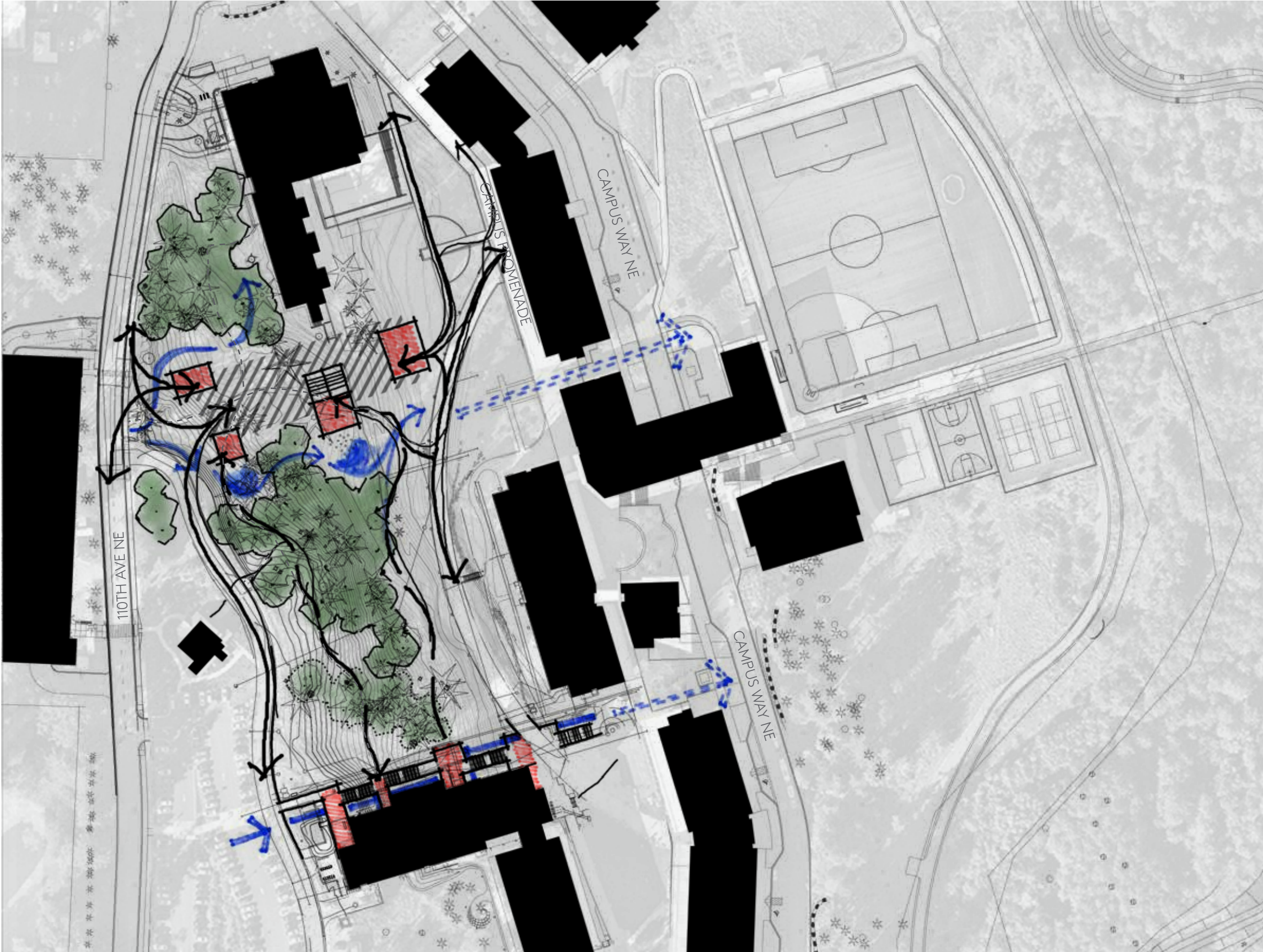


SCALE

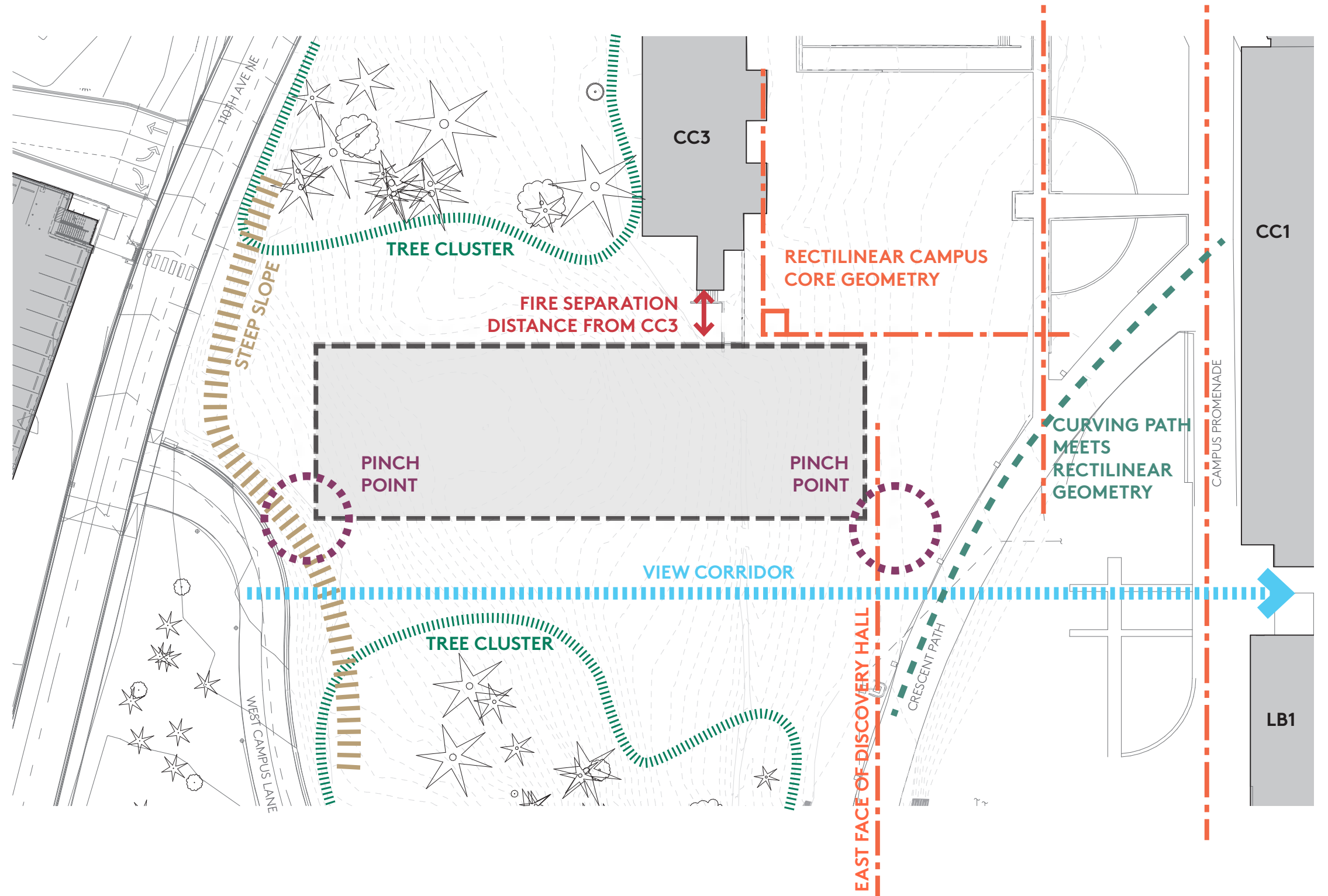


Siting the Program—

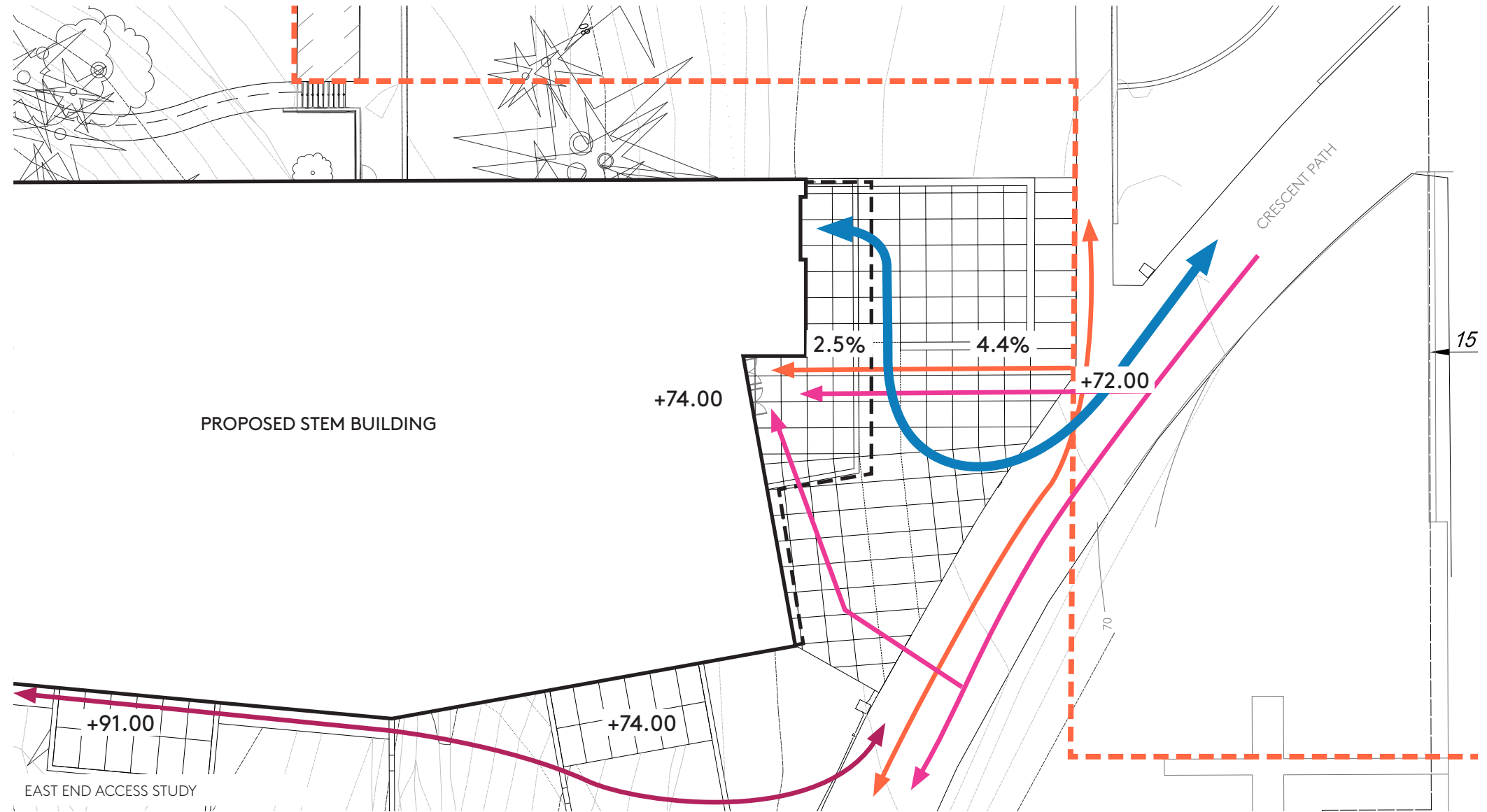
KNITTING IN



LOCATION



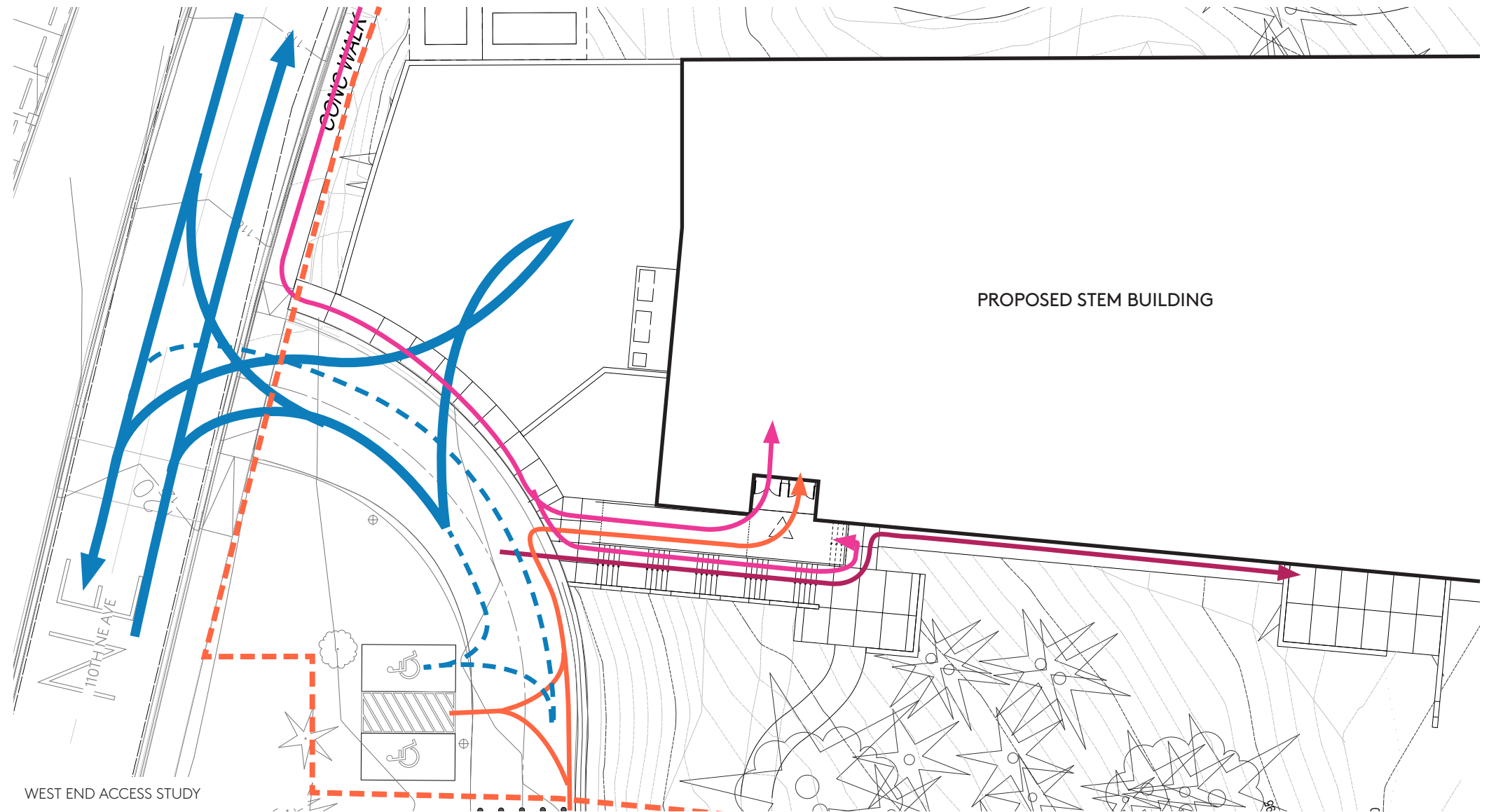
ACCESS - EAST



LEGEND

- FIRE ACCESS
- ACCESSIBLE ROUTE
- PEDESTRIAN ROUTE
- VEHICULAR ACCESS
- - - SITE BOUNDARY

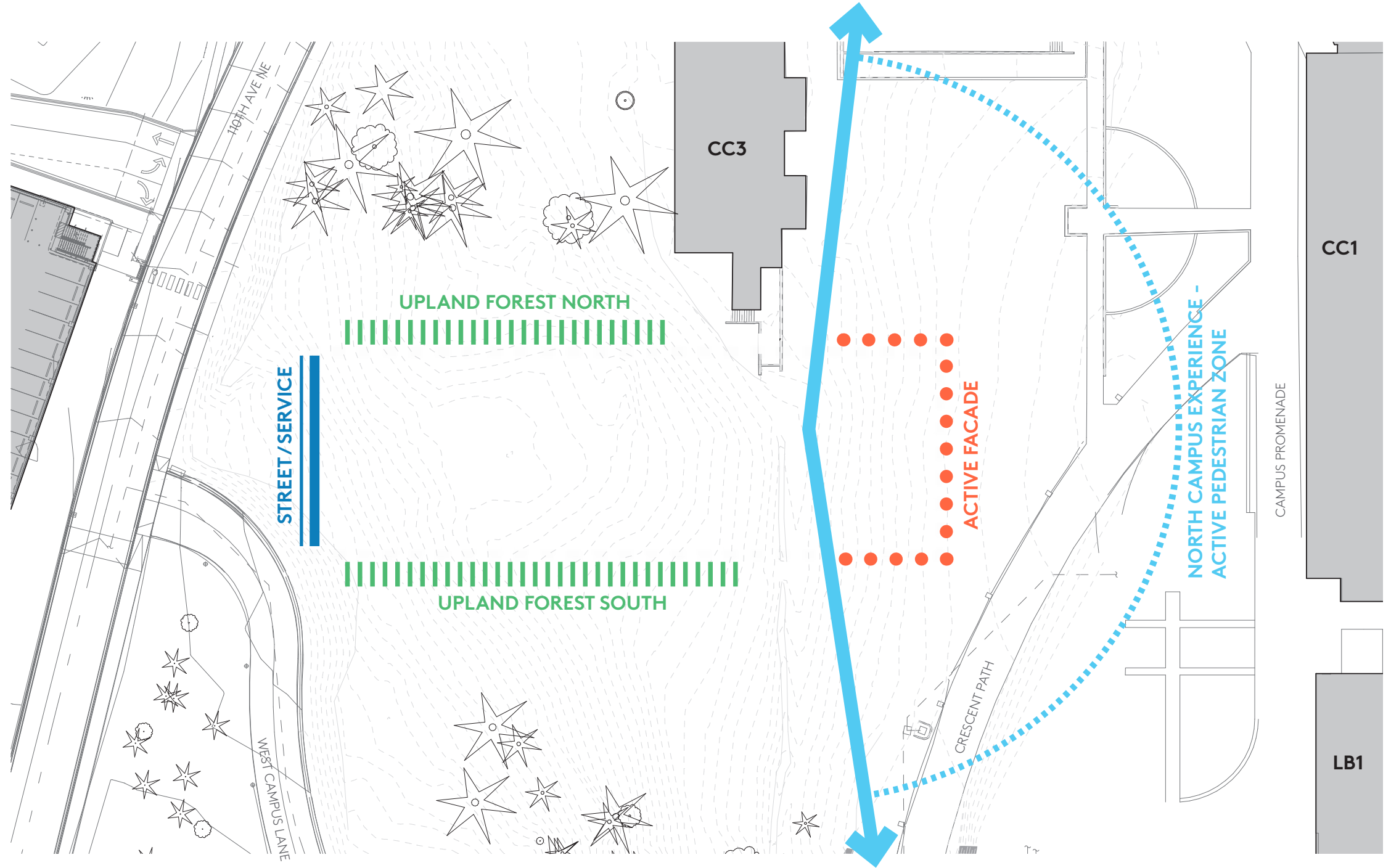
ACCESS - WEST



LEGEND

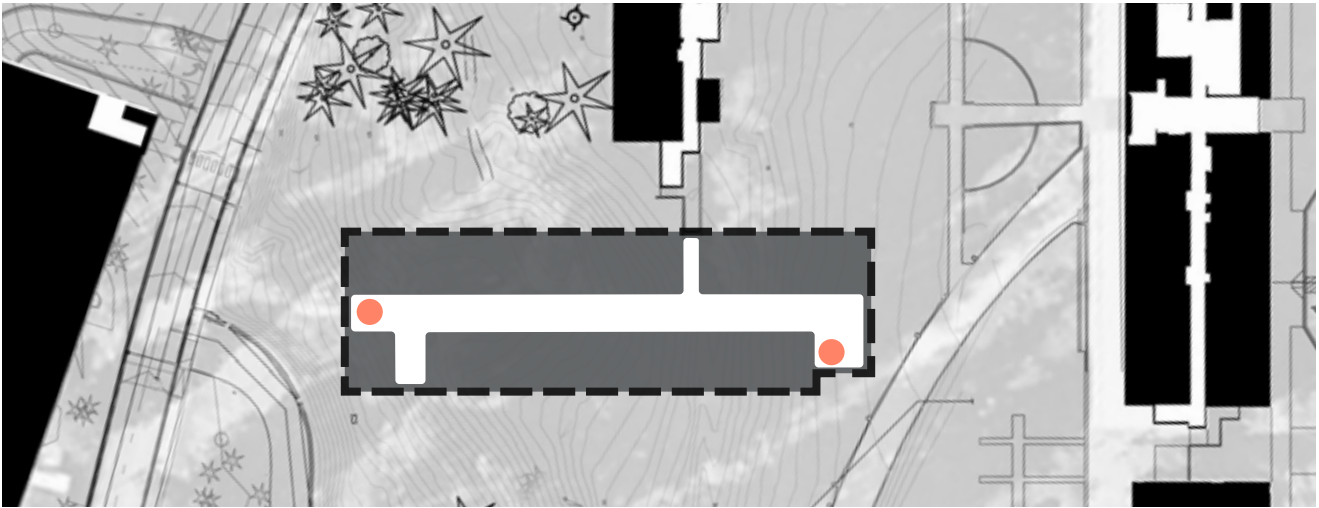
- FIRE ACCESS
- ACCESSIBLE ROUTE
- PEDESTRIAN ROUTE
- VEHICULAR ACCESS
- - - SITE BOUNDARY

ENGAGING THE SITE



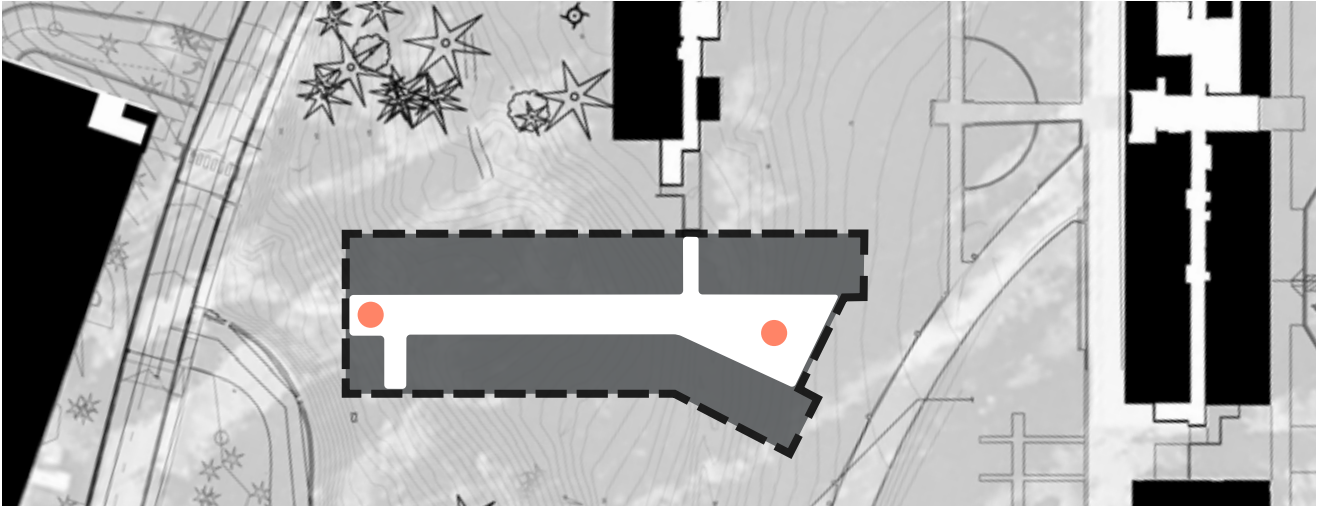
PLANNING

I



78,000 GSF
 46,800 NSF
 60% NET / GROSS

Y



78,000 GSF
 46,800 NSF
 60% NET / GROSS

D

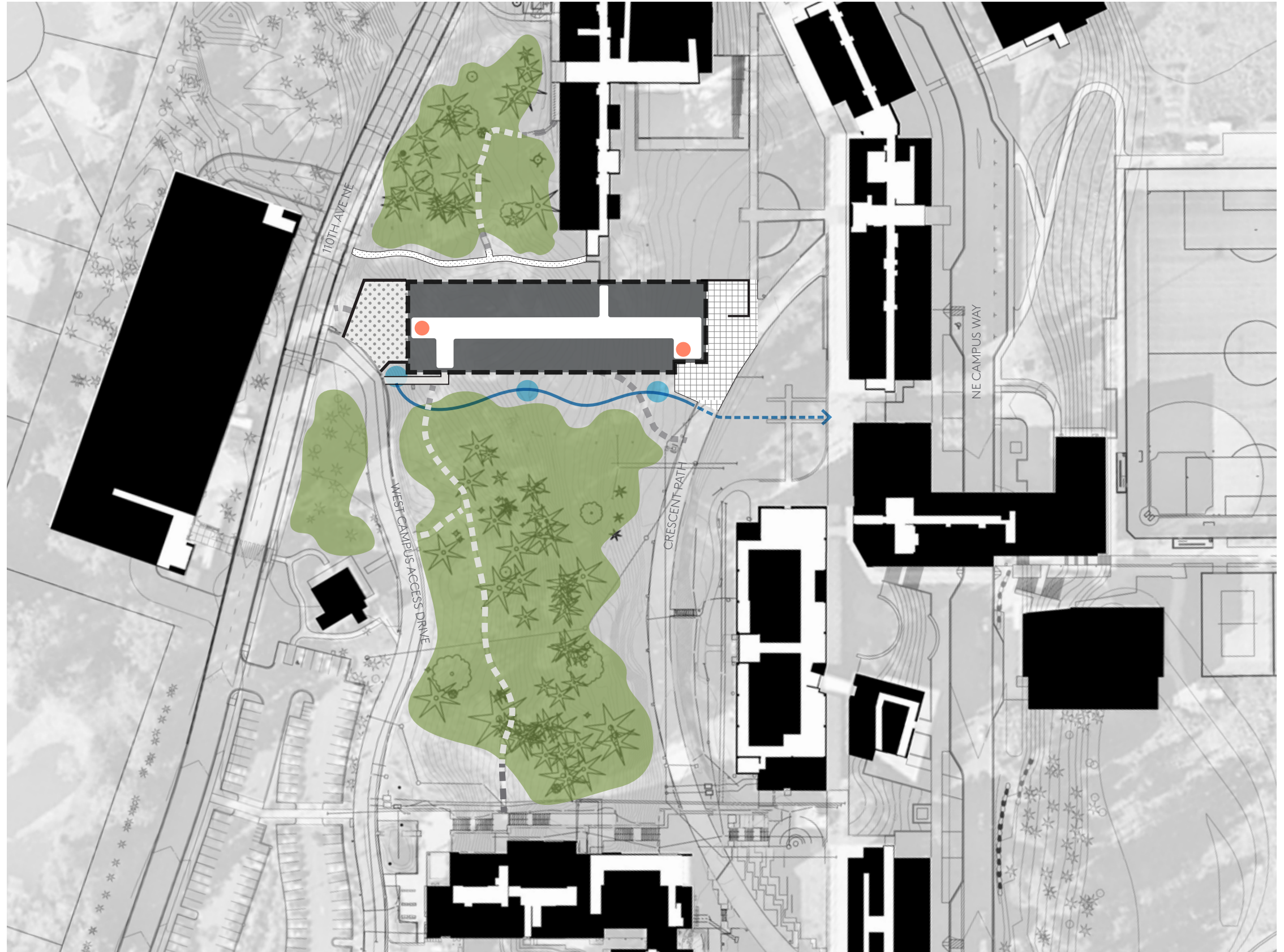


78,000 GSF
 48,400 NSF
 62% NET / GROSS

LEGEND

● STAIR LOCATION

I - SITE PLAN



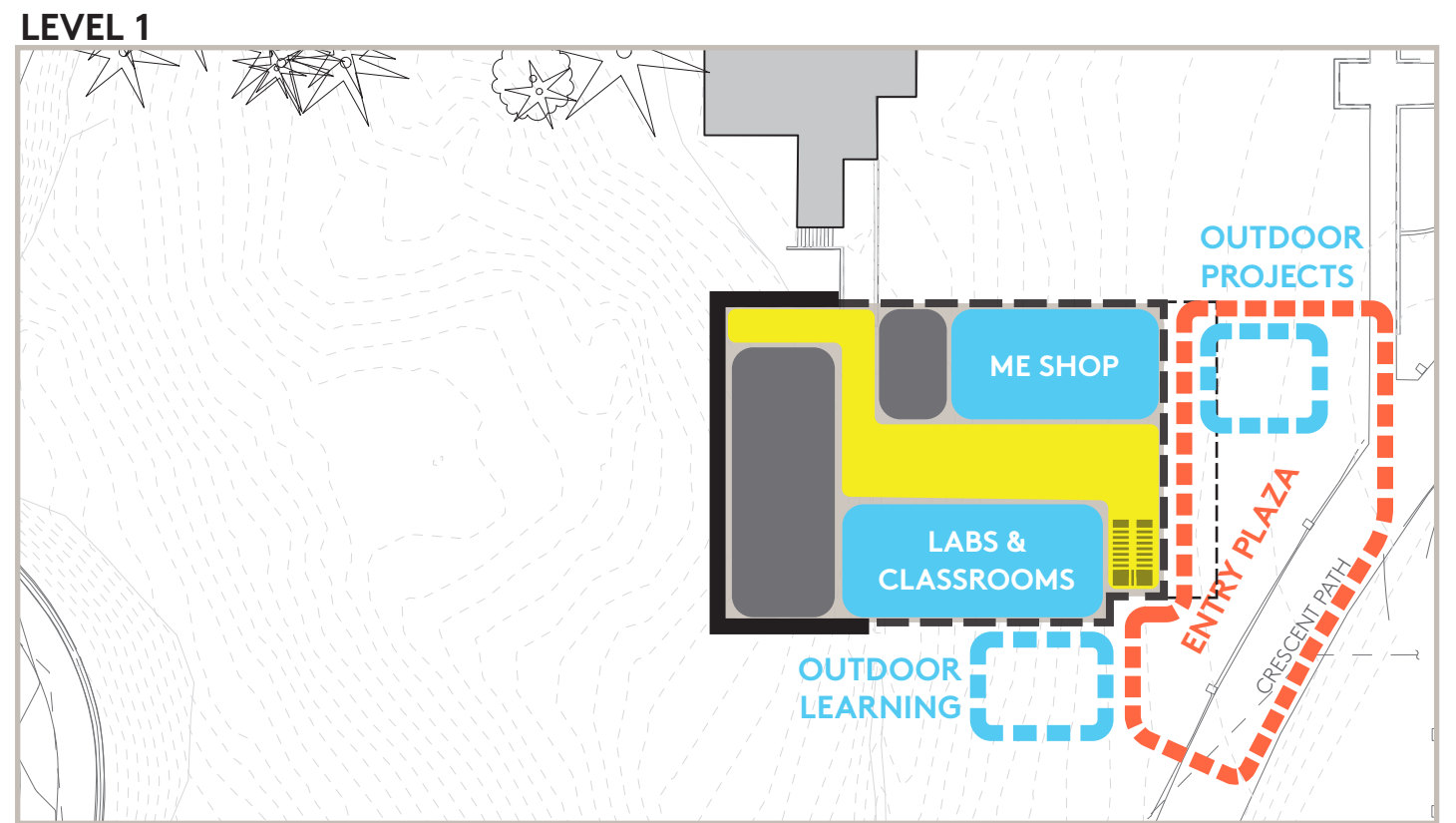
LEGEND

- ENTRY PLAZA
- ENTRY WALK
- SERVICE ACCESS
- FIRE ACCESS
- STORMWATER
- INFORMAL TRAILS

0 100

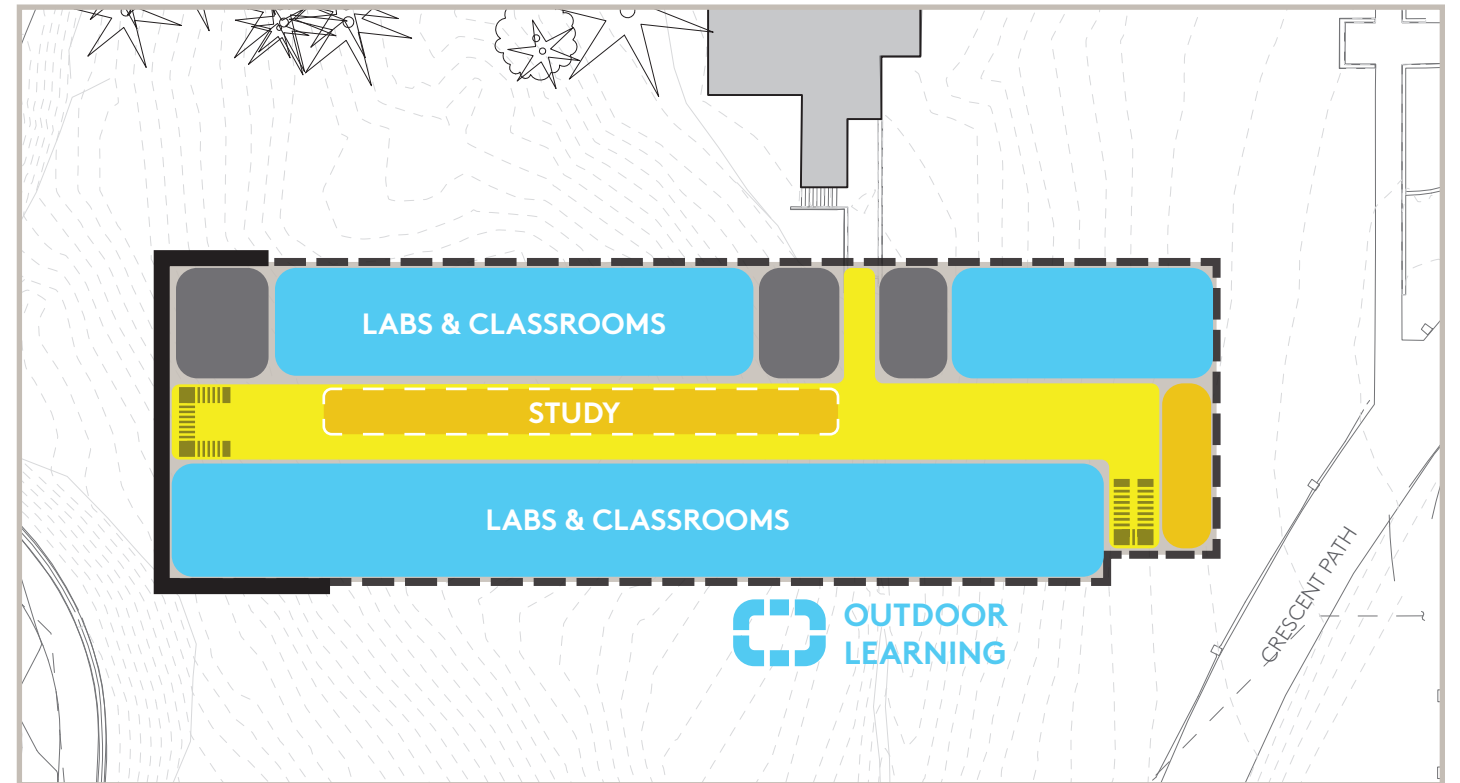


I - FLOOR PLANS

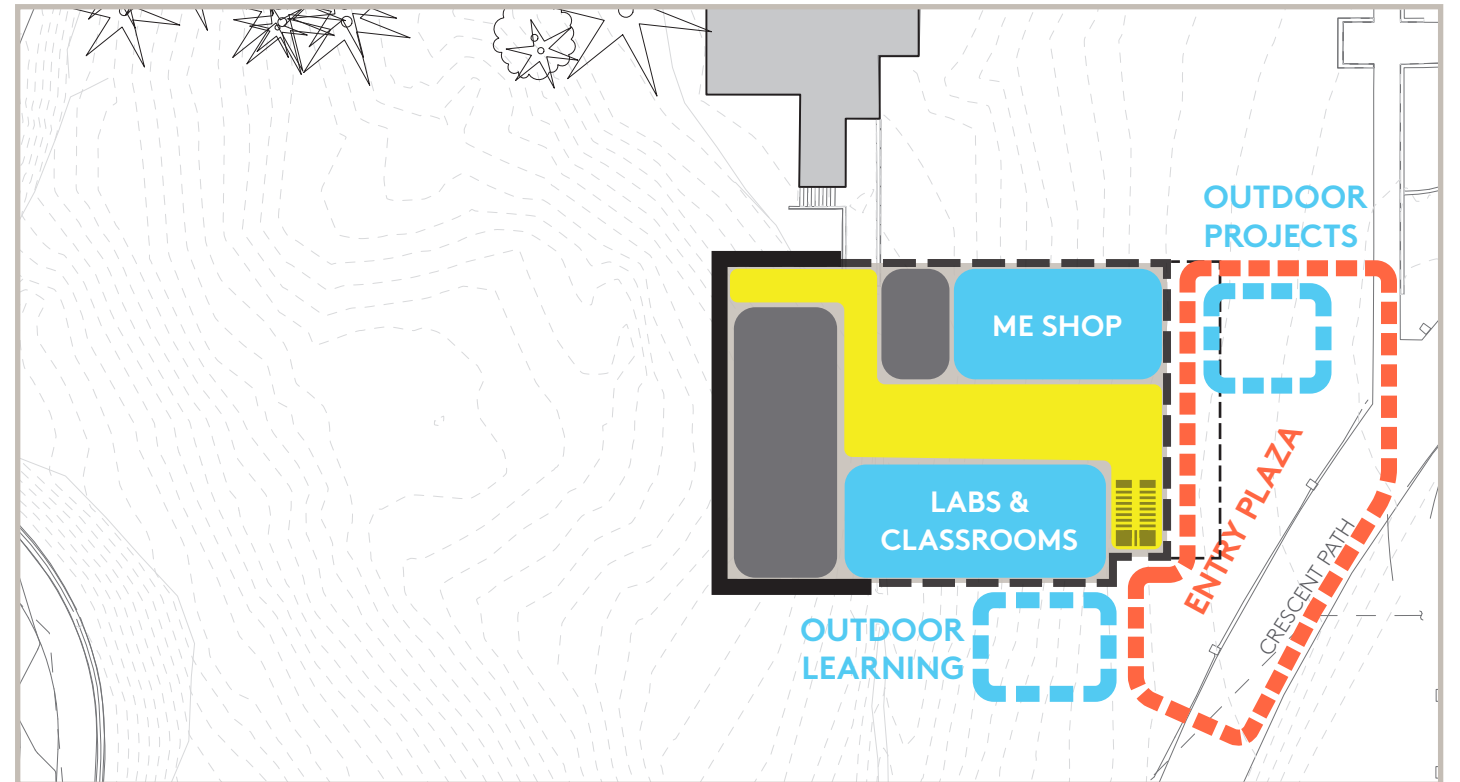


I - FLOOR PLANS

LEVEL 2

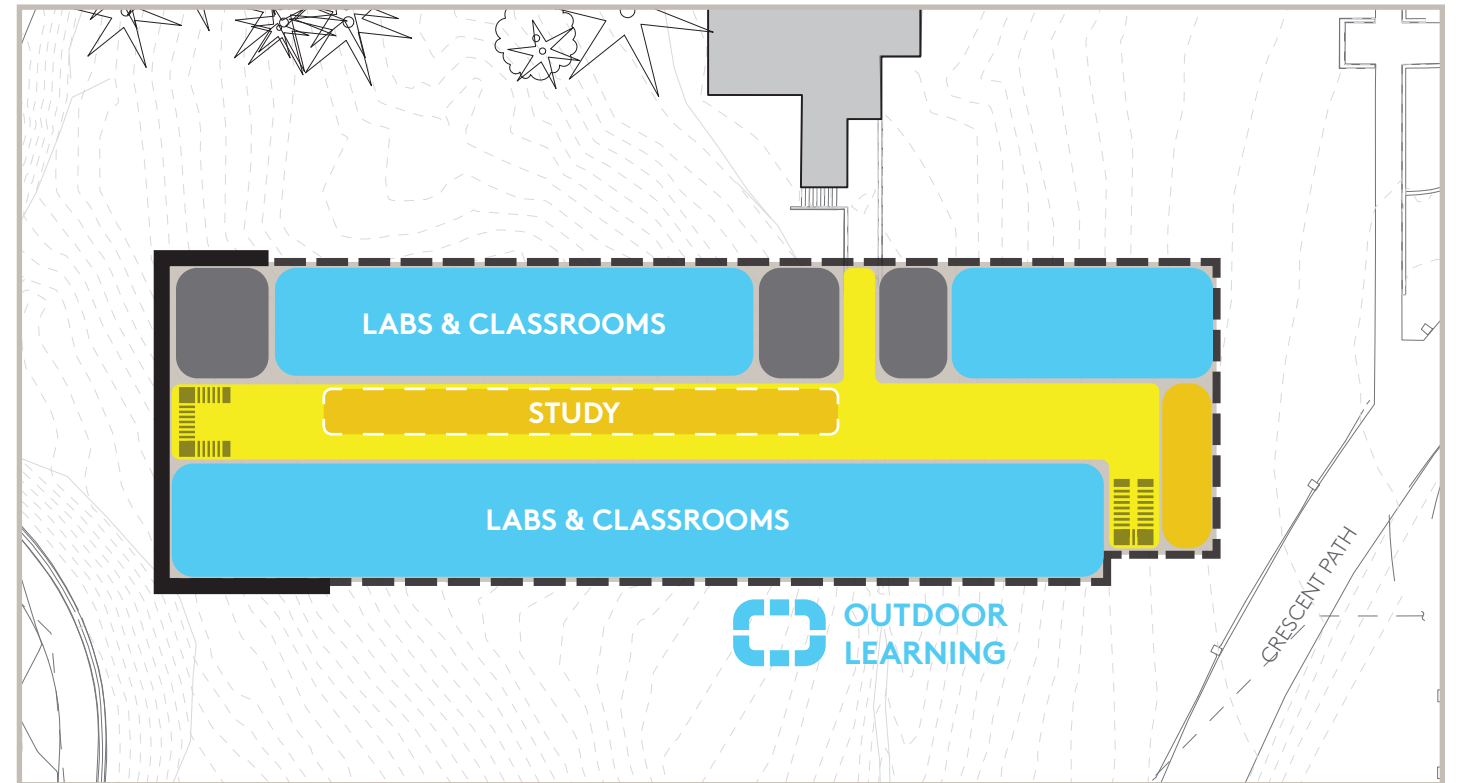


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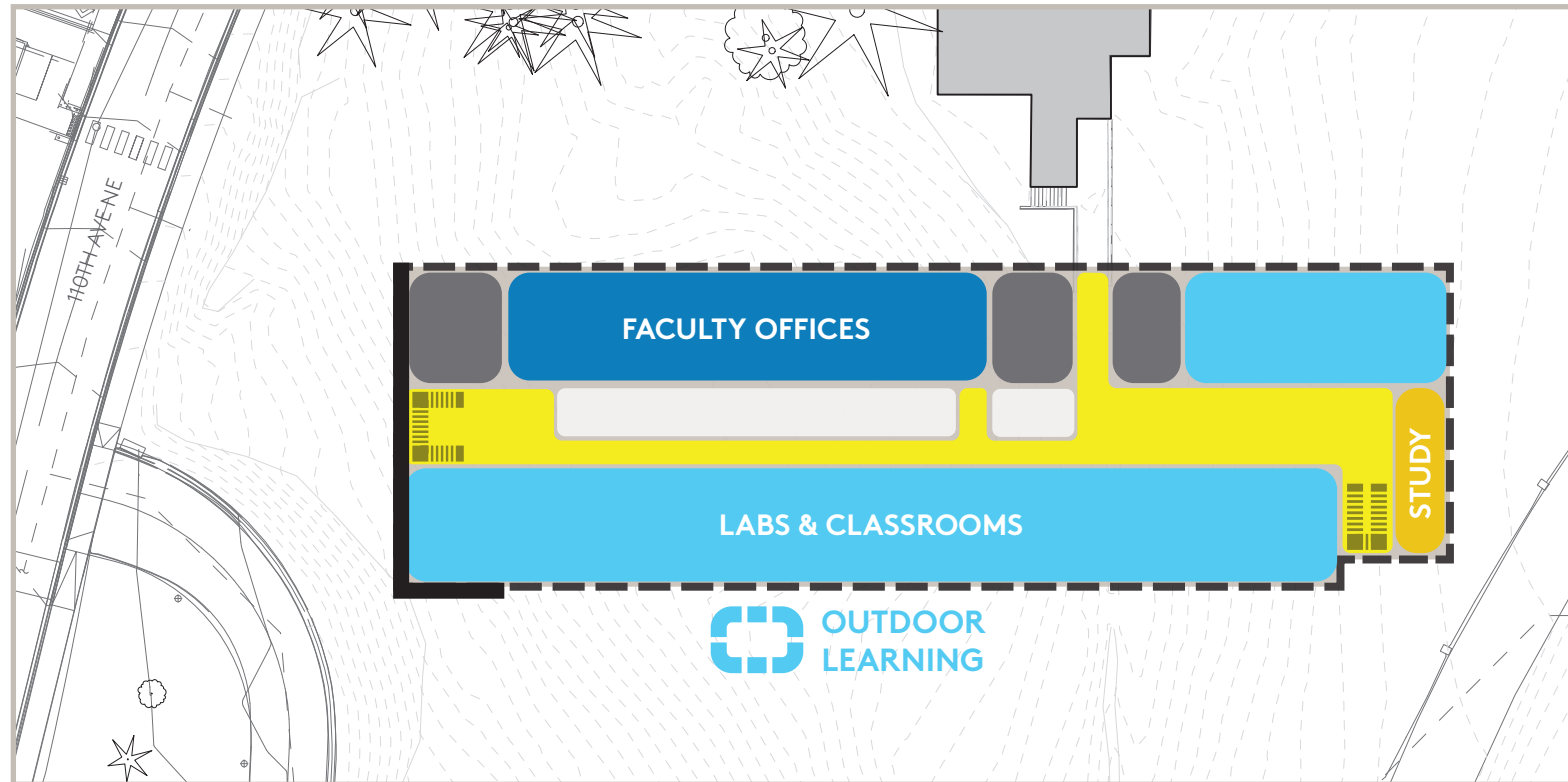


I - FLOOR PLANS

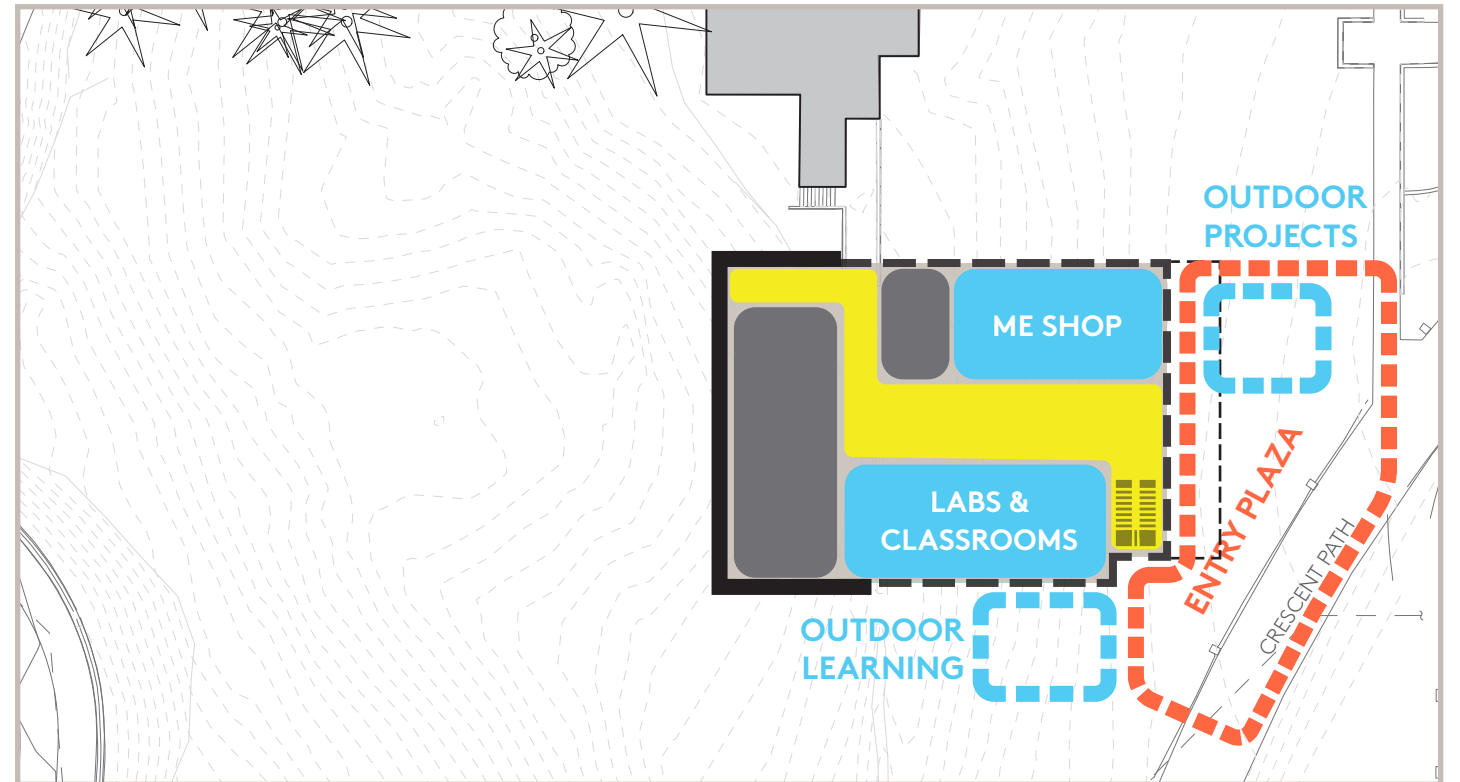
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LEVEL 3

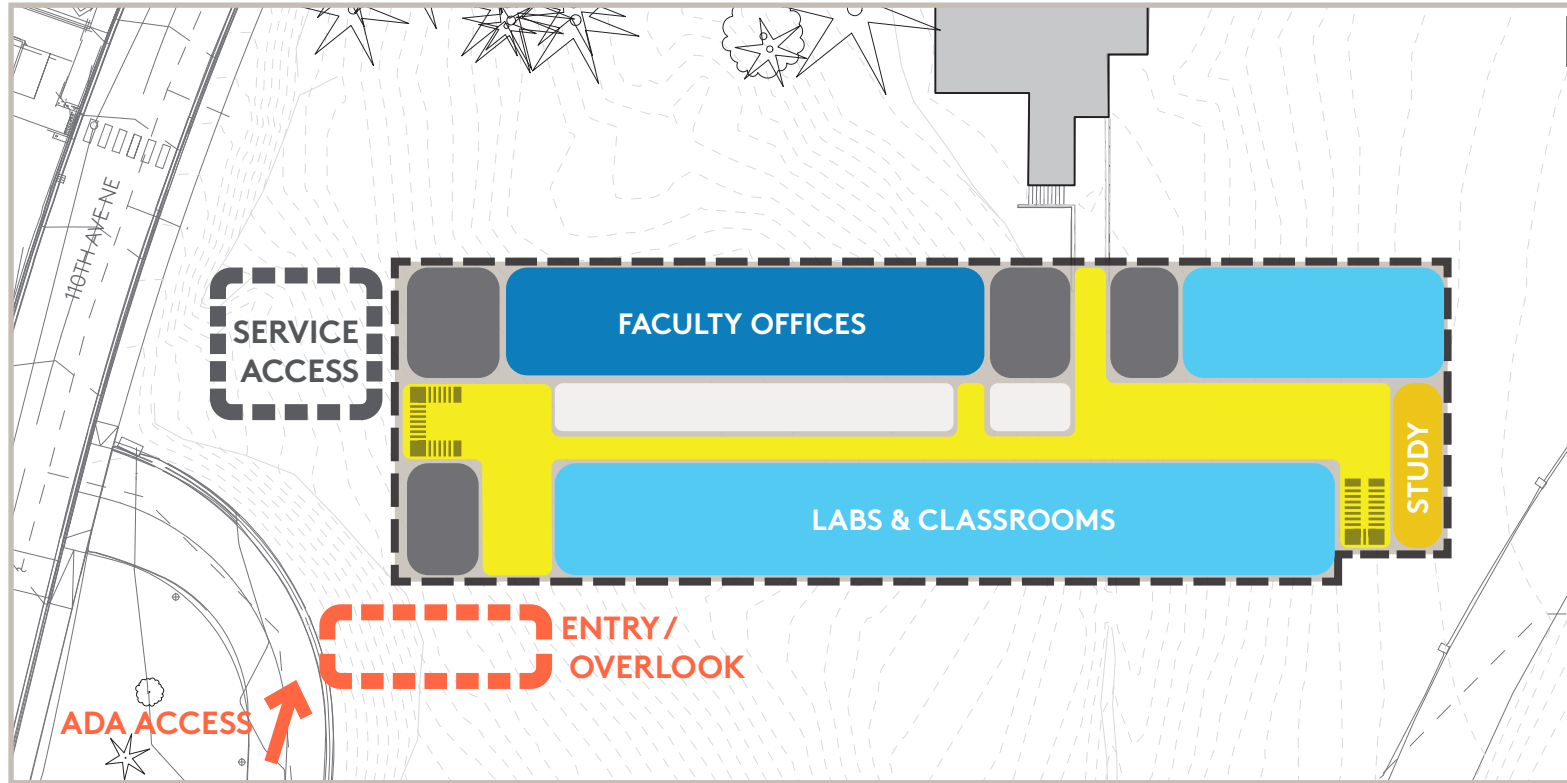


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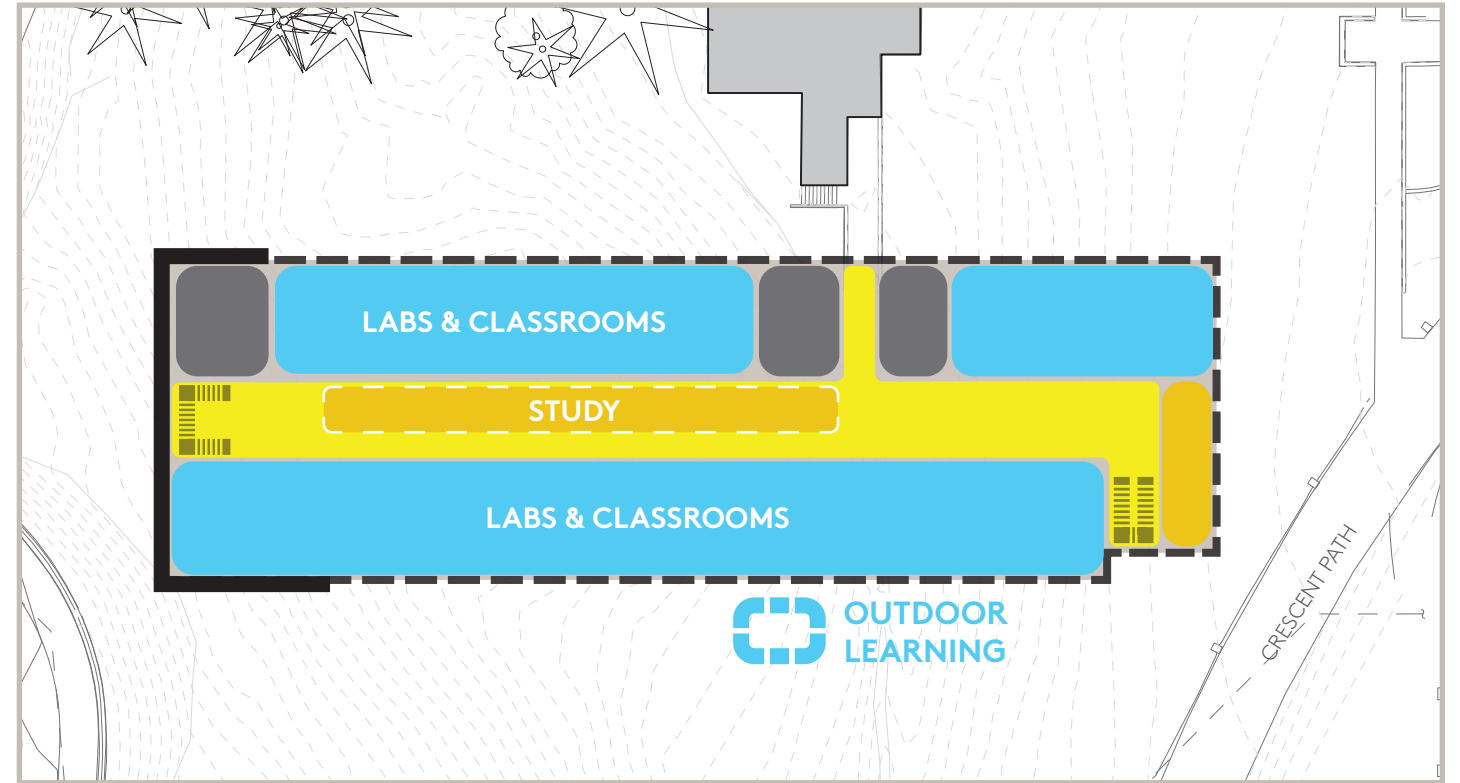


I - FLOOR PLANS

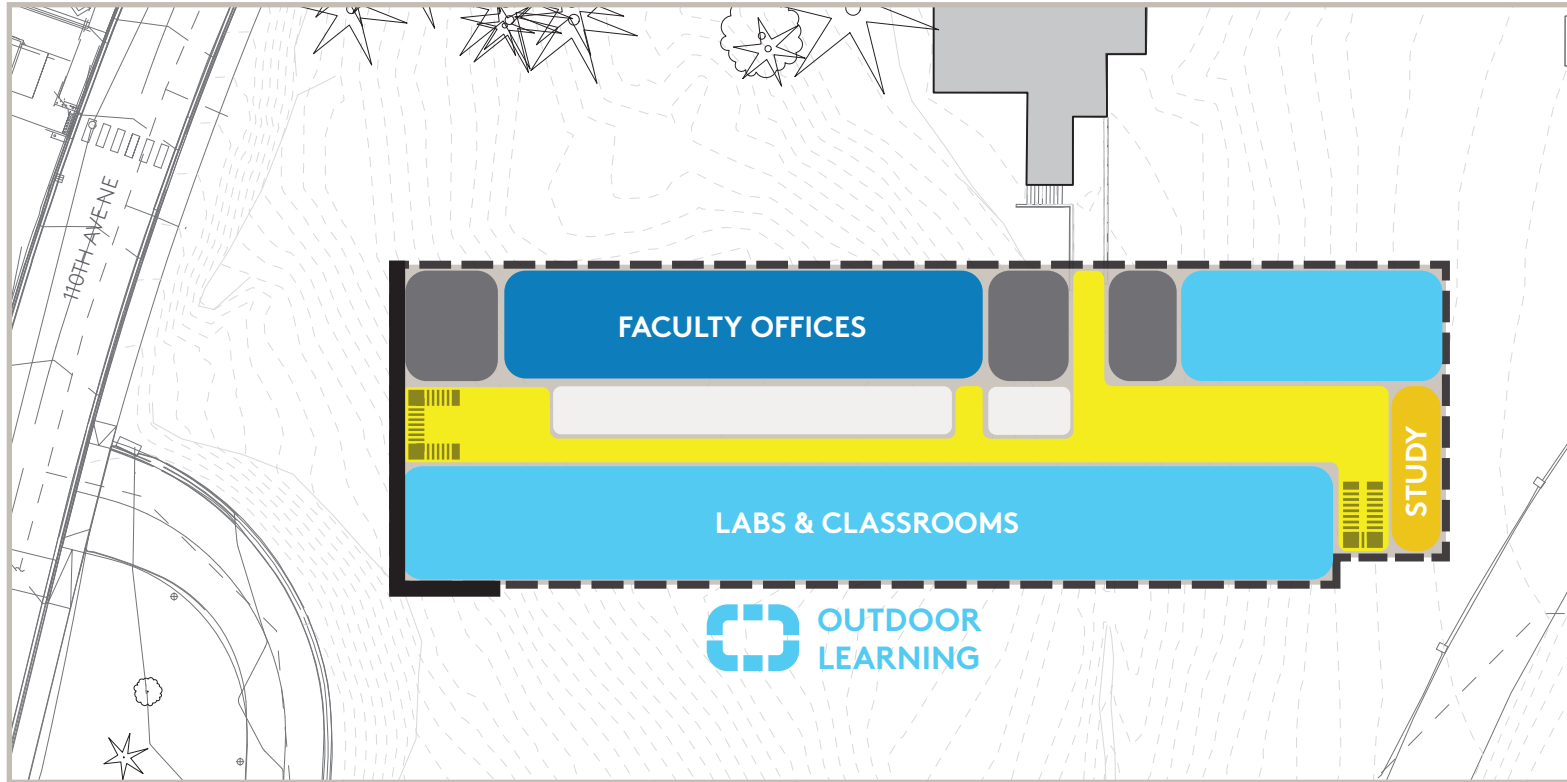
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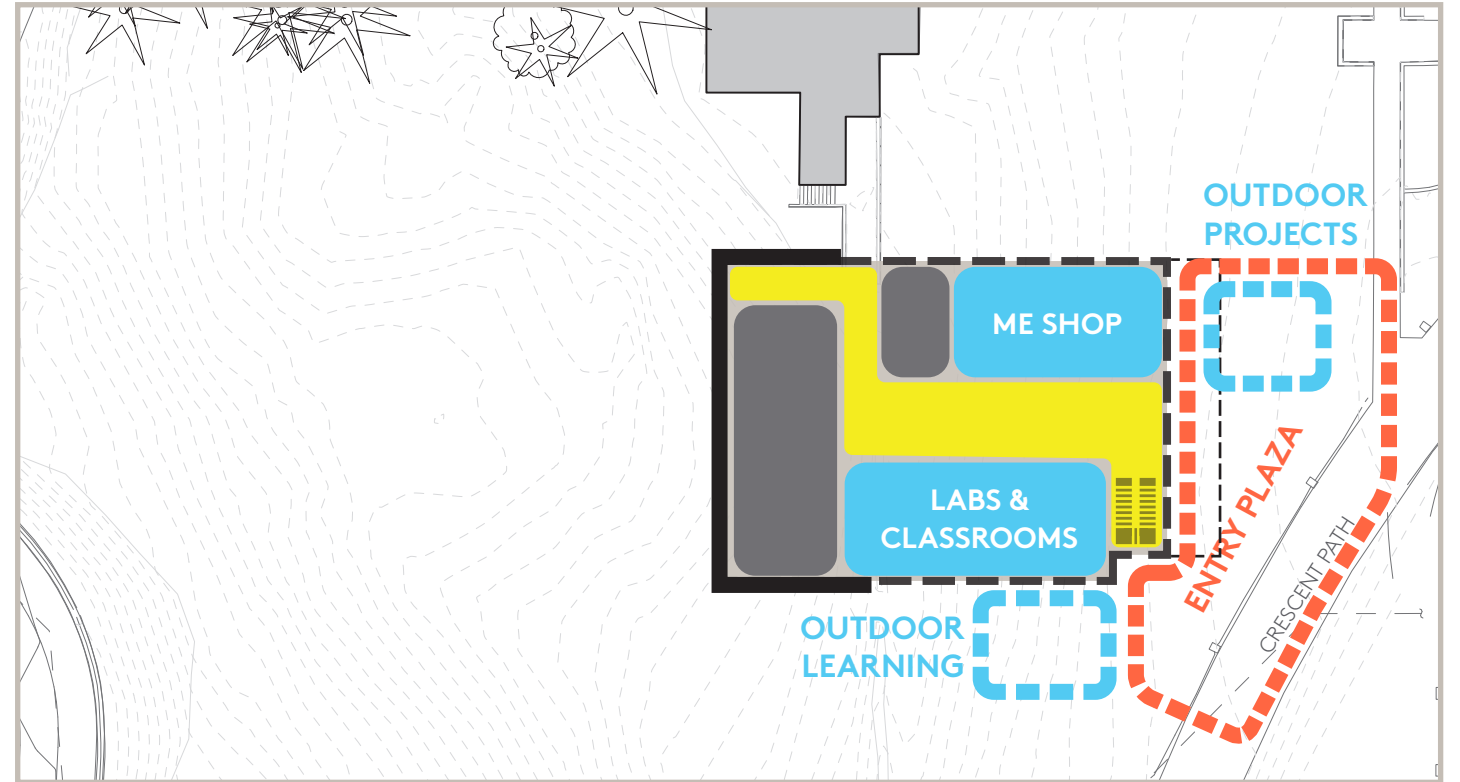
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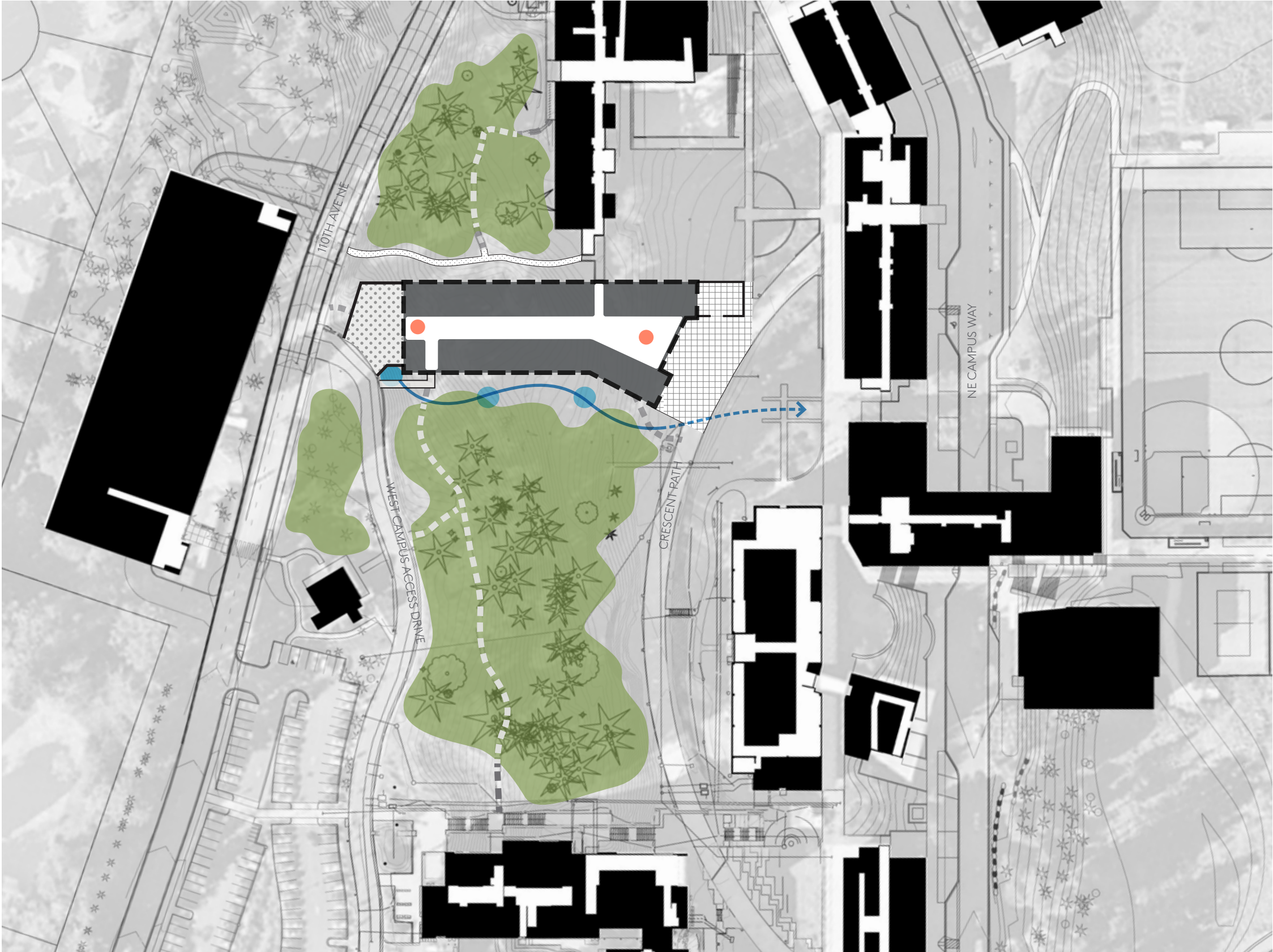
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LEVEL 1



Y - SITE PLAN



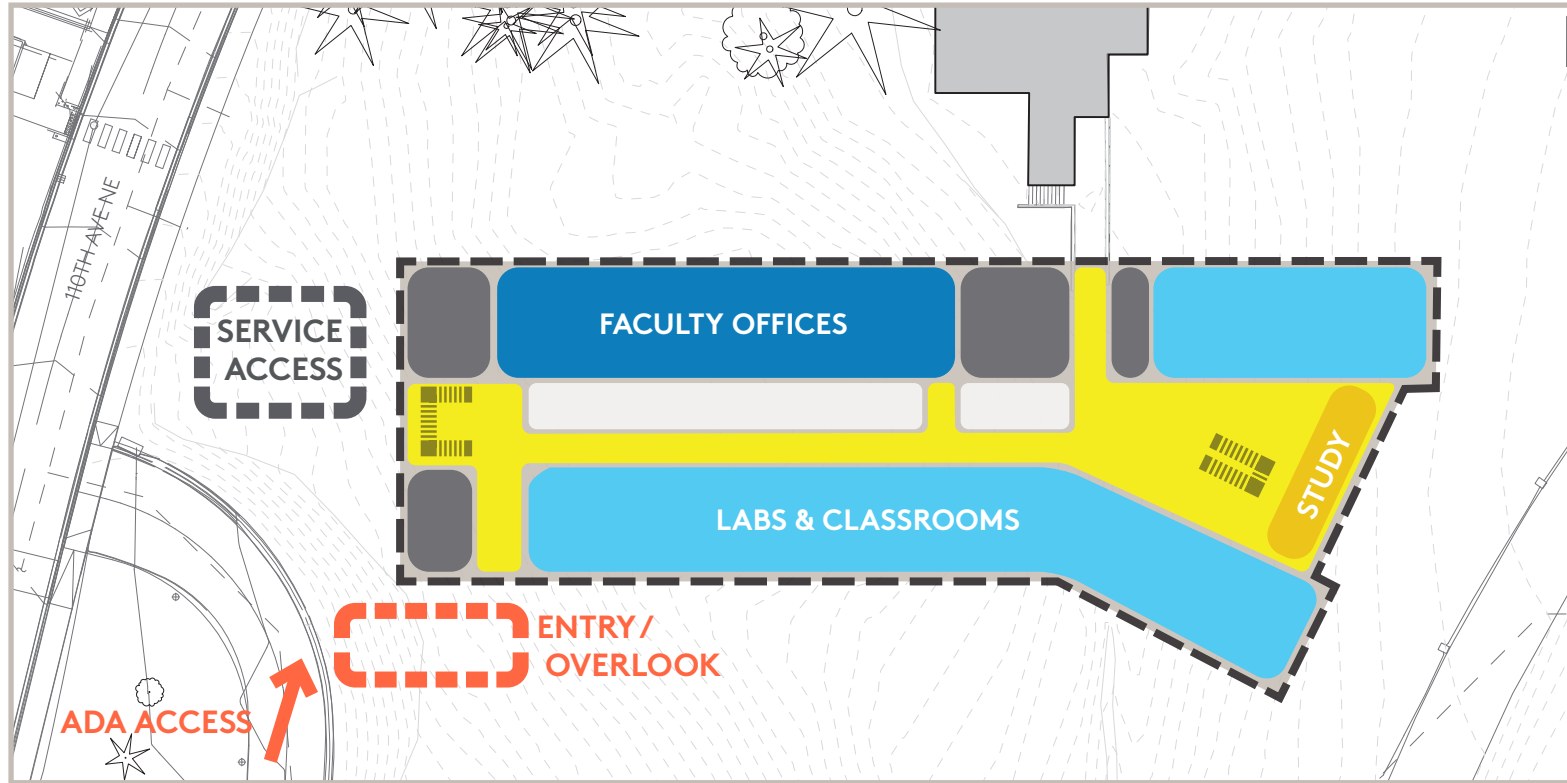
LEGEND

-  ENTRY PLAZA
-  ENTRY WALK
-  SERVICE ACCESS
-  FIRE ACCESS
-  STORMWATER
-  INFORMAL TRAILS

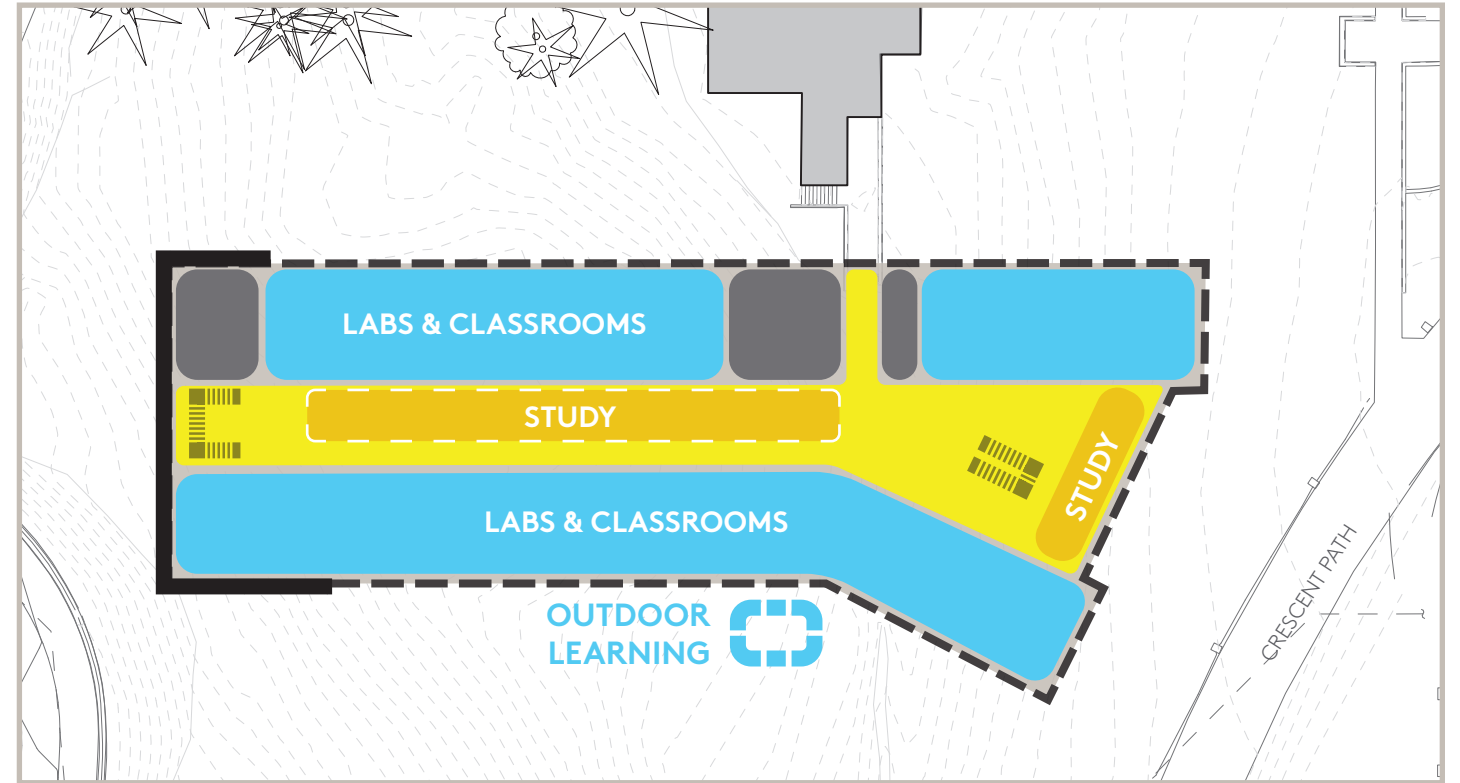


Y - FLOOR PLANS

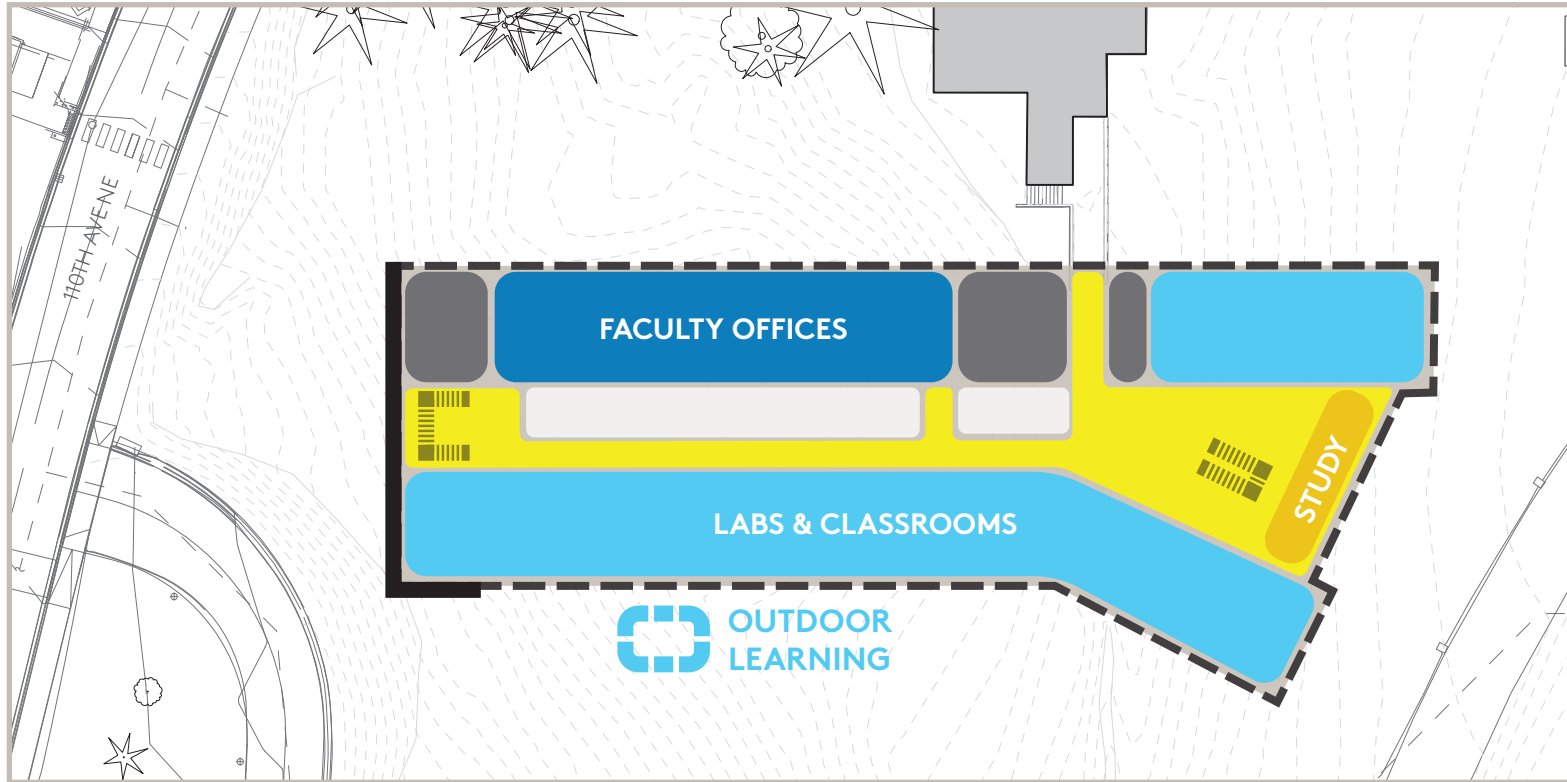
LEVEL 4



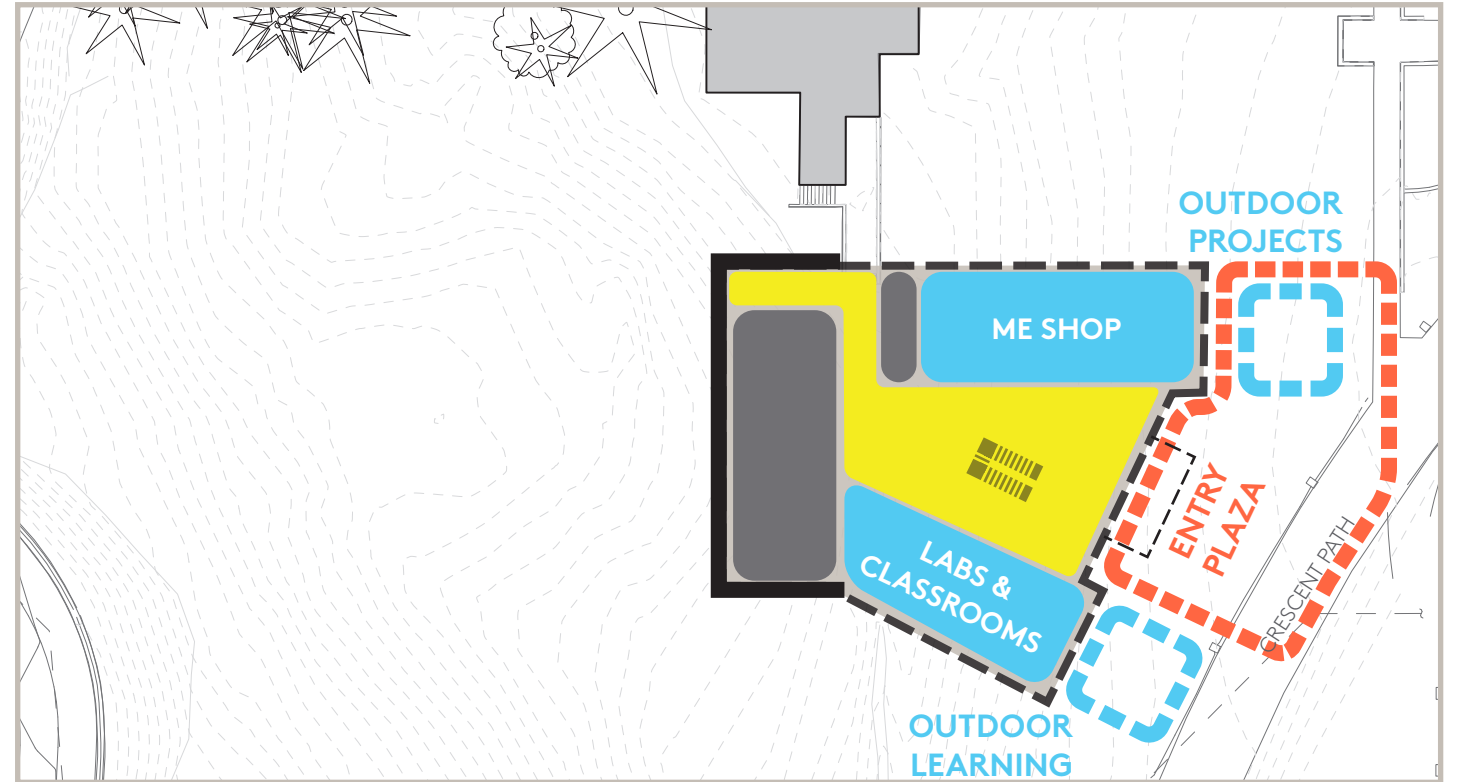
LEVEL 2



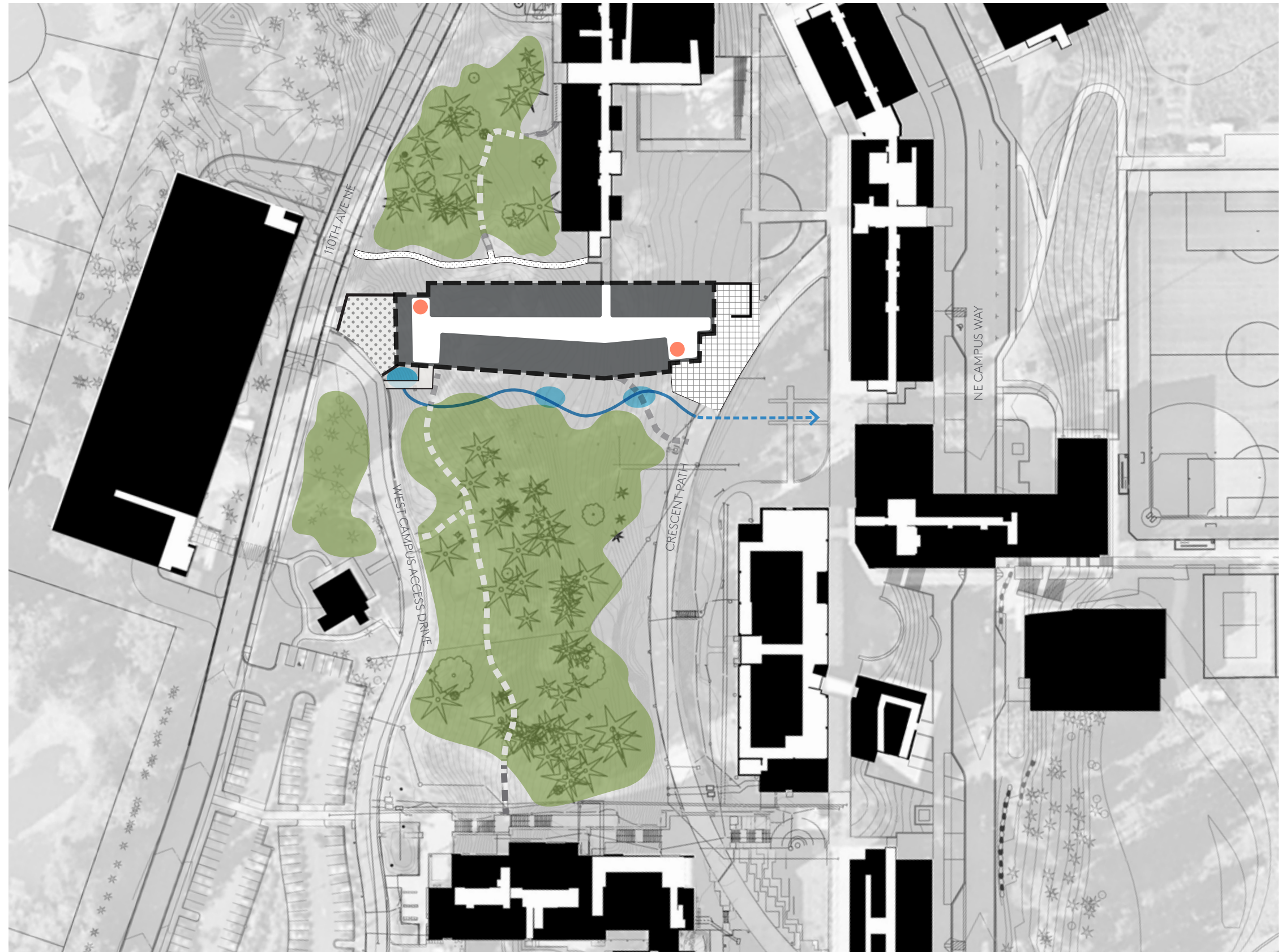
LEVEL 3



LEVEL 1



D - SITE PLAN



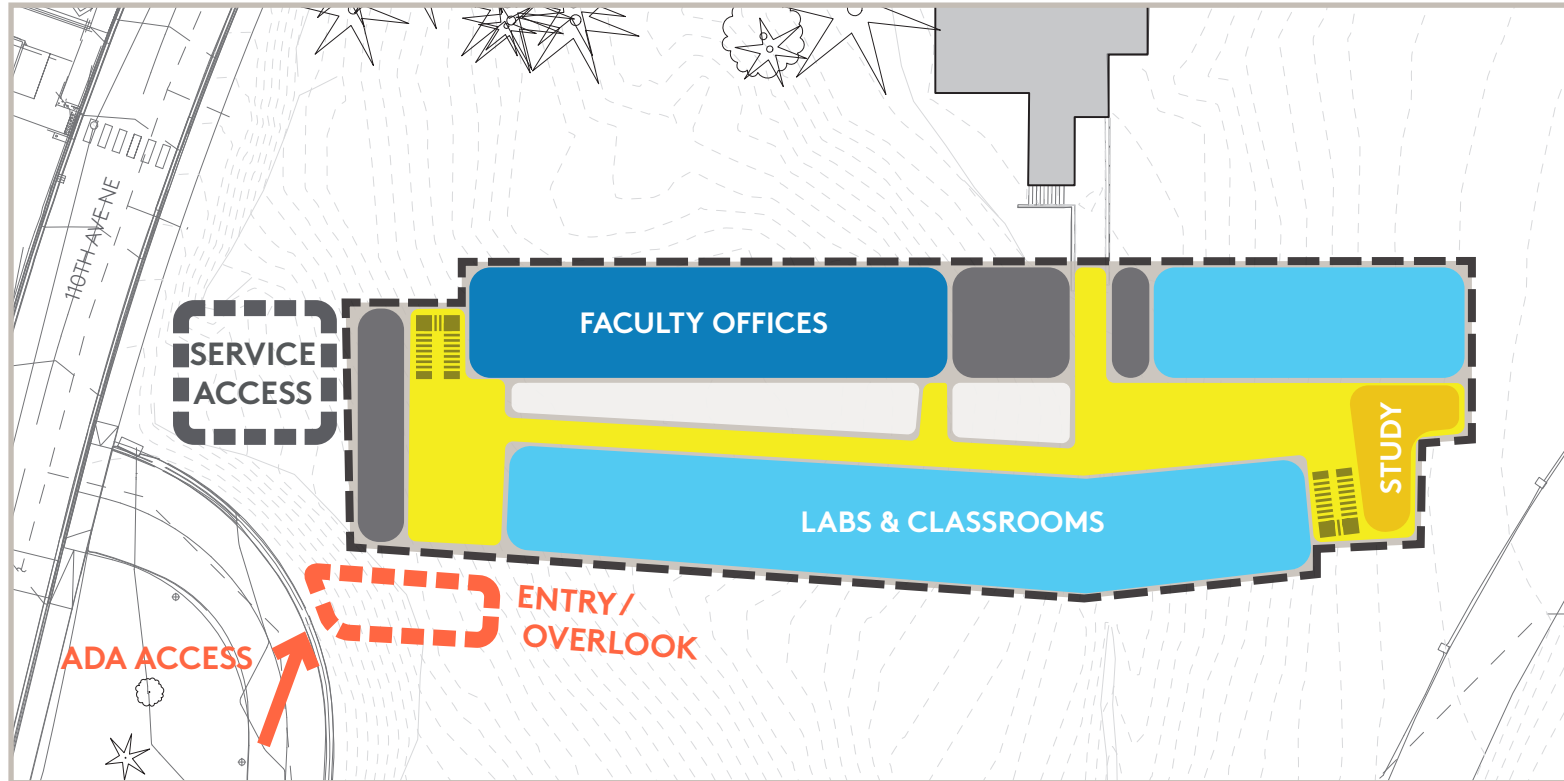
LEGEND

-  ENTRY PLAZA
-  ENTRY WALK
-  SERVICE ACCESS
-  FIRE ACCESS
-  STORMWATER
-  INFORMAL TRAILS

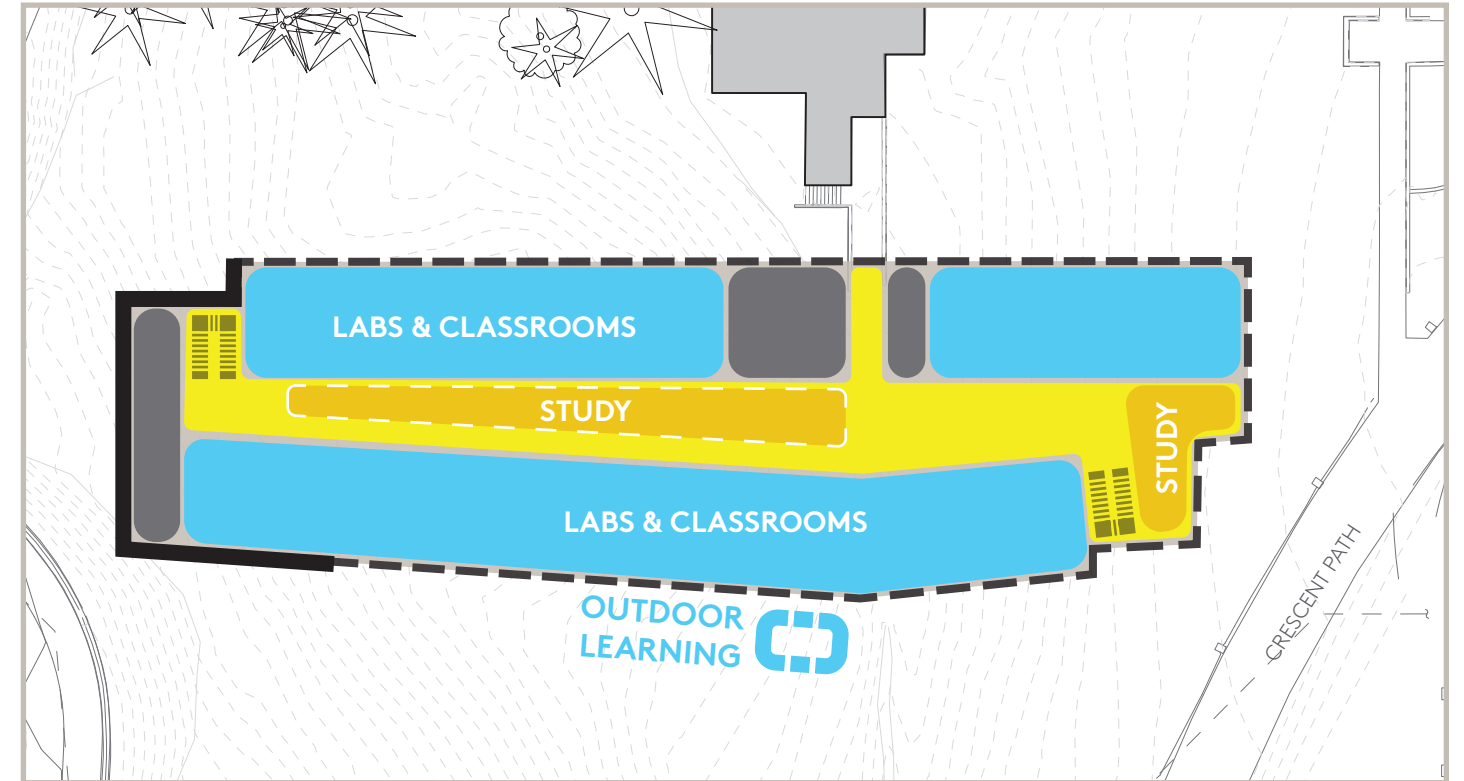


D - FLOOR PLANS

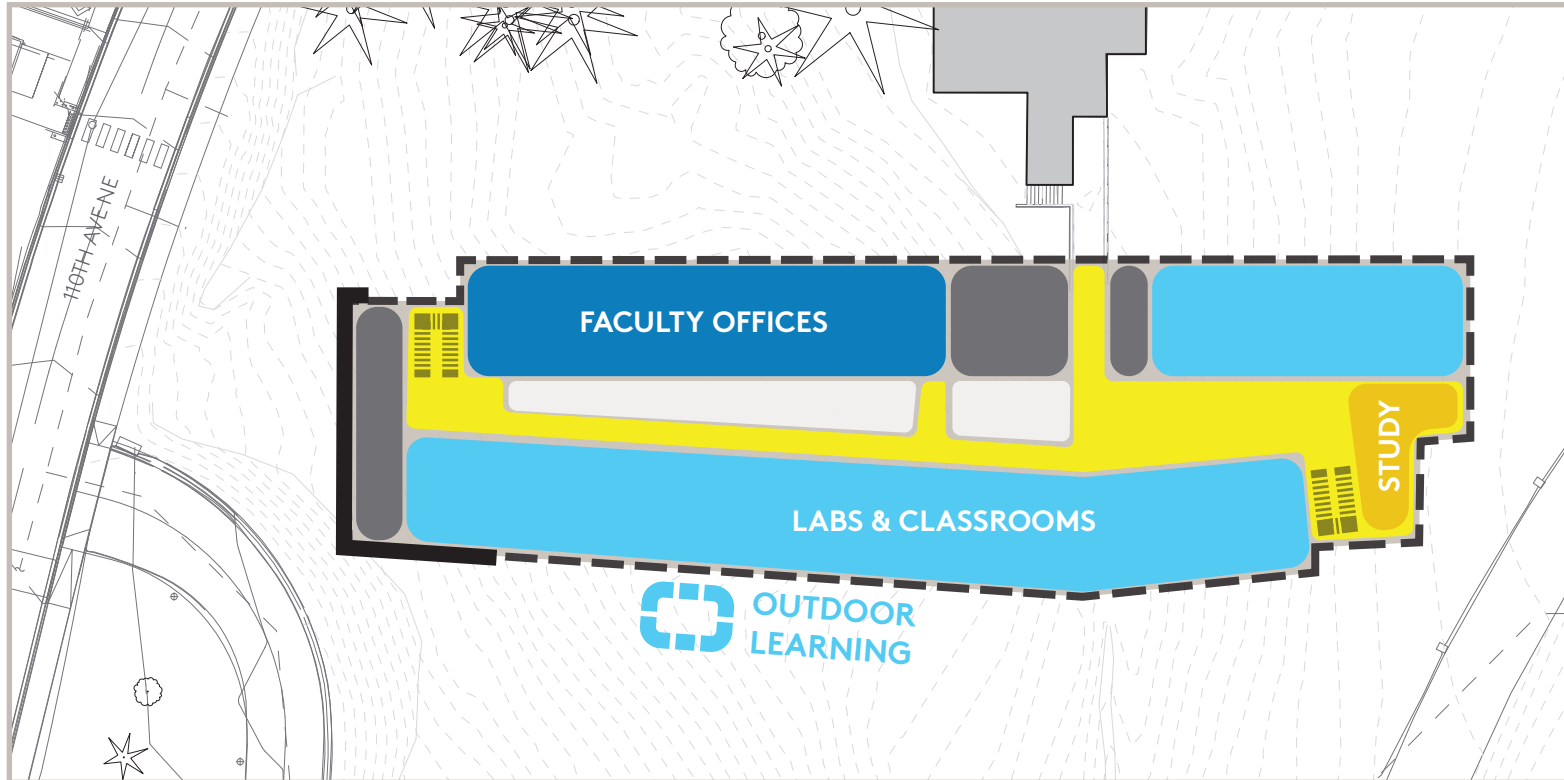
LEVEL 4



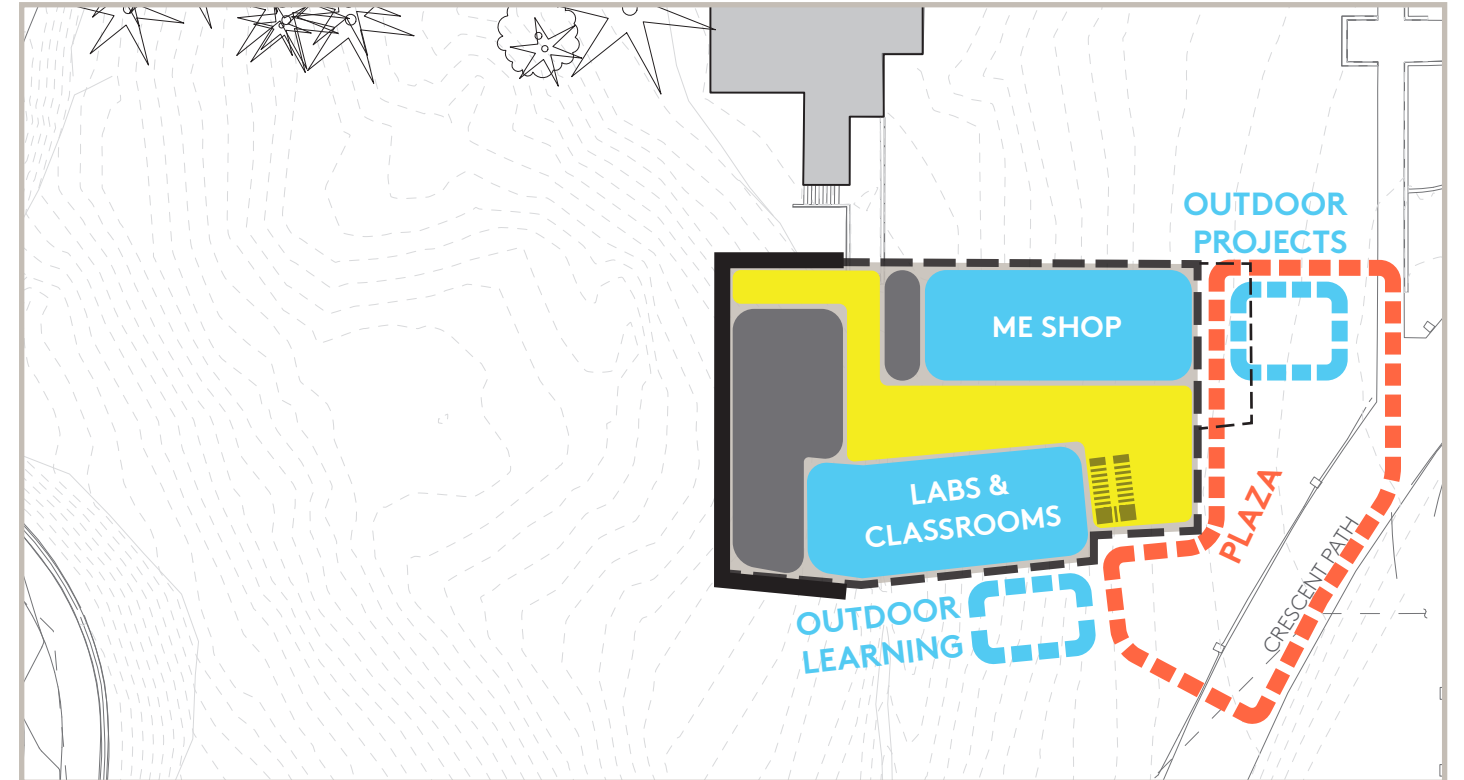
LEVEL 2



LEVEL 3



LEVEL 1



Discussion—