

**Climate Action, Sustainability, and Energy Committee Meeting Minutes**  
**April 24th, 2023**  
**2:00pm**

**Zoom:** <https://virginiatech.zoom.us/j/87592029797?from=addon>

**Present:** Mary-Ann Ibeziako (chair), Pat Donovan, Rachel Maizel, Nick Woods for Ken Miller, Amy Hogan, Lindsay Fisher for Katie Smith, Emily Williams, Liza Morris, Paul O'Keef for Paul Ely, Scott Nachlis, Rob Lowe, Dana Hawley, Nick Quint, Dean Paul Winistorfer, Nam Nguyen, Mae Hey, Matt Stolte, Nathaniel Humphreys, Todd Schenk, Zhuo Fu, Annie Hassall Lawrence

**Absent:** Claudia Budzyn, Gia Ha, Gwyneth Martin, Lilian Prins, Madison Betts, Princess Merritt, Teresa Sweeney, Wesley Gwaltney, Izzy Largen, Chris Kiwus

**Guests:** Mary Buchanan, Autumn Timpano, Nathan King, Emily Vollmer, Jack Leff, Brenda van Gelder, Tim Hodge, Adia Long, Meghan Marsh, Rosie Cicmanec, Sean McGinnis, Eli Meyer, Ted Faulkner, Steve Durfee, Simona Fried

Mary-Ann Ibeziako called the meeting to order at 2:00 pm. A quorum was not initially present but did assemble during the first presentation.

### **1. Adoption of Agenda**

Agenda was followed but not voted on.

### **2. Announcement of approval and posting of minutes of March 27, 2023 and Membership Updates**

Mary-Ann noted that the March minutes have been voted on electronically and can be publicly accessed on the Governance Information System on the Web (<https://governance.vt.edu>). She also shared that members completing their service would be recognized during the meeting.

### **3. Presentation**

Mary Buchanan (Environmental Coalition's Earth Week Coordinator), Tim Hodge (Associate Vice President for Budget and Financial Planning), Liza Morris (Assistant Vice President for Planning and University Architect), Kristina Cook (CASE Program Coordinator), and Nathan King (Campus Sustainability Manager) gave presentations that covered all agenda items for the committee meeting (attached).

### **4. Open Discussion**

- Innovative Financing (Tim Hodge)
  - Rachel Maizel: I might have missed it, but is there some additional commitment or incentive being put forth to support CAC efforts besides the standard budgetary breakdown?
    - Tim Hodge: The Climate Action plan is a priority of the institution. It's hard to get too precise about that because the topic is so pervasive. It intersects with our educational programs. It intersects with our physical planning, our transportation systems, our policies. So many things, but I would say it is a theme or it's an initiative and a priority. It's cross-cutting and often is raised as different things are considered. It helps drive. It helps create clarity of where we're trying to go. That's always important for any organization to have a sense of where it's going. Kind of a North Star that things can triangulate from and then that facilitates discussions. But it's hard to say precisely: Here's exactly where it is because I worry that would actually limit and shortchange the impacts. What we should be trying to do is bring to bear the strength of the entire institution in a way. Because, you know, if all of us are doing our part on it, then it can be very powerful and impactful. So not sure I'm totally answering the question, but it's a hard question because it's looking for precision when it's more conceptual, visionary process.



technologies to be utilized here that aren't necessarily the same type of architecture that we're employing and our Northern Virginia Campus where we had no site really. And it was a very dense urban environment. So this was the best way to maximize solar generation potential there and utilize that as the renewable energy source.

- Eli Meyer: Geothermal and sewage heat exchange is fascinating. Where can somebody read more about it if they happen to be a nerd for that sort of thing.
- Liza Morris: Well, I don't have resources right on the tip of my tongue, but I can reach out to our design team that did a lot of research on this for this project. And be able to provide that, that back to you all via a follow-up notation or something for your next meeting or via email that you all could distribute.
- Sean McGinnis: What is the installed capacity of solar on the new building facade and what percentage of the building electricity is it expected to generate?
- Liza Morris: So obviously that's going to vary. And I believe that the design team had the latest on some projections on the ranges of that. And again, I would have to get those specifics. I don't have that information on the tip of my tongue, so I will get that information and share that back as well.
- Jack Leff: I think this is a fascinating design image. I was curious since this is the Climate Action, Sustainability Energy Committee, could you maybe point out where solar PV might be located in this closing image, just to give us maybe some sense of like what it'll look like in practice with that attached to it.
- Liza Morris: So we have a combination of different elements around the building. So in the image that you're seeing right now, on the facets that are most south-facing, that have the that you can see a slight horizontal connector that connects all the verticals on those facets. That is a horizontal glass thin that has building integrated photovoltaics in the glass thins themselves. And those are the PV elements on that facade. The glazing behind that because it's south-facing, will be clear glazing. But then there are the horizontal fins that have the PV cells in them. As you pivot around and you're in the eastern southeastern facets there that are directly facing us. Those have PV cells integrated into the glazing units in a grid pattern. And what you're going to just slightly well, I don't know if you can make that out in that particular image. So within those glazing units themselves, they will have, many of them will have this gridded pattern of the black PV cells as a part of this shading and the device will allow a dappled light inside the building. But then those are really getting a lot of solar exposure during certain times of the day. And then as you progress to the North facade that we can't see in this image. Those are largely clear glazing units. And then you can see the PV array, the horizontal PV array that is over the roof deck. We also have capacity. While we weren't able to afford it under the project budget to do the PV on the roof of the tower form itself. We did construct the structure in such a way as to allow the capacity for that in the future, as well as some pathways to that for the wiring.
- Jack Leff: Do you happen to know the square footage of the rooftop structure?
- Liza Morris: It's a different sort of footprint and each floor obviously is different square footage, but somewhere in the 9,000-10,000 sf range.

## 5. Announcements

- Jack Leff: Spring 2023 Green Graduates
  - Sign up deadline is Wednesday, May 10<sup>th</sup>
  - Pledge information advertised on social media- spread the word! Scan QR code on attached presentation (announcements section).
- Jack Leff: Seeking volunteers for the Y-Toss program!
  - Recycling of dorm room essentials to keep them out of landfills
  - All profits are put back into student-facing programs
  - May 5<sup>th</sup> through May 10<sup>th</sup>
  - Reach out to Vivian Peregrino [vivianp25@vt.edu](mailto:vivianp25@vt.edu) to sign up
- May Hey:
  - A brand new film called "Imagining the Indian", GLC auditorium with discussion with filmmakers afterward, 6:00-9:30pm on Thursday, 4-27.

- Seed celebration (information about traditional seed saving techniques- seed crafts, cooking demos with chefs, and stories from people who have been saving seed for a very long time), Friendship Garden, 2:00-5:00pm on Friday, 4-28
- Powwow, (powwow activities, cooking samples, how to make teas and food from the land), GLC Lawn, 12-4pm, Saturday, 4-29

## **6. Adjournment**

There being no further business, a motion was made and seconded to adjourn the meeting at 3:05pm.





Climate Action, Sustainability, and Energy Committee

**April 24th, 2023 – 2:00 PM**







# Agenda

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- Welcome, Opening Remarks, and Membership Updates
- Approval of Proposed Agenda (if a quorum is present)
- Meeting Minutes: Electronic Vote Results
- Old Business
  - Earth Week Overview
- New Business
  - CAC Goal 14: Innovative Financing Presentation
  - Innovation Campus Presentation
- Subcommittees Overview
- Recognitions
- Announcements and Open Discussion



# Earth Week 2023 Highlights

Collaboratively planned week of events  
Celebrated VT Progress  
Educated others  
Engaged peers and community  
Promoted cross-collaboration

Earth Week Planning Forums  
Worked in collaboration with  
20+ student groups/organizations  
18 campus units/depts  
6 Community Groups  
25 events planned and executed

April 17th-22nd Highlights  
Pollinator Garden Expansion  
Sustainable Fashion Show & Clothing Swap  
Climate Action Commitment  
Ecological Tour of Old Growth Forest  
Goodwin Waste Audit  
Stream Cleanup  
Arbor Day Tree Planting  
  
Average event attendance around 15-30 people.





Climate Action, Sustainability, and Energy Committee

# INNOVATIVE FINANCE

TIM HODGE, ASSOCIATE VICE PRESIDENT FOR  
BUDGET & FINANCIAL PLANNING

April 24, 2023





## **Update on VT Climate Action Commitment Goal 14: Innovation Financing**

Develop innovative budgeting and financing mechanisms to generate funding and staffing to achieve Climate Action Commitment goals.



A large, faint, light gray silhouette of a pair of scales of justice is centered in the background of the slide. The scales have two pans hanging from a central beam, and a decorative base.

**Climate Action Commitment needs financial resources for projects and staffing (which is important) *but* this is balanced by the institutions need for academic excellence/compliance and security/student experience/affordability.**

# INNOVATIVE FINANCE

delivers sustainable financial models to accelerate university priorities

**Partner** with campus units

Support analysis and development of state-of-the-art **financial plans**

Innovative **procurement** to enhance value

Facilitate **financing** and authorization

Budget process: Operating / Capital

Financing: short-term/long term, internal/external

Partnerships

Support external funding opportunities



Innovative Finance supported key infrastructure improvements including:

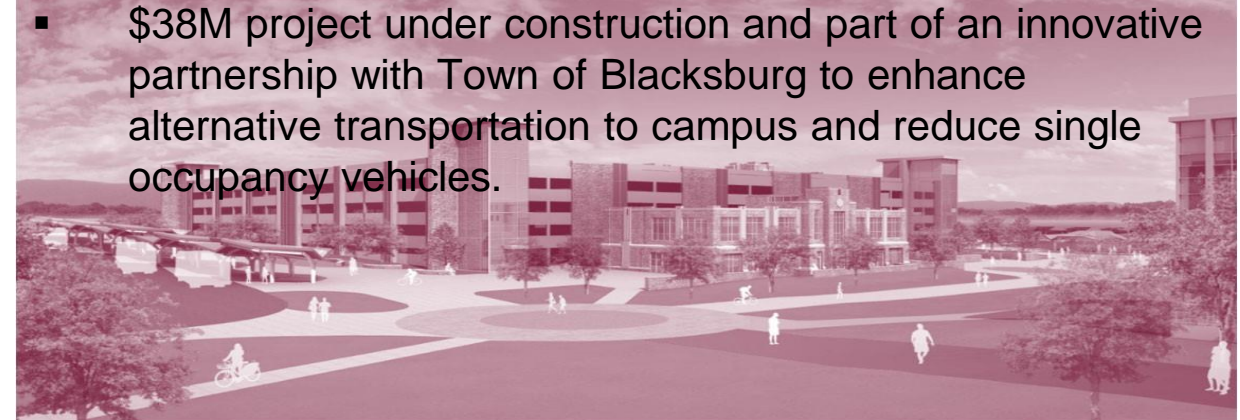


## Package Boiler 12

- \$8.2M project converting coal-fired boiler to natural gas.



## Multi-modal Transit Facility







Innovative Finance supported the underwriting of projects to create **sustainable benefits.**

<u>Phase</u>	<u>Investment in \$'s</u>	<u>Payback In Years</u>
Energy Action Plan 1	2,500,000	5.1
Energy Action Plan 2	3,525,000	4.6
Energy Action Plan 3	3,575,000	4.7
Energy Action Plans - ODW Project	125,000	-
Energy Action Plan 4	3,350,000	4.9
Energy Action Plan 5	3,145,000	5.9
Energy Action Plan 6	3,648,191	5.1
Power Plant Demineralizer Efficiency	1,005,000	5.0
Math Emporium Energy Efficiency	<u>203,000</u>	2.2
	<u><u>21,076,191</u></u>	
Energy Action Plan 7 Proposed	4,300,000	8.0

Innovative  
Finance supports  
priority **budget**  
**requests** to  
advance the  
Climate Action  
Commitment  
through:

**1 / STAFFING -**  
Sustainability and energy  
staffing, Campus Waste  
Manager, Building retro  
commissioning.

**2 / BUILDING &  
UTILITY  
SYSTEMS -**  
Maintenance Reserve  
Program, fume hoods,  
utility metering, utility  
data warehouse, utility  
master plan, study  
natural gas, LED  
lighting projects



**4 / ALTERNATIVE  
TRANSPORTATION -**  
alternative transportation  
programs, electric buses,  
DC Metro pass

**3 / STUDENT  
PROGRAMS -**  
sustainable dining,  
Green RFP

# DISCUSSION

# VIRGINIA TECH'S INNOVATION CAMPUS

## Sustainability Strategies

- Innovation Seeking Design Principles
- Entitlements/Development Process
- Strategies for Building and Site
- Future Phase Opportunities

# INNOVATION SEEKING DESIGN PRINCIPLES

▶ The Virginia Tech Experience and Identity

▶ Universal Design

▶ Green and Social Spaces

▶ Visual connectivity and transparency

▶ Ease of Movement

▶ Connectivity

▶ Integrated Technology

▶ Health and Wellbeing

▶ Flexibility

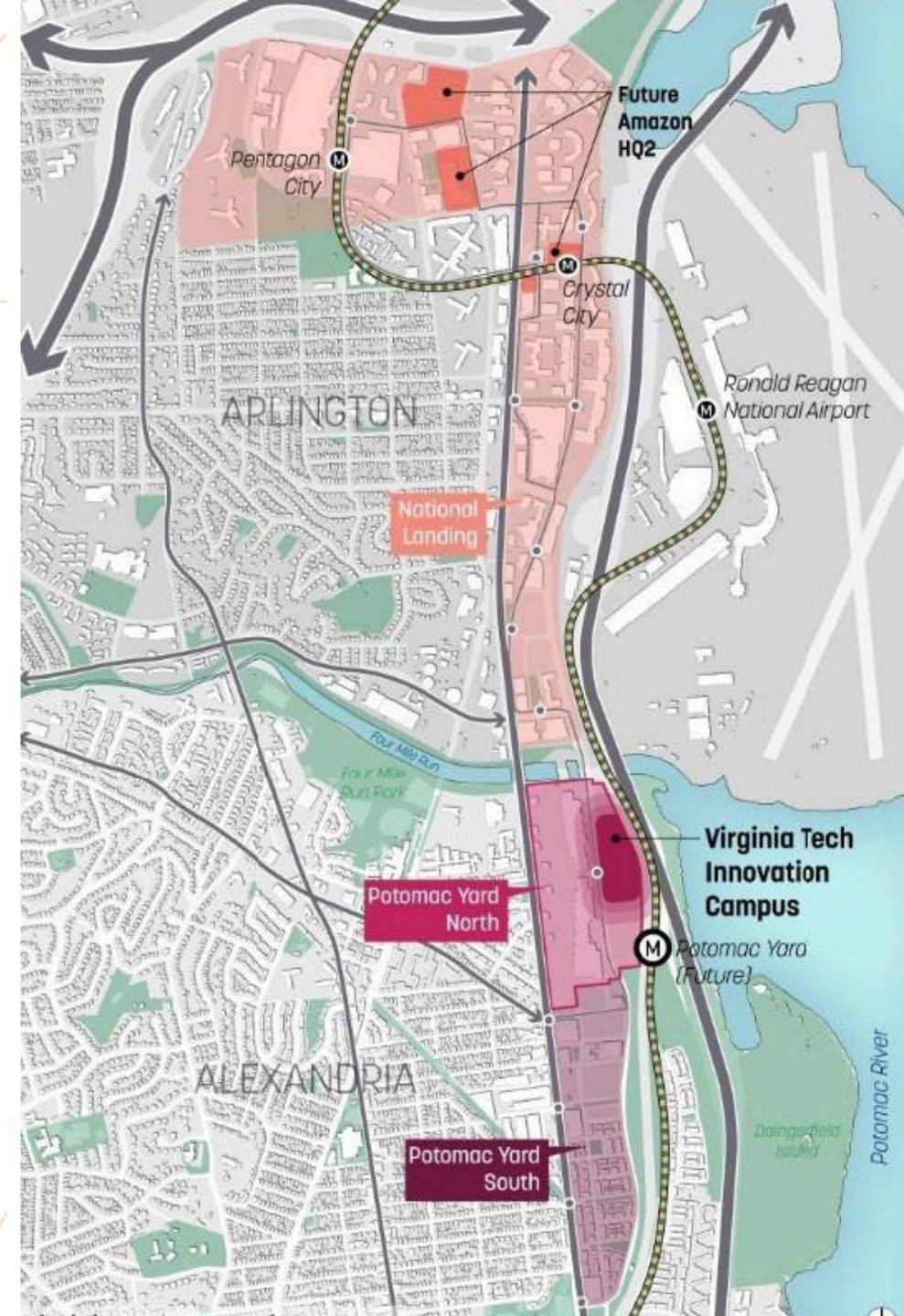
▶ Sustainability and Resiliency



# PROJECT CONTEXT

- ▶ DC Metro Area + National Landing
- ▶ Alexandria + NPY Phase 1

INNOVATION  
CAMPUS





# DEVELOPMENT PROCESS

## Land Uses

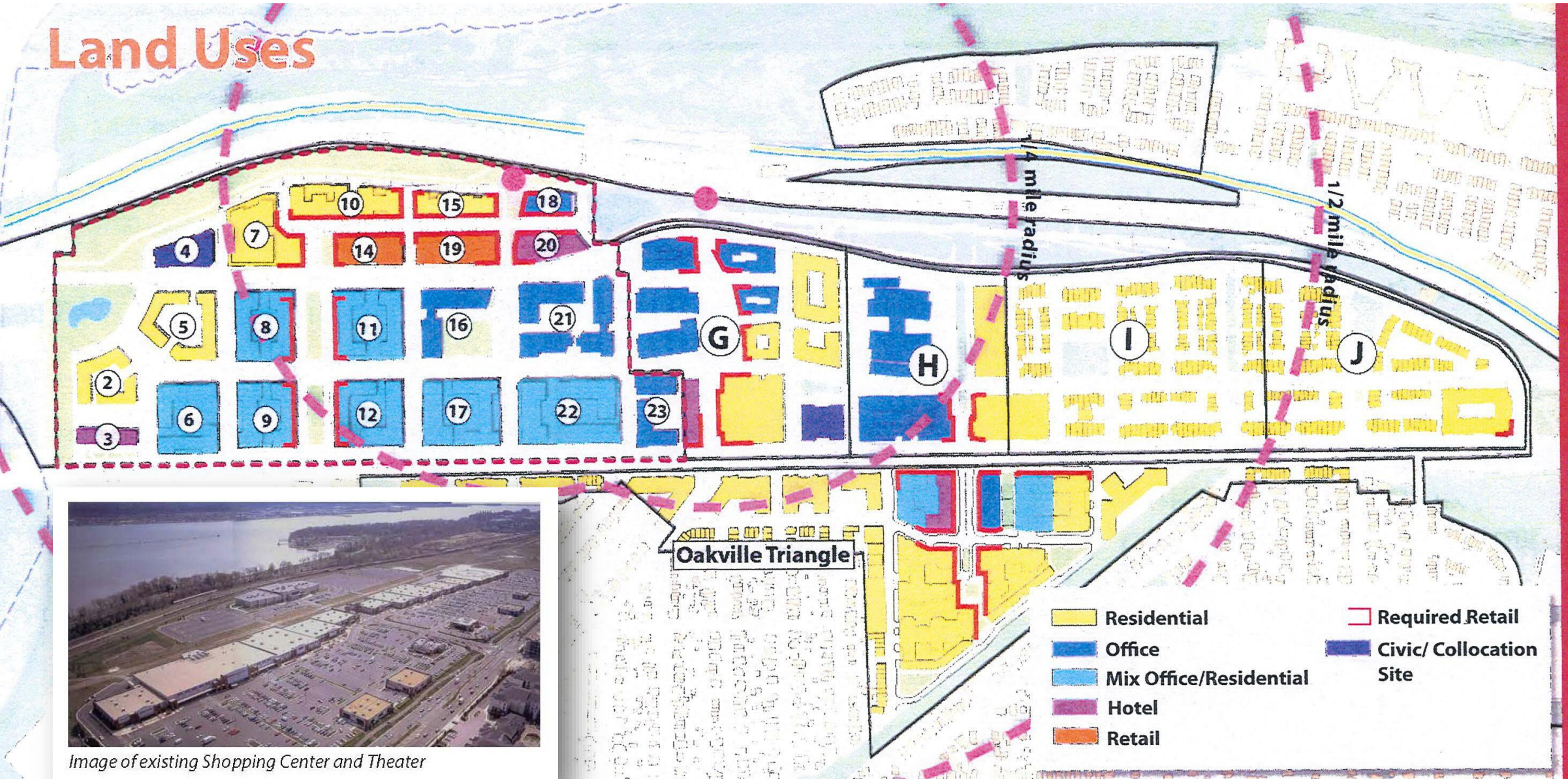


Image of existing Shopping Center and Theater





# DISTRICT DESIGN EXCELLENCE CRITERIA

- ▶ Environmental Sustainability is Integrated with the Design of Infrastructure, Open Spaces + Buildings
- ▶ District Conceived as an Integrated Whole
- ▶ Quality + Durable Building Materials
- ▶ Off-Street Parking Located Below Grade
- ▶ Variety of Open Spaces
- ▶ Active Public Realm
- ▶ Inclusive Design of Buildings and Open Spaces
- ▶ Thoughtful Integration of Utilitarian Uses
- ▶ Unique & Identifiable Building Signage
- ▶ Architectural Excellence



# DISTRICT SUSTAINABILITY MASTER PLAN

## Site

- ▶ Stormwater, Open Space, Habitat, Heat Island

## Waste

- ▶ Construction, Infrastructure, Ongoing Operations

## Water

- ▶ Potable Reduction, Reuse Opportunities, Process Water

## Carbon

- ▶ Embodied Carbon, Operational Energy, Renewables, Transportation

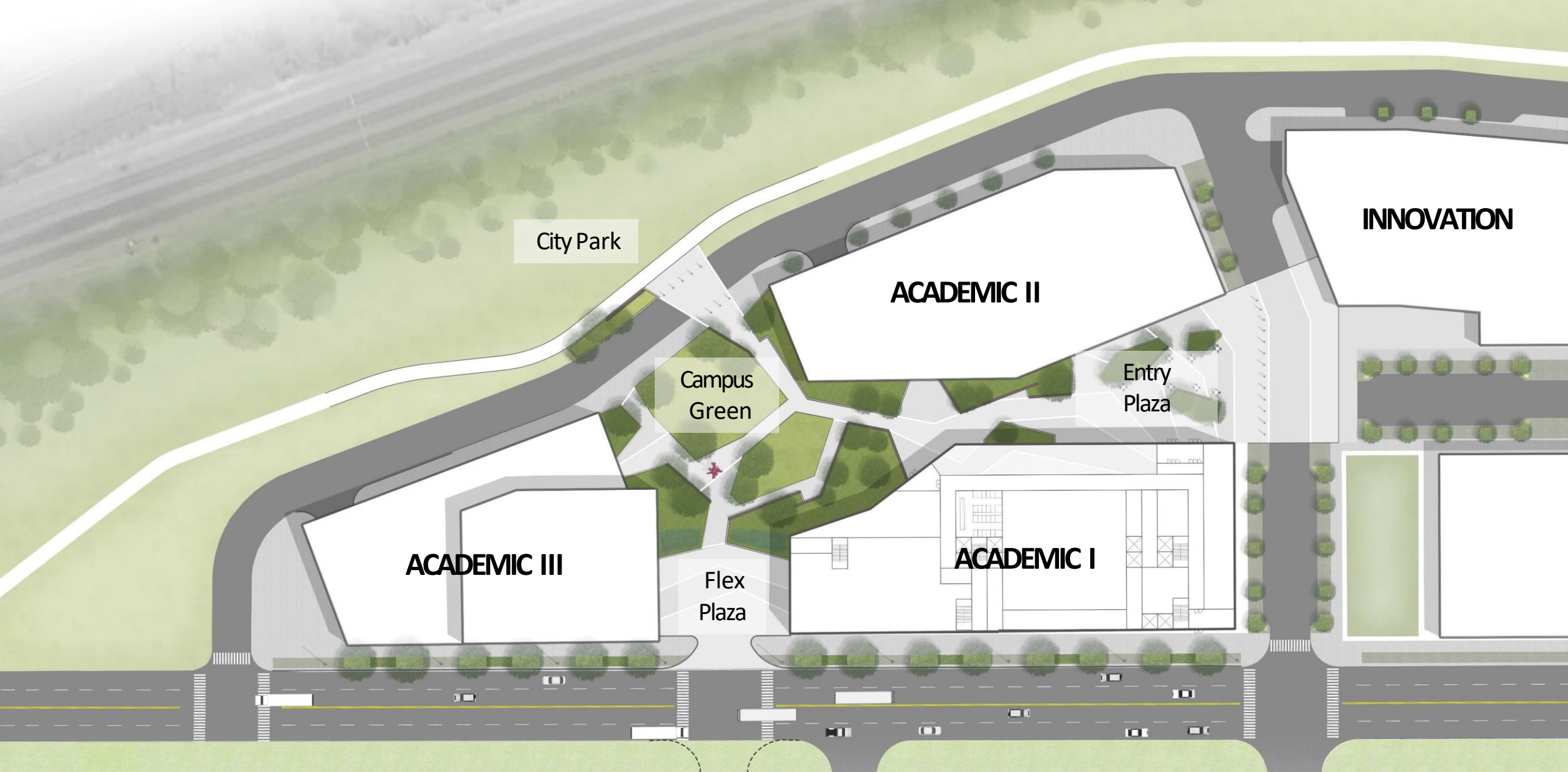
## Health & Wellness

- ▶ Materials, Indoor Air Quality, Comfort

## Resilience

- ▶ Infrastructure

# SITE PLAN



# SUSTAINABLE STRATEGIES

▶ Form Optimization for Solar Orientation + Building Integrated Photovoltaics

▶ 100% Roof Rainwater Capture

▶ 50,000 gallon cistern

▶ Graywater system

▶ Bio-retention basins

▶ Green Roof

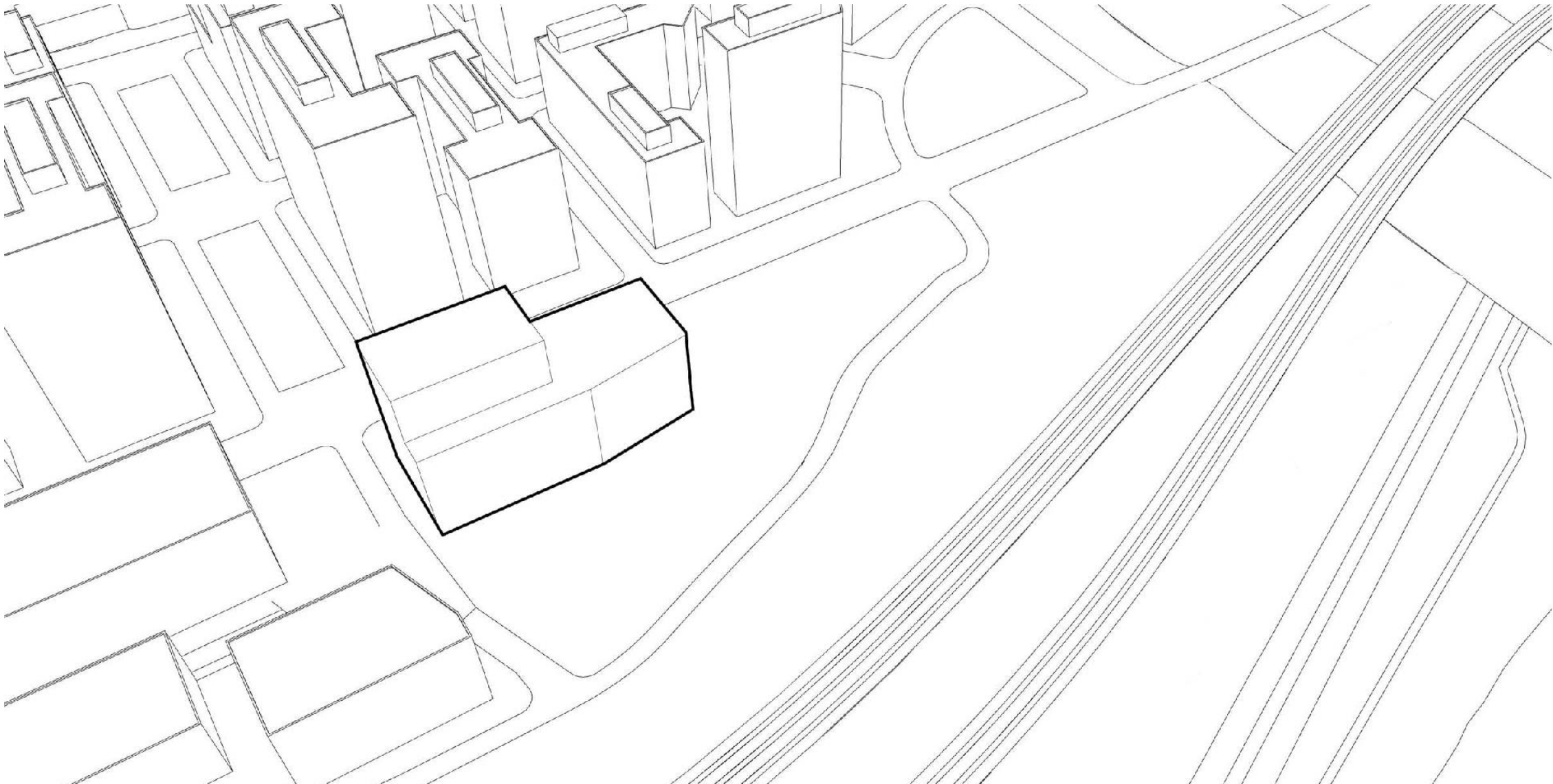
▶ Ongoing water and air performance testing

▶ Occupancy Sensors

▶ Active Daylighting Controls

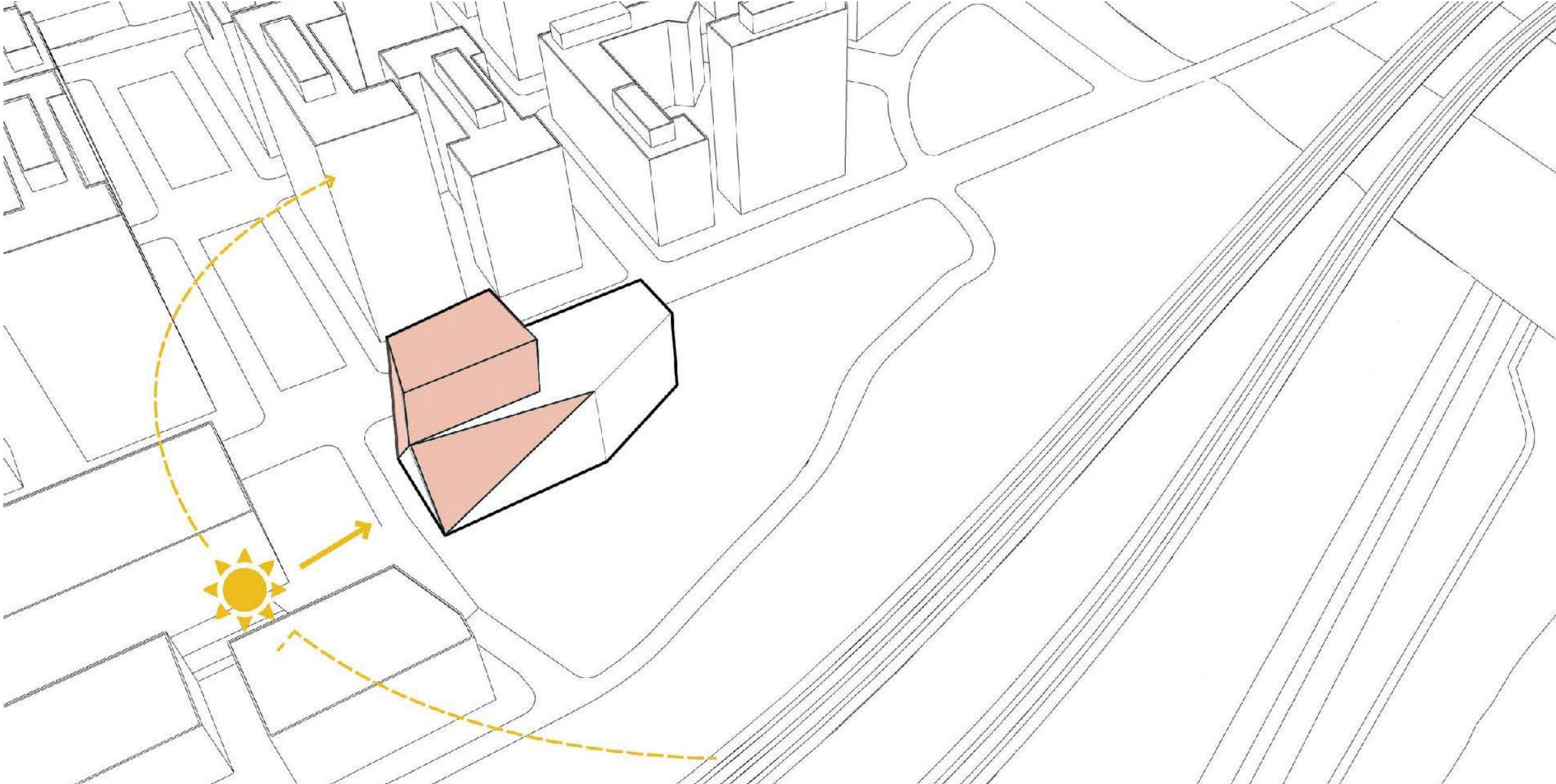
▶ High efficiency LED

## ZONING ENVELOPE

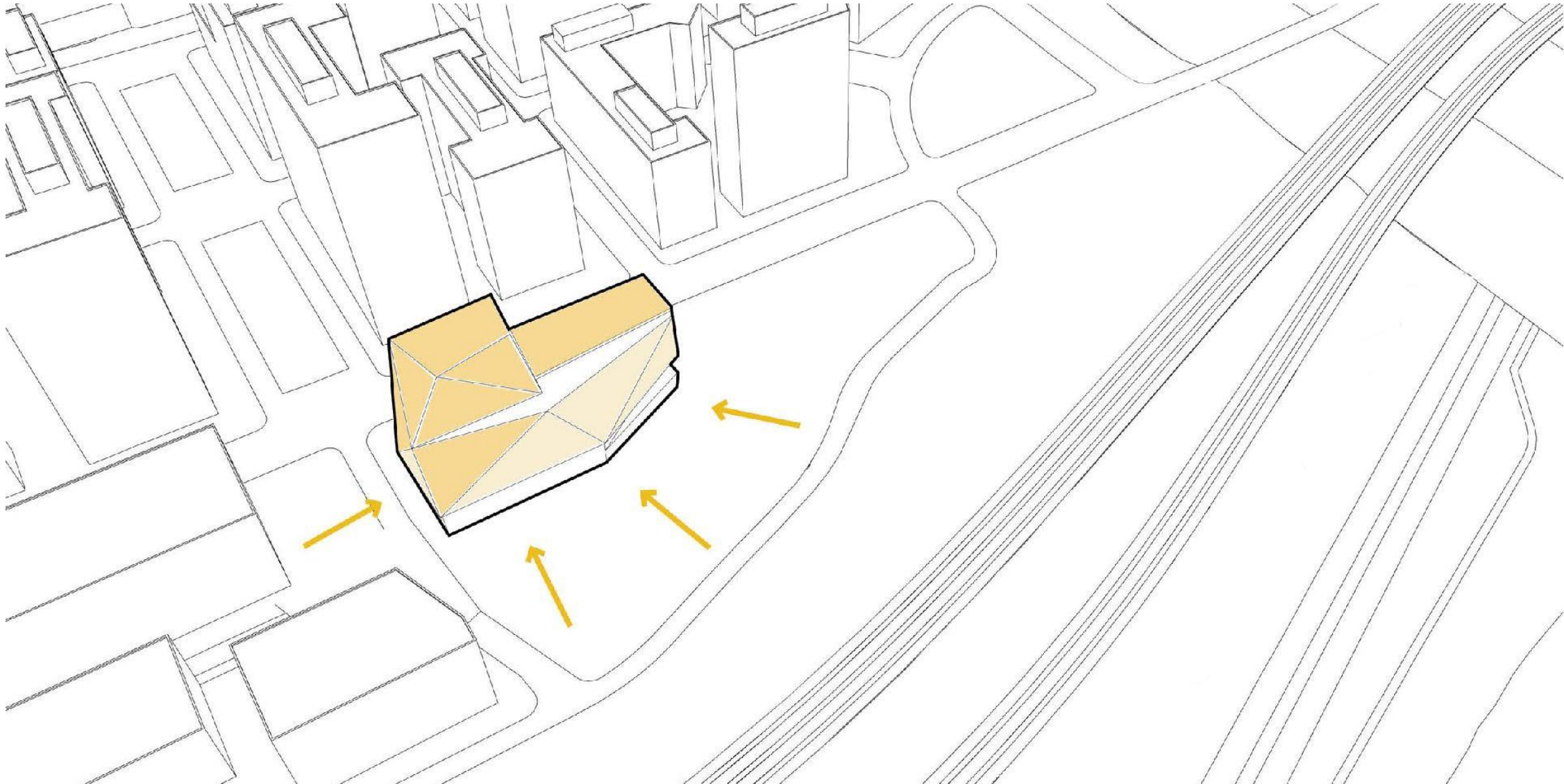




## SOLAR ANALYSIS

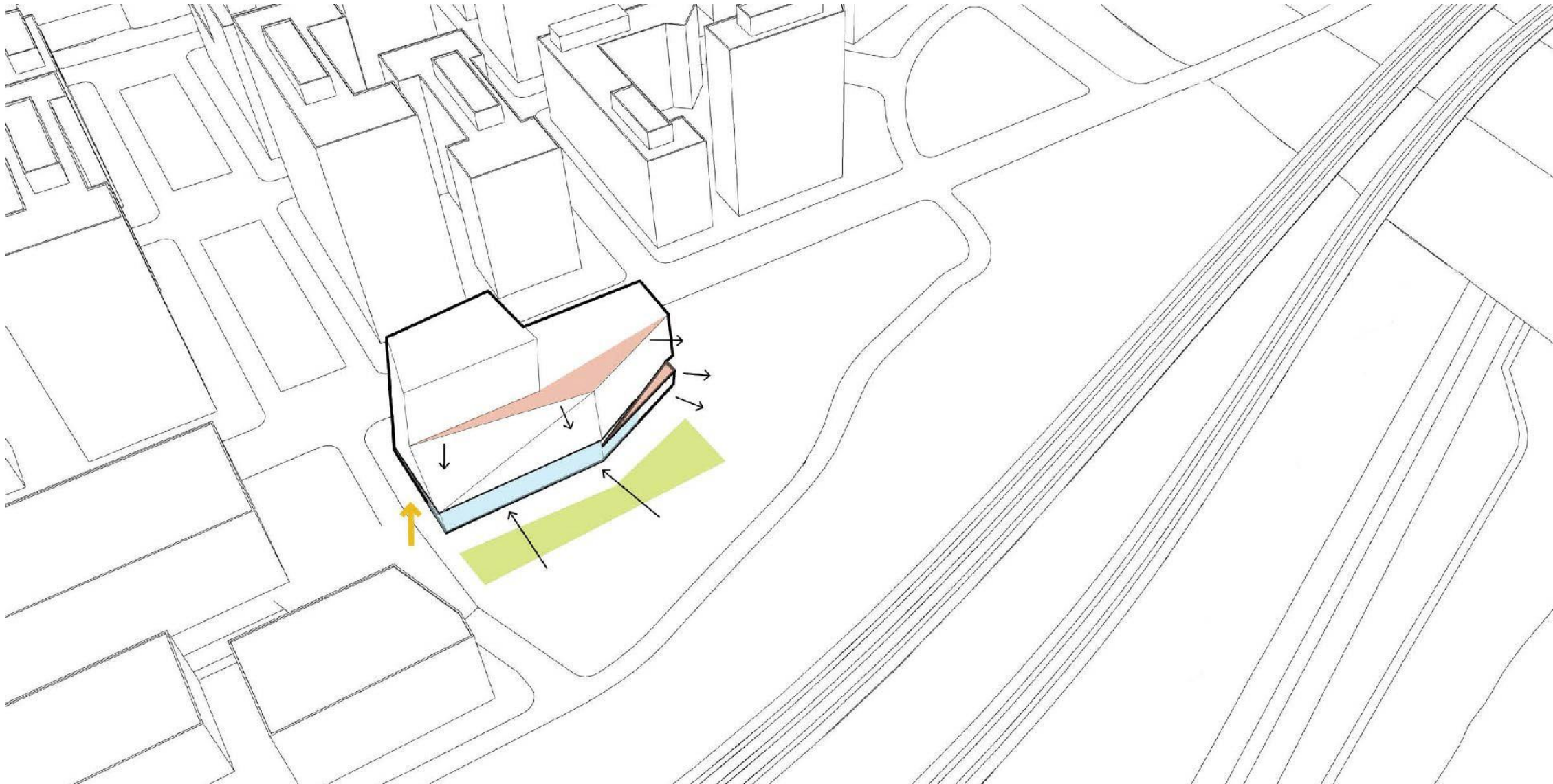


## OPTIMIZE SOLAR ENVELOPE

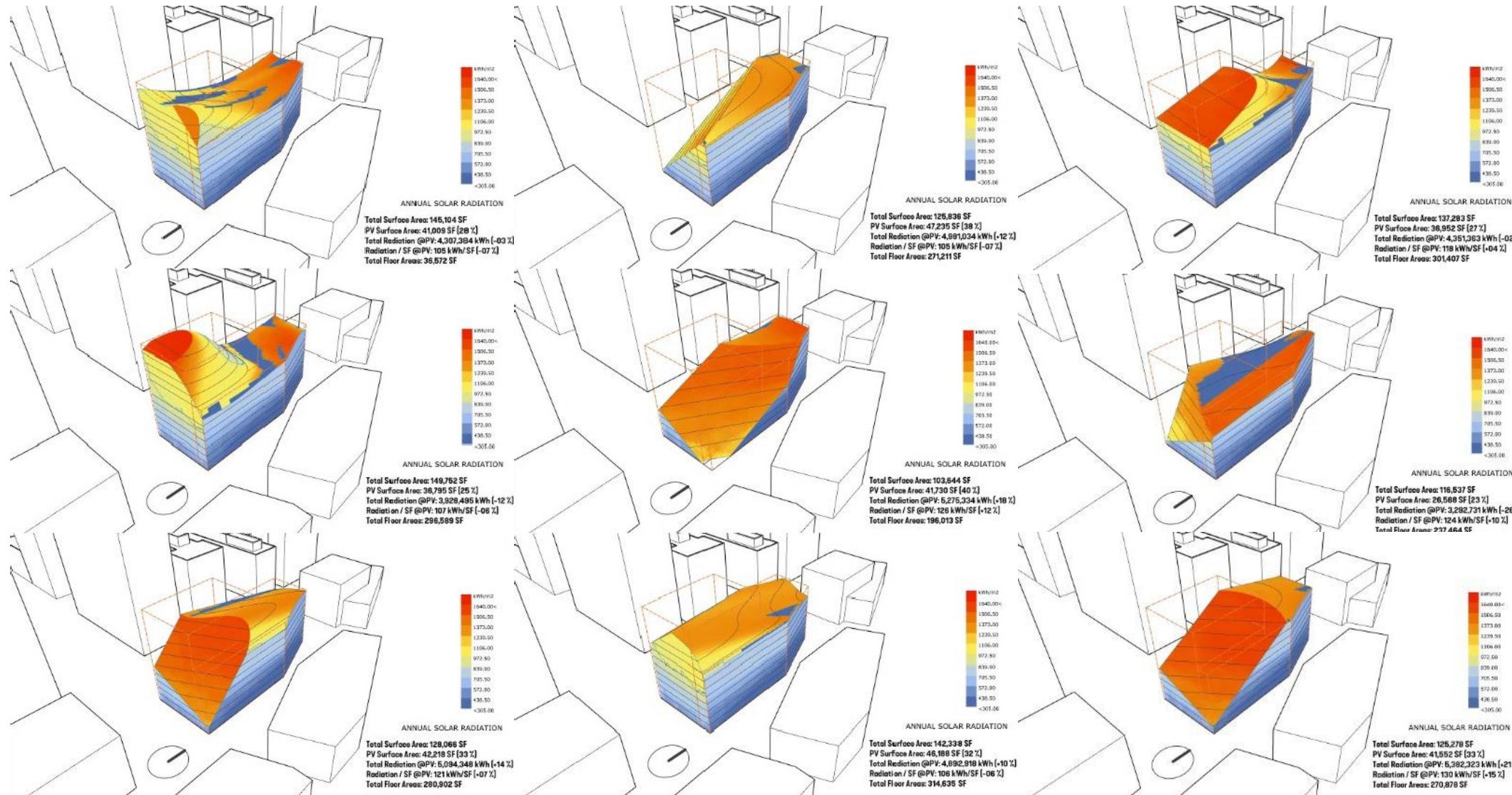




## LIFT & CARVE



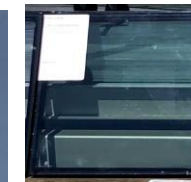
## FORM OPTIMIZATION FOR SOLAR ORIENTATION





## FAÇADE TUNING + BUILDING MATERIALS

<b>TERRAZZO TTA</b>	
TC1	TERRACOTTA FINS
<b>WOOD</b>	
WD1	INT LOBBY WOOD CEILING
<b>HOKIE STONE</b>	
HS1	EXTERIOR HOKIE STONE WALL
<b>HOKIE STONE TERRAZZO</b>	
HT1	INT LOBBY FRONT DESK
<b>GLASS</b>	
GL1	LOW-E VISION
GL1X	LOW-E VISION
GL2	LOW-E SPANDREL
GL3	ACOUSTIC LOW-E VISION
GL3X	ACOUSTIC LOW-E VISION
GL4	ACOUSTIC LOW-E SPANDREL
GL6X	ULTRA CLEAR VISION
GL10	LOW-E VISION SKYLIGHT
GL11	LOW-E SPANDREL SKYLIGHT
GL13	BIPV VISION
GL14	BIPV SPANDREL
GL17	COLORED LOGO VISION
GL18	SPANDREL AT DOOR
GL20	SPANDREL - TERRACOTTA
GL21	SPANDREL - WHITE
GL22X	HORIZONTAL PV SUNSHADES
GL23X	CANOPY GLASS
GL24X	GLASS RAILING
<b>METAL</b>	
MPC-1	METAL SOFFIT - WOOD
MPC-2	METAL SOFFIT - GREY
MT1	ALUM FIN
MT2	CW ALUM EXTRUSION
MT4	METAL PLATE WALL PANELS
MT5	INSULATED METAL PANELS
MT6	STAINLESS STEEL TRIM
MT7	STEEL TRELIS PAINT
MT8	EXTRUDED ALUM FASCIA TRIM
MT10	PERFORATED CORRUGATED METAL PANELS
MT11	PERFORATED CORRUGATED METAL PANELS
<b>ROOF PAVING</b>	
RP1	ROOF PAVER - DARK
RP2	ROOF PAVER - LIGHT



GL  
VNE 63  
Low Iron/Clear



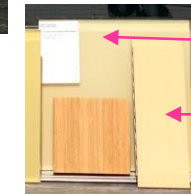
GL  
VNE 63 Spandrel #4  
Low Iron/Low Iron  
Low Iron/Clear



GL6  
VEX 85  
Low Iron/Low Iron  
Low Iron/Clear



HS



GL20  
TC

## BIORETENTION AREA PLANTING

**Blue Star**  
*Amsonia 'Blue Ice'*

**Clethra**  
*Clethra alnifolia 'Hummingbird'*

**New Jersey Tea**  
*Ceanothus americanus*

**Red-osier Dogwood**  
*Cornus sericea 'Artic'*

**Dwarf Yaupon Holly**  
*Ilex vomitoria 'Stokes Dwarf'*

**Dwarf Winterberry**  
*Ilex verticillata 'Red Sprite'*

**Blue Star**  
*Amsonia tabernaemontana*

**Northern Sea Oats**  
*Chasmanthium latifolium*

**Blue Mistflower**  
*Conoclinium coelestinum*

**Purple Love Grass**  
*Eragrostis spectabilis*

**Corkscrew Rush**  
*Juncus effusus f. spiralis*

**Feather Reed Grass**  
*Calamagrostis x acutiflora 'Karl Foerster'*

SOUTH PARKING LOT

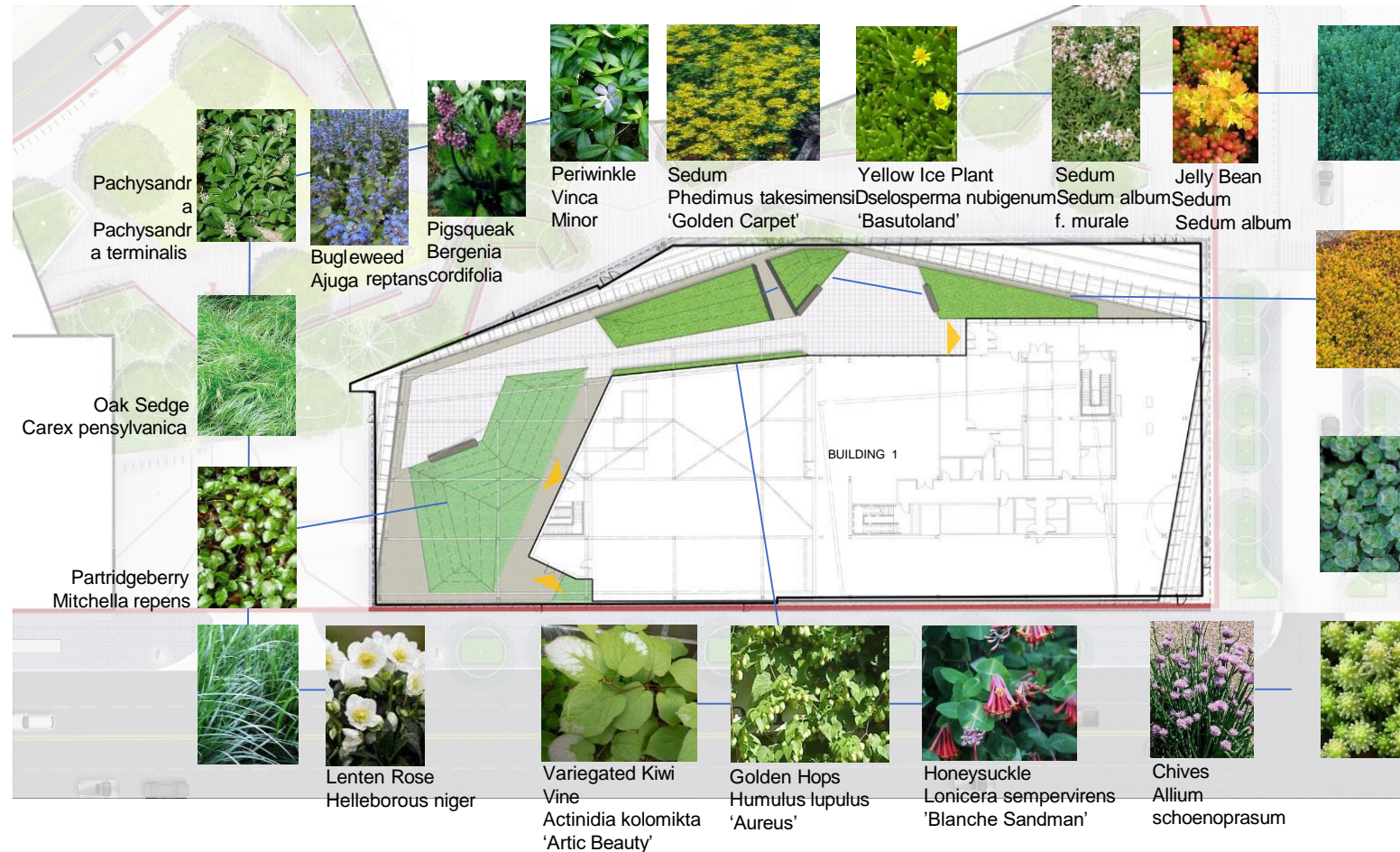
NORTH PARKING LOT

BUILDING 1

E REED AVENUE



## GREEN ROOF PLANTINGS



## DISTRICT ENERGY APPROACH + FUTURE PHASE SWEE AND GEOTHERMAL CAPACITY

### HPB

- ① DOAS w/parallel conditioning TBD (radiant, ACB, chilled box)

### PRIME THERMAL GENERATION

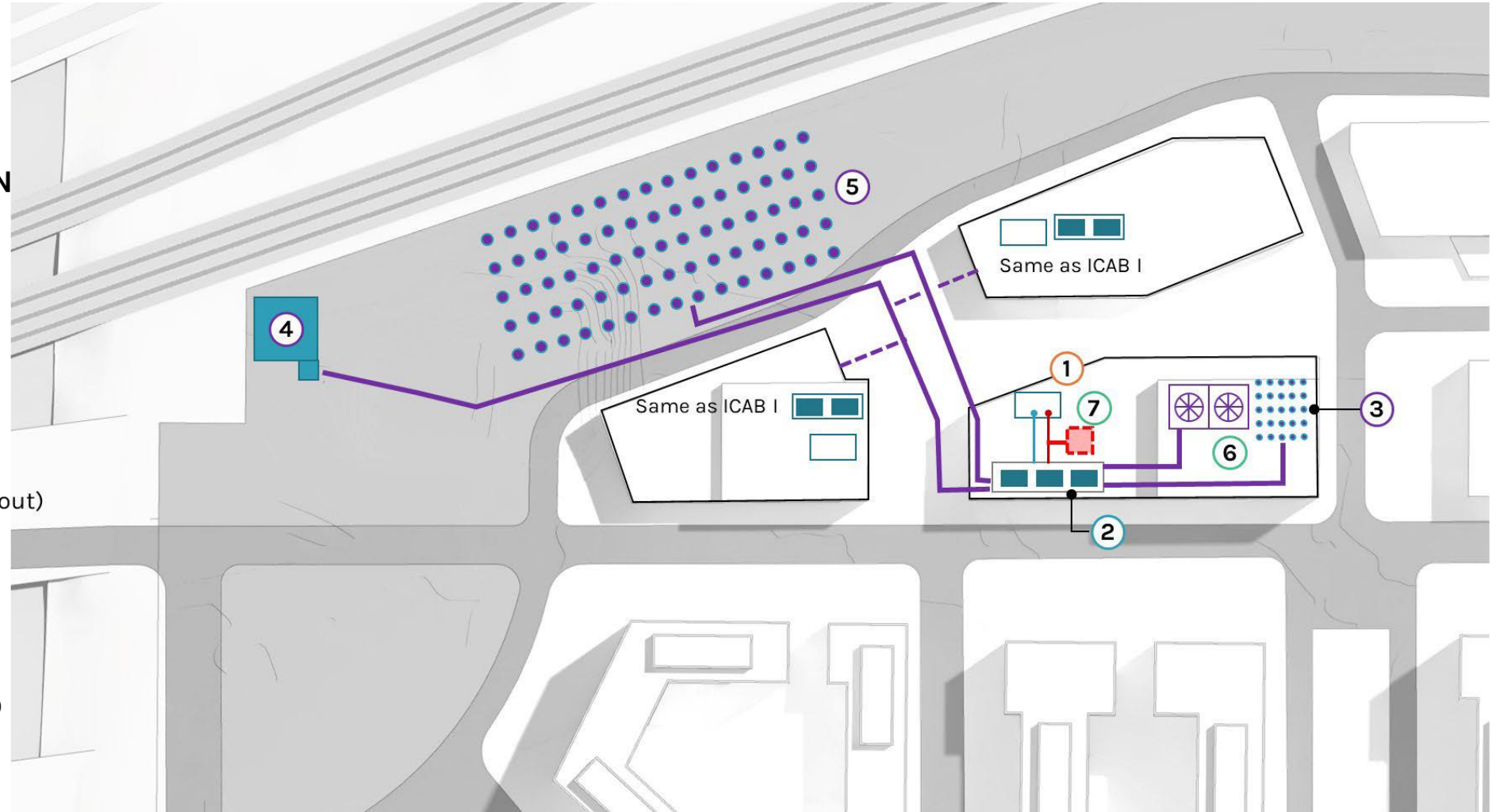
- ② Heat-recovery chillers

### MULTI-SOURCE ENERGY EXCHANGE

- ③ Deep foundation energy piles
- ④ Pump station with VT sewer waste energy exchange (SWEE)
- ⑤ Vertical borefield (70-100#; phase out)

### AUXILIARY HEATING, COOLING, HEAT REJECTION

- ⑥ CT, AC chiller, evaporative fluid cooler, dry cooler (phase out)
- ⑦ ASHP, solar thermal (phase out)







INNOVATION  
CAMPUS

VT





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  - Earth Week Overview
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  - CAC Goal 14: Innovative Financing Presentation
  - Innovation Campus Presentation
- **Subcommittees Overview**
- Recognitions
- Announcements and Open Discussion

# CASEC Subcommittees Overview

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- GHG Inventory **Goals 2 through 9**
  - Simona Fried (Convener), Sean McGinnis, Steve Durfee, Rob Lowe, Eli Meyer, Stephen Ruppert, Rachel Maizel
- Climate and Sustainability Education and Research (CSER) **Goal 10**
  - Jack Leff (Convener), Mary-Ann Ibeziako, John Randolph, Todd Schenk, Sean McGinnis, Jennifer Benning, Shannon Bell, Kevin Carlson, Carol Franco, Enrique Ruiz Geli, Bruce Hull, Chen-Ching Liu, Jennifer Russell, Durelle Scott, Tripp Shealy
- Climate Justice **Goal 11**
  - Jack Leff (Convener), Emily Satterwhite, Shannon Bell, Teresa Thornton, Gia Ha, Carol Franco, Sweta Baniya, Lydia Patton, Stephanie Bontell, Cara Dagget, Christine Labuski, Brandy Faulkner, Amber Wendler, Virginia Pannabecker, Katie Smith, Carl Zipper, Walker Wilkins, Marcy Schnitzer, Ron Meyers, Nathaniel Humphreys
- Sustainable Campus Culture, Engagement, and Sustainable Choices **Goals 8, 12, and 13**
  - Yugasha Bakshi (Convener), Emily Williams, Todd Schenk, Simona Fried, Gillian Eastwood, Jack Leff, Kristina Cook

# CASEC Subcommittees Overview

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- VT-Blacksburg Sustainability Collaboration **Goals 11 and 12**
  - John Randolph (Convener), Wendy Halsey, Emily Vollmer, Carol Davis, Ann Raridon, Jennifer Benning
- Carbon Offset and Management **Goals 1 and 15**
  - Sean McGinnis (Convener), Mary-Ann Ibeziako, Billy Dudding, Rob Lowe, Eli Meyer, Kristina Cook
- Carbon Neutral Commuting and Carbon-Neutral Fleet **Goal 9**
  - Nick Quint (Convener), Mike Dunn, Durelle Scott, Erik Olsen, Jack Leff
- Zero Waste **Goal 7**
  - Teresa Sweeney (Convener), Nathan King, Jack Leff, Emily Williams, Reed Nagel, Emily Vollmer, looking to add members from CALS and Athletics
- **\*\*NEW!\*\*** Building Energy Efficiency **Goals 4 and 5**
  - **Steve Durfee and Matt Stolte (Co-Conveners) Will include an IT working group**



# CASEC Subcommittees Overview

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- Subcommittees meet at least once per semester to address topics in relation to the VT 2020 Climate Action Commitment and the CASE Committee charge.
- Conveners give an update report on the work of their subcommittees once per semester
- Conveners should send their reports to Kristina Cook during the week of May 22<sup>nd</sup>
- Reports will be distributed to the committee mailing list the week of May 29<sup>th</sup>.



## Recognitions

- Paul Ely
- Dana Hawley
- Gia Ha
- Katie Smith
- Madison Betts
- Rachel Maizel
- Lilian Prins
- Scott Nachlis
- Claudia Budzyn
- Princess Merritt



Thank you for your service!



A scenic view of a lake surrounded by lush green trees. The foreground is filled with large, vibrant green leaves, some in sharp focus and others blurred. In the background, a calm lake reflects the sky, with more trees lining the far shore. A white rectangular box is centered in the image, containing the word "Announcements" in a blue, sans-serif font.

# Announcements



## **Green Grads Pledges**

- **Sign up deadline is Wednesday, May 10th**
- **Pledge information is being advertised on social media. Please spread the word!**



Graduating soon?

Pledge to support a  
sustainable world  
and receive a  
**FREE green cord**

**GREEN GRADS**

Virginia Tech Office of Sustainability



[tinyurl.com/greengrads](https://tinyurl.com/greengrads)



greengradsvt



sustainability@vt.edu

**Seeking  
Volunteers  
for Y-Toss!**

**May 5<sup>th</sup> through  
May 10<sup>th</sup>**





the **Y-TOSS**  
**DONATE**  
**HERE**

## Y-Toss

- Coordinated by the YMCA
- Collects gently used items during move-out for re-use
- We need help staffing dropoff locations near residence halls during move-out
- Coordinate with your supervisor to use volunteer hours
- Please contact Vivian Peregrino ([vivianp25@vt.edu](mailto:vivianp25@vt.edu)) to sign up



# Open Discussion



**Next Meeting:**      **April 24, 2023**  
**2:00 p.m. via Zoom**

