

Designing the Catherine and Isiah Leggett Math and Science Building: Site Design

Takoma Park / Silver Spring Campus

June 23, 2020

Welcome Remarks

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Montgomery College

Project Website

montgomerycollege.edu/tpss-design

Project Hotline 800-879-9879 [Sign-Up for Email Updates](#)



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The Catherine and Isiah Leggett Math and Science Building

Learn about the modernization of the math and science classrooms and laboratories on the Takoma Park/Silver Spring Campus.

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MC's Green Practices

SITE

- Develop sustainable sites
- Natural storm water management
- Reduce heat island effect
- Encourage dark skies & reduce light pollution
- Forest conservation & native plants
- Encourage mass transit

RESOURCE CONSERVATION

- Use renewable energy sources
- Conserve water
- Utilize high performance buildings
- Manage utilities demand & smart grid technology



The College offers both **credit** and **non-credit** environmental and sustainability programs

SUSTAINABLE OPERATIONS & MANAGEMENT

- Strategic master planning
- Benchmarking
- Green cleaning
- Implement high environmental safety standards
- Reduce reuse recycle
- Utilize sophisticated building automation systems
- Utilize efficient equipment to reduce plug loads
- Reduce paper consumption
- Sustainable procurement

EDUCATION AND OUTREACH

- Educate the next generation
- Interagency coordination
- Promote occupant awareness



Pavilion 3, Montgomery College
Takoma Park/Silver Spring Campus
Winner of Montgomery County
Planning Department 2017
Buildings and Sites Jury Citations

P3 rain garden sustainability feature



Takoma Park-Silver Spring Campus is a leader
in green cleaning



GS-42 Certified (Green Seal Standard for Commercial and
Institutional Cleaning Services)

Meeting Agenda

1. Recap Overall Design
2. Sustainable Site Design
 - Restore Habitat
 - Improve Biodiversity
 - Storm Water Management
3. Q&A

Design

Design Considerations (Recap)

Site / Forms / Organizational Concepts



Design Directives

1. Keep the current setback of Falcon Hall along Takoma Avenue
2. Protect park-like green space along Takoma Avenue
3. Minimize windows along Takoma Avenue
4. Ensure height is no more than two stories along Takoma Avenue
5. Take advantage of topography to minimize perceived height
6. Locate height and rooftop units away from Takoma Avenue
7. Maximize building width to lower height
8. Hire an architect experienced with designing facilities in historic and residential neighborhoods

Design – Learning Environments

1. Active Learning



2. Hands On Experience

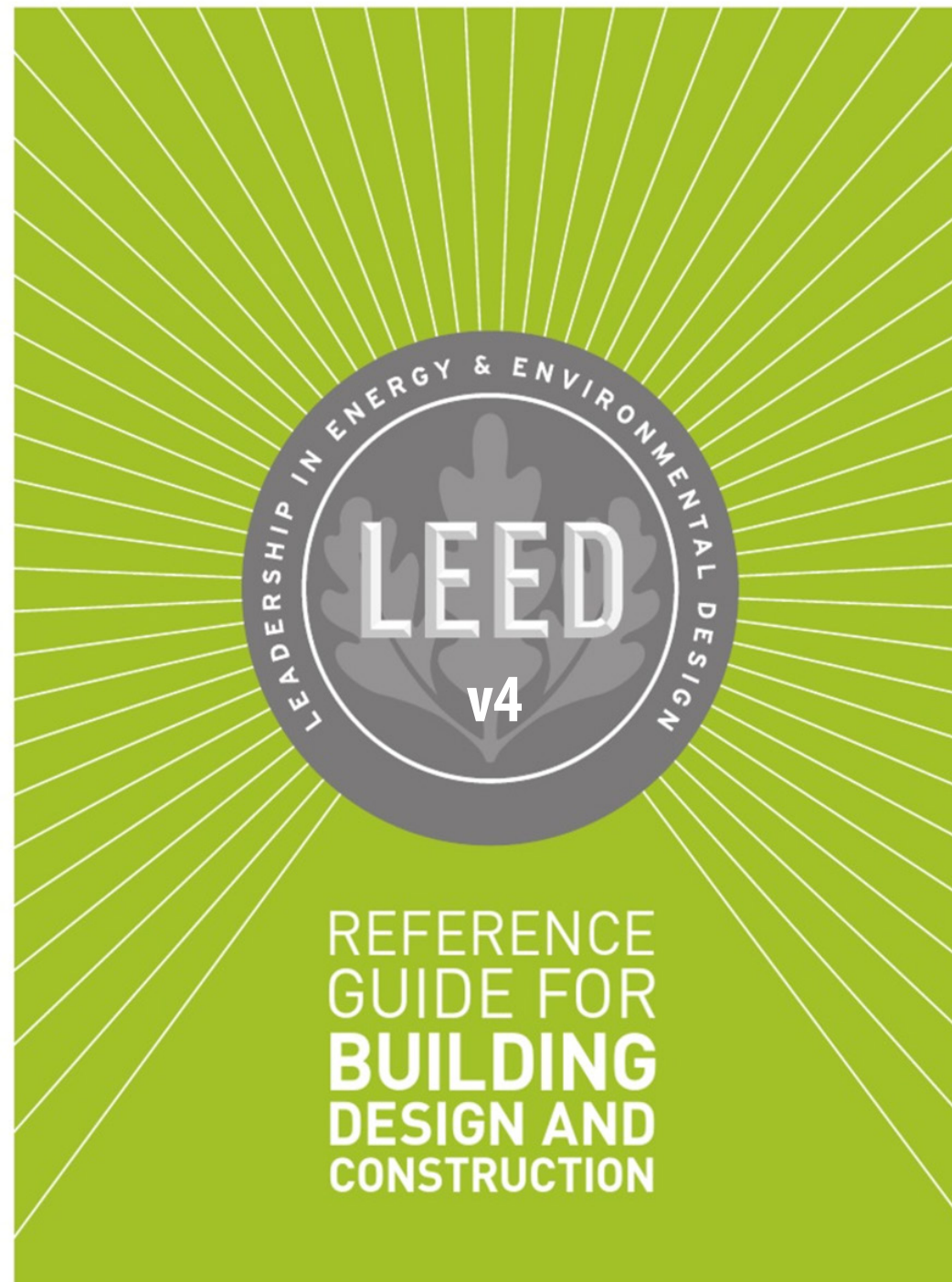


3. Science and Math Communities



“Teaching methodologies and pedagogy are undergoing transformation, **no longer are four walls and a chalkboard sufficient. . .**”

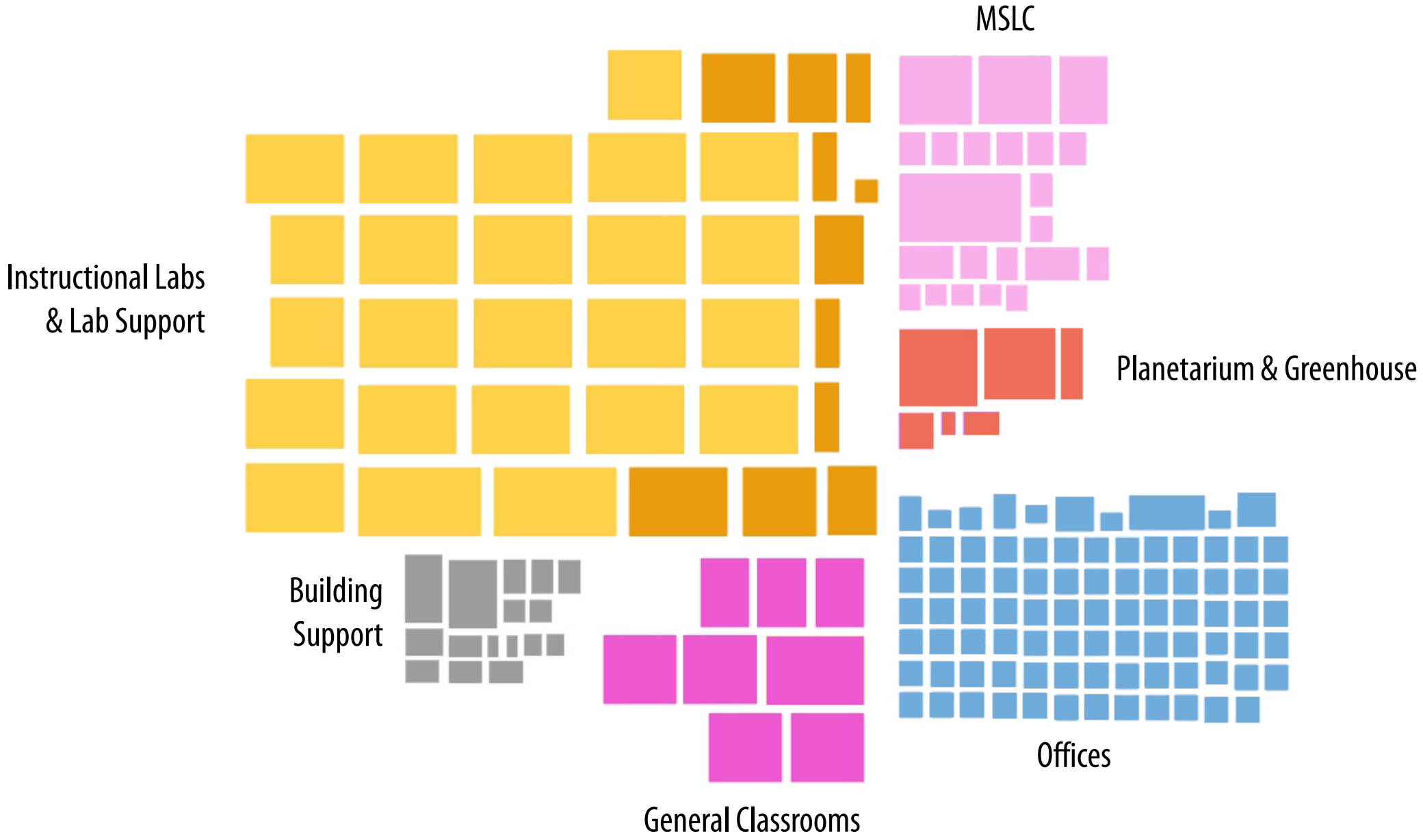
Design – Sustainability



Goals:

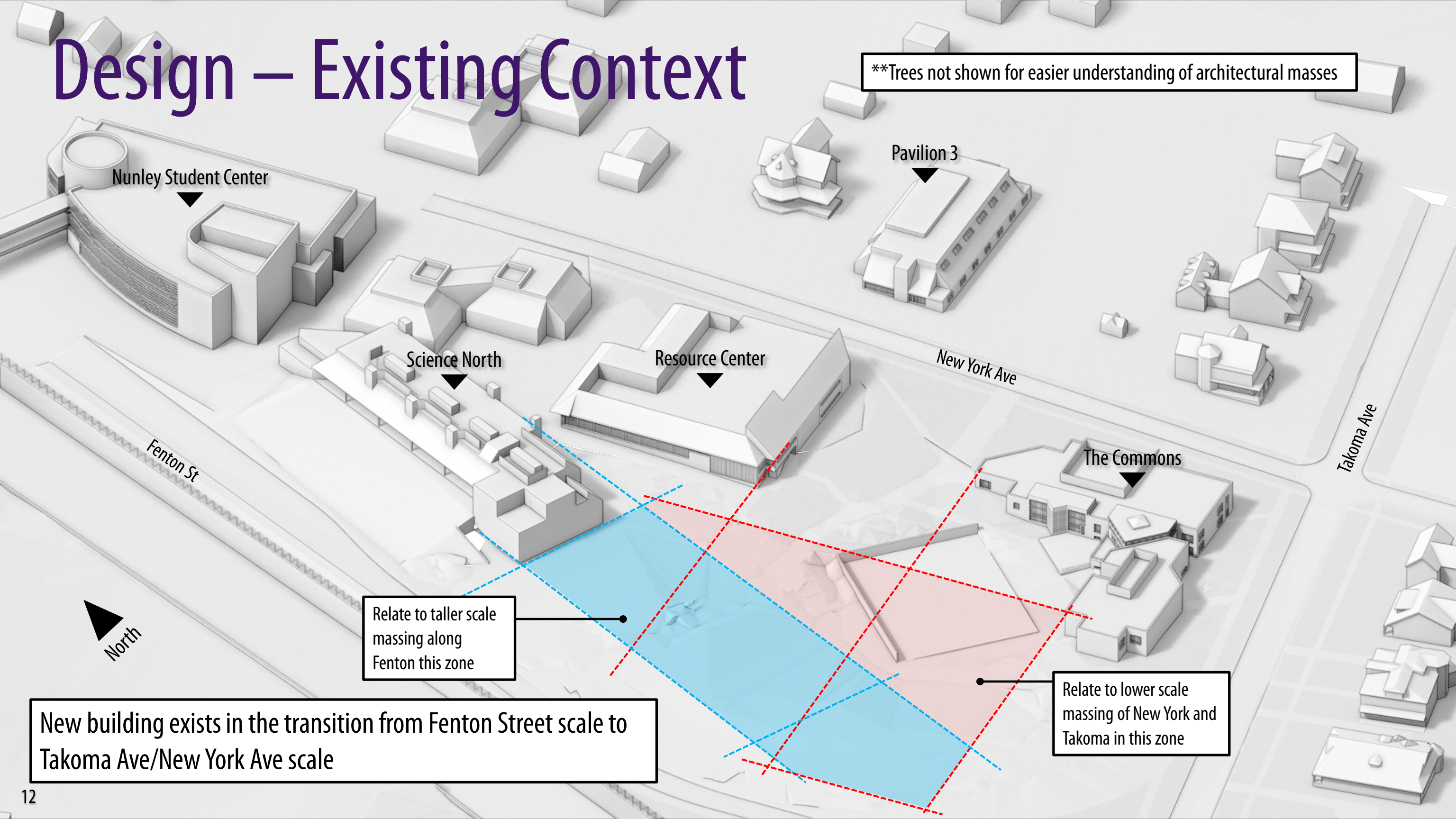
- Sustainable Site Design
 - Restore Habitat
 - Improve Biodiversity
 - Storm Water Management
- Water Use Reduction
- Energy Conservation
- Optimize Natural Light
- Healthy Environments
- Renewable Energy Production

Design – Program



Design – Existing Context

**Trees not shown for easier understanding of architectural masses



Nunley Student Center

Pavilion 3

Science North

Resource Center

New York Ave

Takoma Ave

The Commons

Fenton St



Relate to taller scale massing along Fenton this zone

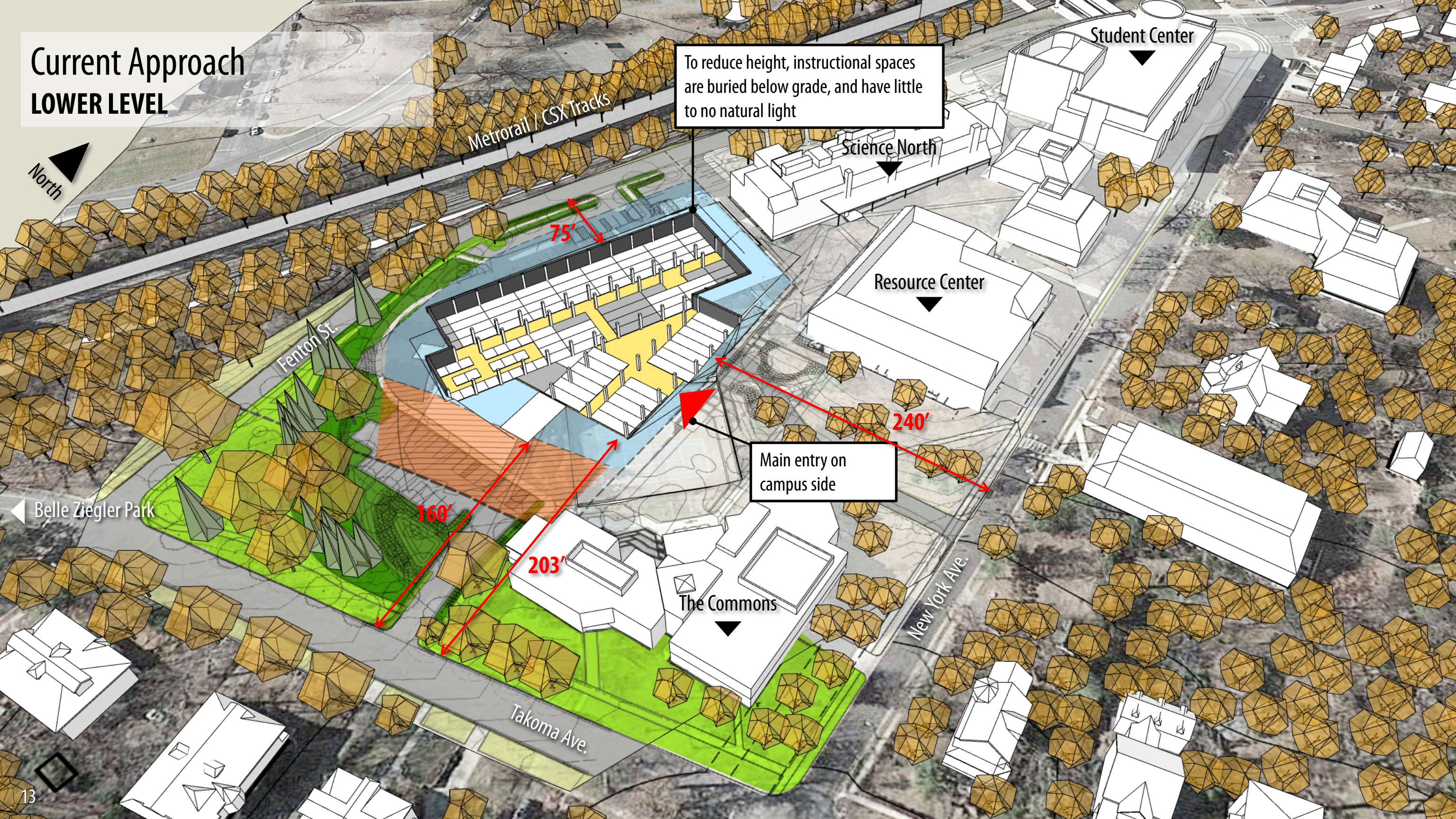
Relate to lower scale massing of New York and Takoma in this zone

New building exists in the transition from Fenton Street scale to Takoma Ave/New York Ave scale

Current Approach LOWER LEVEL



To reduce height, instructional spaces are buried below grade, and have little to no natural light



Student Center

Science North

Resource Center

The Commons

Fenton St.

Takoma Ave.

New York Ave.

Belle Ziegler Park

75'

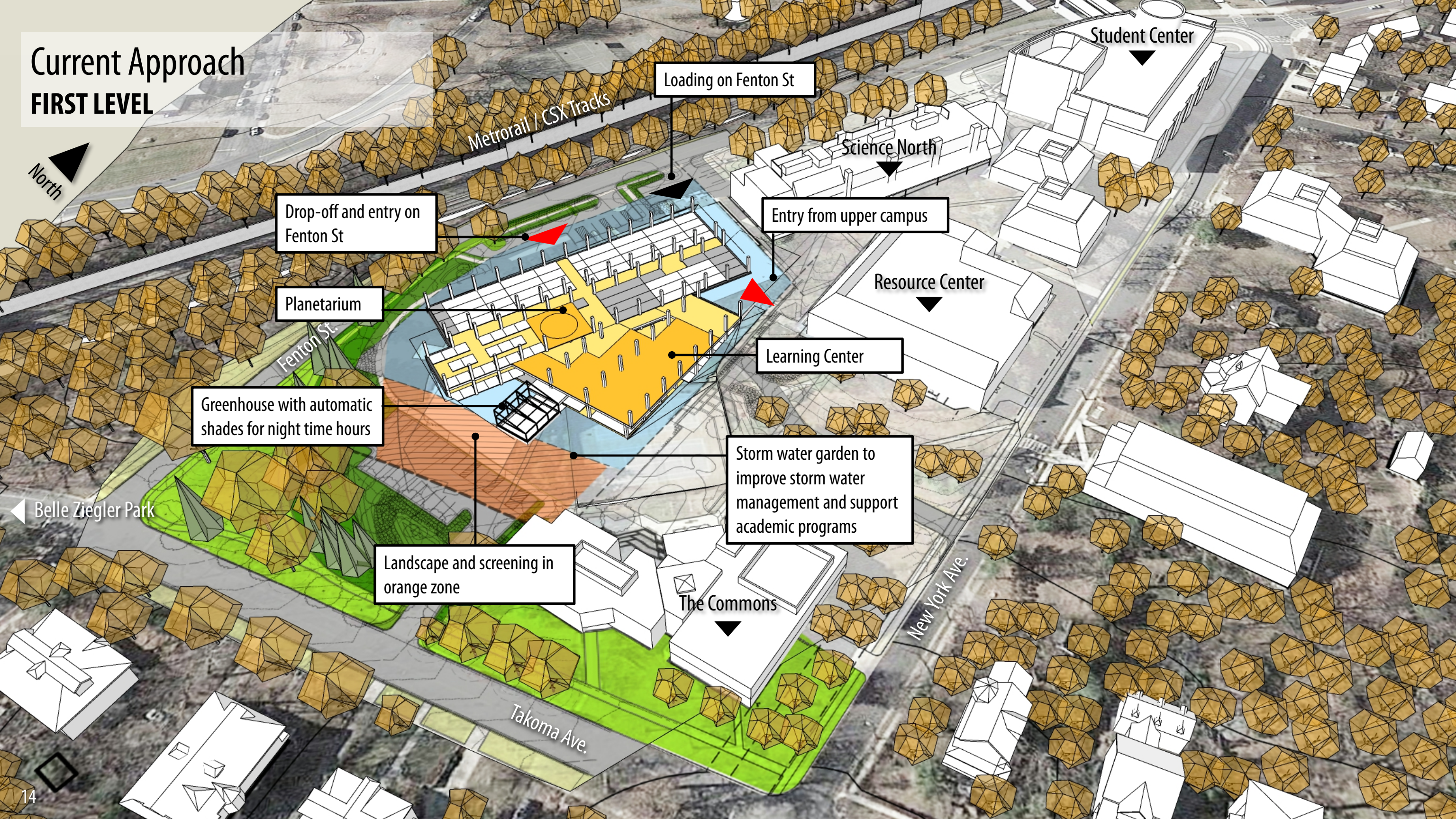
160'

203'

240'

Main entry on campus side

Current Approach FIRST LEVEL



Belle Ziegler Park

Drop-off and entry on Fenton St

Planetarium

Greenhouse with automatic shades for night time hours

Landscape and screening in orange zone

Loading on Fenton St

Entry from upper campus

Learning Center

Storm water garden to improve storm water management and support academic programs

Student Center

Science North

Resource Center

The Commons

MetroRail / CSX Tracks

Fenton St.

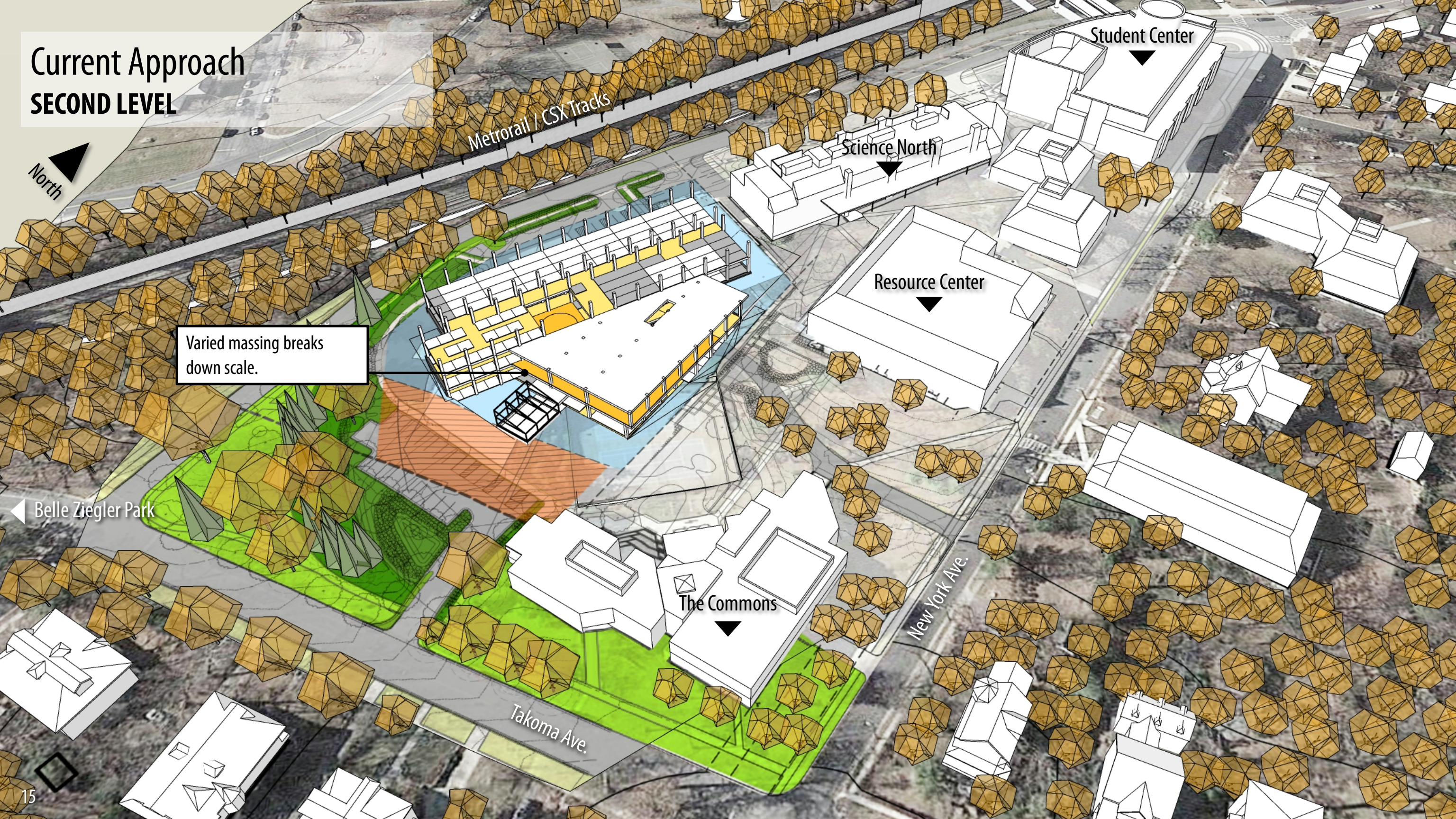
New York Ave.

Takoma Ave.

Current Approach SECOND LEVEL



Varied massing breaks down scale.



Student Center

Science North

Resource Center

The Commons

Metrorail / CSX Tracks

New York Ave.

Takoma Ave.

Belle Ziegler Park

Current Approach

MECHANICAL LEVEL



Student Center

Science North

Resource Center

The Commons

Fenton St.

New York Ave.

Takoma Ave.

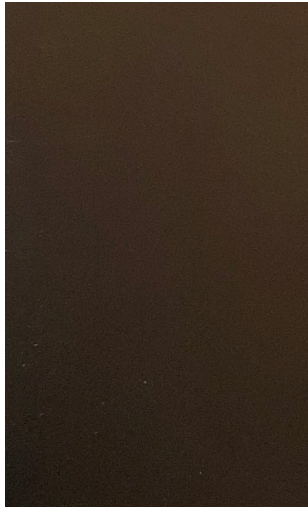
Belle Ziegler Park

Materials

Buff tone brick with random variation



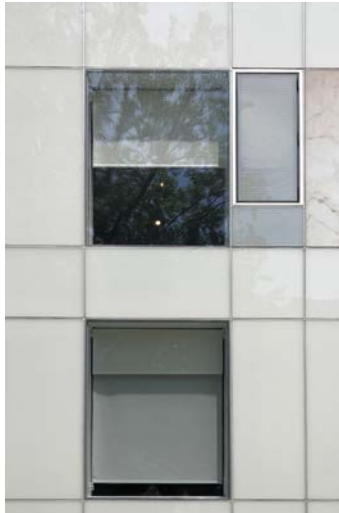
Metal Accent



Native Plants and tree buffer



Glazing (Solid and Transparent)



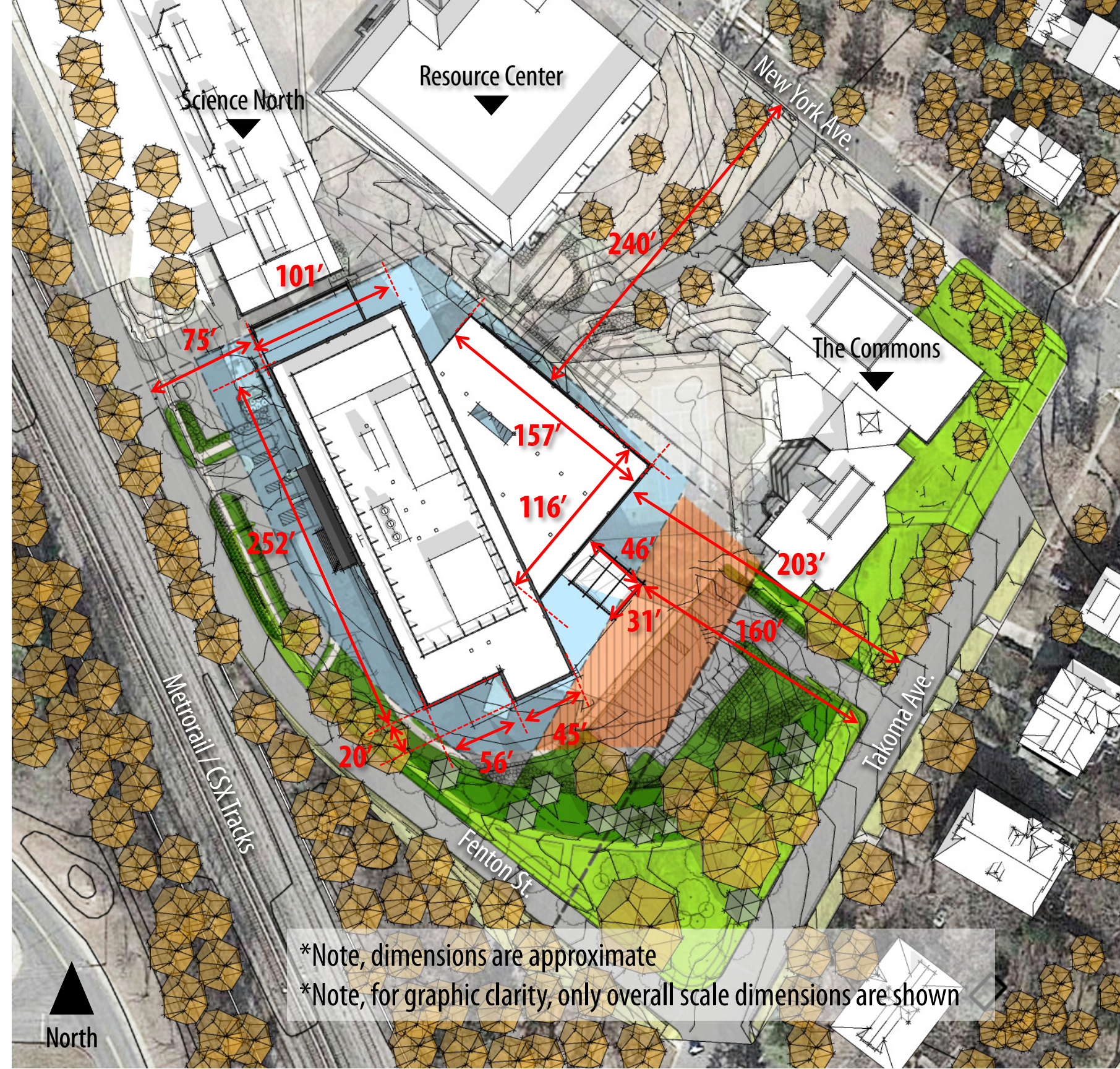
Current Approach

Exceeds Design Directives

- **160' setback** along Takoma Avenue exceeds commitment of 110'
- park-like green space along Takoma Avenue is maintained
- height along Takoma Avenue is limited to 2 stories
- use of lower level space (below-grade on Fenton) takes advantage of topography to minimize perceived height along Takoma

Addresses Community Considerations

- consolidated labs on Fenton St
- learning commons and student activity located on internal campus quad
- reduced building size (height and footprint)
- reduced building massing as perceived from neighborhood







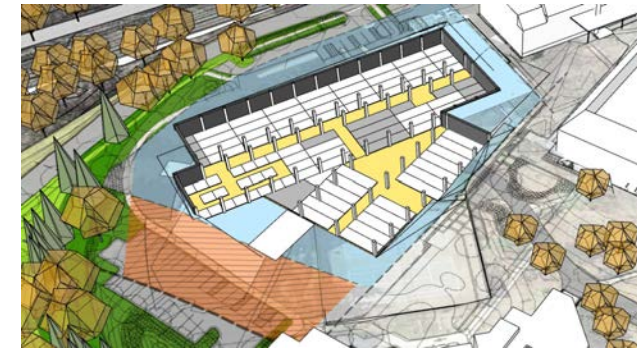
Sustainable Site Design



North

EXISTING CONDITIONS

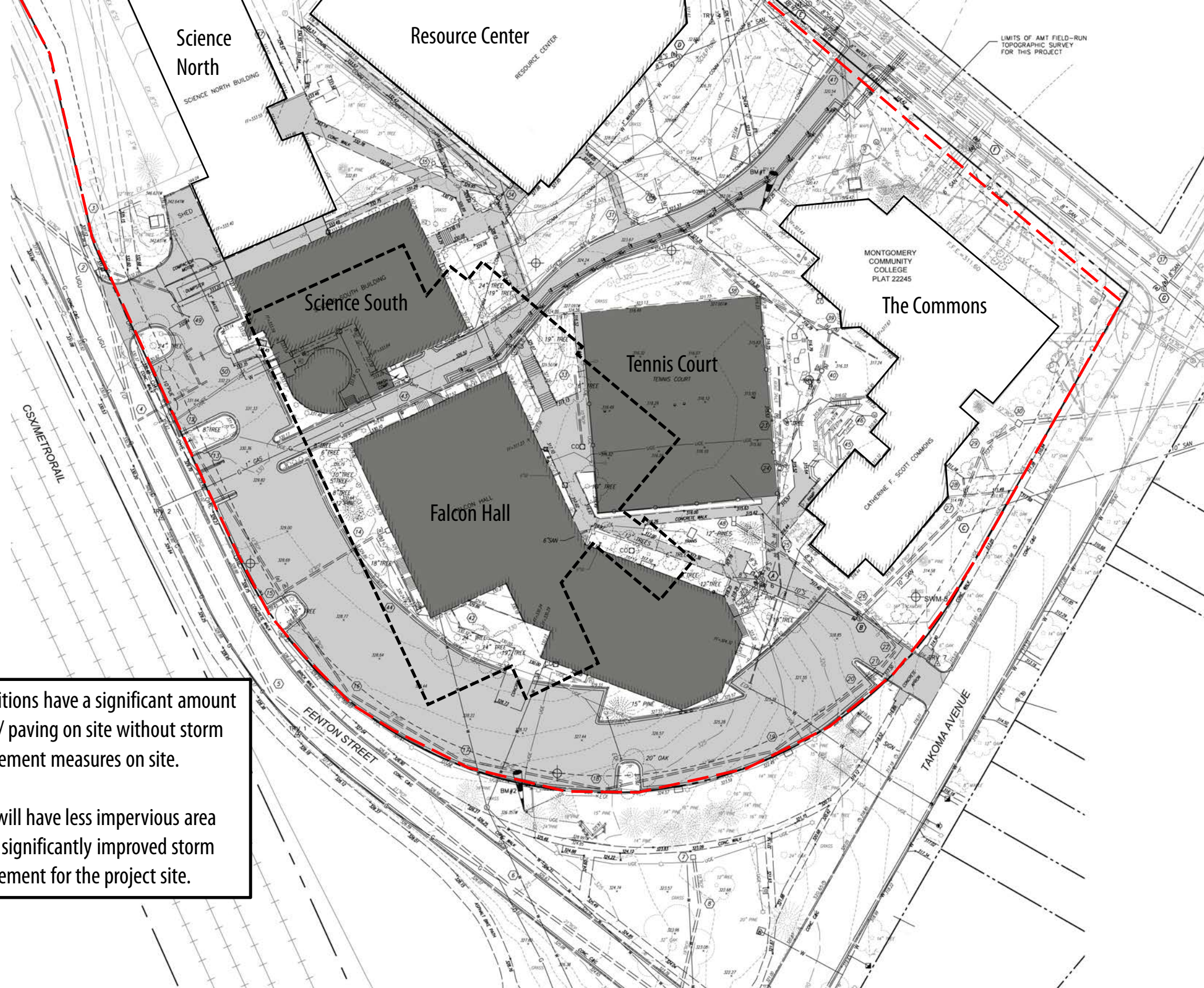
-  College Property Boundary
-  Major site structure to be removed for new building to be constructed
-  Outline of Leggett Building.
-  Existing paving / hardscape to be removed












To achieve the design commitments promised, a significant amount of site and earthwork must occur to accomplish the Leggett Building project. This work is generally limited to the work that is required to complete the project.

Existing conditions have a significant amount of hardscape / paving on site without storm water management measures on site.

Final project will have less impervious area and will have significantly improved storm water management for the project site.



SITE PREPARATION – TREE REMOVAL & PROTECTION

-  College Property Boundary
-  Tree Protection
-  Red outline is major site structure to be demolished
-  Gray hatch is existing paving to be demolished
-  Tree to remain (81)
-  Tree in below average / poor condition to be removed (23)
-  Tree in below average / poor condition to remain (3)
-  Trees already removed by City of Takoma Park (total: 3)
-  Tree larger than 7 5/8" diameter to be removed due to proximity to demolished structure (total: 30)
-  Tree smaller than 7 5/8" diameter to be removed due to proximity to demolished structure (total: 5)
-  Tree larger than 7 5/8" diameter to be removed for utility / site work (total: 27)
-  Tree smaller than 7 5/8" diameter to be removed for utility / site work (total: 8)



All trees to be removed are on College property.

Periodic inspections will be made by the city of Takoma Park.

After construction is completed, final inspection will be made by the city of Takoma Park.







Protect park-like green space along Takoma Ave



RESTORE HABITAT

176 total trees shown on this site plan
 95 new trees planted
 81 trees to remain
 1537 new shrubs
 8202 new grasses

Site Features:
 Native Plants (appropriate for regional climate)
 No irrigation (water conservation)
 Increased diversity in planting and pollinators
 Pest and disease resistant
 Plants in rain gardens are tolerant of water


-  Symbol represents new deciduous tree
-  Symbol represents new evergreen tree
-  Symbol represents new ornamental tree
-  Symbol represents new shrubs / tall grasses
-  Symbol represents existing deciduous tree to remain
-  Symbol represents existing evergreen tree to remain




STORM WATER MANAGEMENT

- A total of 7 new storm water facilities (rain gardens and bio-swales) will be added as part of the Leggett Building project, significantly improving the stormwater management on the Leggett Building site / project boundary.
- Less impervious area over existing
- Plantings slow surface run-off and protect against erosion.
- No pool water will be emptied into storm system as the pool is demolished.



 Dashed line represents rain gardens at base of building (ESD)

 Dashed line represents bio-swales to help control storm water (ESD)



Site High Zone

Storm water flows towards the low points of the site and are captured by the various storm water facilities. The flow of storm water is ponded at these facilities and filtered naturally by the soils. The flow is slowed down prior to discharging into the primary storm pipe on site.

Site Low Zone

*ESD Required: 2673 Cubic Feet
ESD Provided: 5946 Cubic Feet

*ESD (Environmental Site Design) per Maryland Department of the Environment. ESD's are the storm water facilities on site (rain gardens and bio-swales).

IMPROVE BIODIVERSITY

- 95 total new trees
- 23 different types of trees are utilized to provide diversity throughout the site
- Pest and Disease resistant cultivars (cultivated variety with desirable characteristics) selected
- Increased diversity will help protect against disease should disease occur despite precautions
- 11% maximum utilized of any single tree type.
- emerald ash borer or dogwood borers should not be a big concern for any of the selections.
- No ash trees selected
- Only 3 dogwoods which are the more resistant 'Kousa' variety



Bowhall Maple



Red Sunset Maple



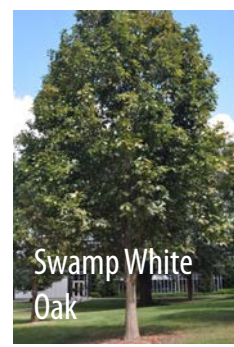
Sugar Maple



American Hornbeam



Willow Oak



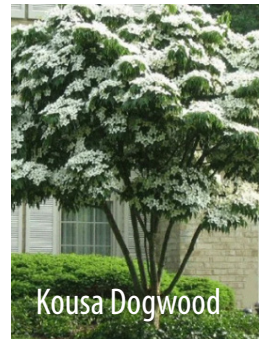
Swamp White Oak



White Fringetree



Flowering Magnolia



Kousa Dogwood



Eastern White Pine



Shadowblow Serviceberry



Eastern Redbud



Paw-paw



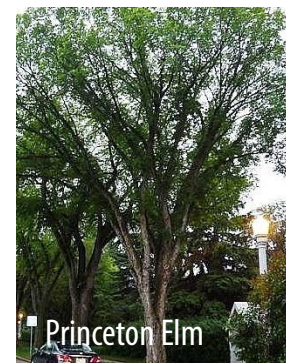
Dura Heat River Birch



American Yellowwood



Red Oak



Princeton Elm



American Holly



American Beech



Emerald City Tulip Tree



Black Gum Tree



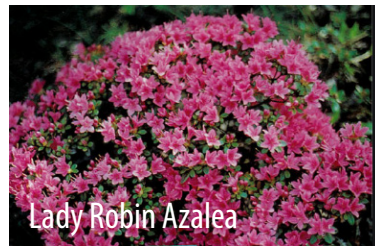
Exclamation Planetree



Pin Oak

IMPROVE BIODIVERSITY

- 1537 new shrubs
- 8202 new grasses
- 12 shrub types
- 20 grass types
- Evergreen shrubs are used against the building foundations as hedges to soften the base of the building and to provide a backdrop for other plantings.
- The deciduous shrubs provide a variety of fall colors, flower types, and habits.
- Low, mounding shrubs are sited on slopes to spread and provide cover and erosion control.
- Larger, more upright shrubs are located closer to the building or as a specimen group in the landscape.
- In addition to their seasonal interest, shrub species selected have few, if any disease or pest concerns and are considered low maintenance.
- Most plants are Mid-Atlantic native, species selected are a wide variety of textures and colors and serve as great sources of pollination for native bees, butterflies, and insects.



Lady Robin Azalea



Little Devil Ninebark



Pennsylvania Sedge



Switchgrass



Lenten Rose



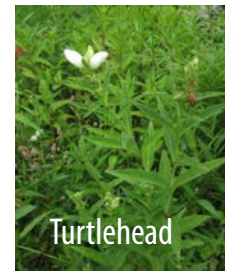
New England Aster



Sweetspire



Dwarf Fragrant Sumac



Turtlehead



Hyperion Daylily



Christmas Fern



Tufted Hairgrass



Inkberry



Arrowwood Viburnum



Blue Lobelia



Ostrich Fern



Zigzag Goldenrod



Butterfly weed



Dwarf Redtwig Dogwood



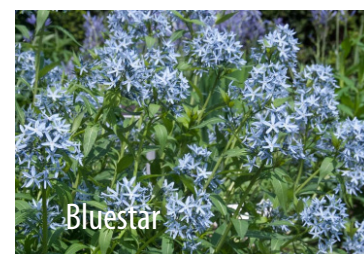
Texas Sedge



St John's Wort



Beardtongue



Bluestar



Purple Coneflower



Redtwig Dogwood



Blue Muffin Viburnum



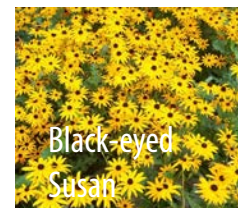
Cherry Laurel



Blue Flag Iris



Joe Pye Weed



Black-eyed Susan



Prairie Dropseed



Shrubby St John's Wort



SUSTAINABLE SITE DESIGN

Restore Habitat

- 95 new trees planted
- 81 trees to remain
- 176 total trees shown on this site plan
- 1537 new shrubs
- 8202 new grasses
- Consolidated massing and hardscape allows more room for plantings to grow.
- Native plants (appropriate for regional climate)
- No irrigation (water conservation)
- Park like setting along Takoma Ave

Improve Biodiversity

- 23 tree types
- 12 shrub types
- 20 grass types
- Increased diversity helps protect against disease and pests
- Increased seasonal interest and colors
- Pollinators for bee's butterflies and insects

Storm Water Management

- 7 new storm water management facilities (bio-swales, and rain gardens)
- Less impervious area over existing
- Plantings slow surface run-off and protect against erosion.





Existing
VIEW FROM TAKOMA & FENTON

Existing trees are not transparent as they are considered part of the materials palette.

Fenton St.

Takoma Ave

Existing
VIEW FROM TAKOMA & FENTON



Existing & new trees are not transparent as they are considered part of the materials palette.

Fenton St.

Takoma Ave

Current Approach (Young New Trees)
VIEW FROM TAKOMA & FENTON



Existing & new trees are not transparent as they are considered part of the materials palette.

Fenton St.

Takoma Ave

Current Approach (Mature New Trees)
VIEW FROM TAKOMA & FENTON





Existing
VIEW FROM TAKOMA ENTRY

Existing trees are not transparent as they are considered part of the materials palette.



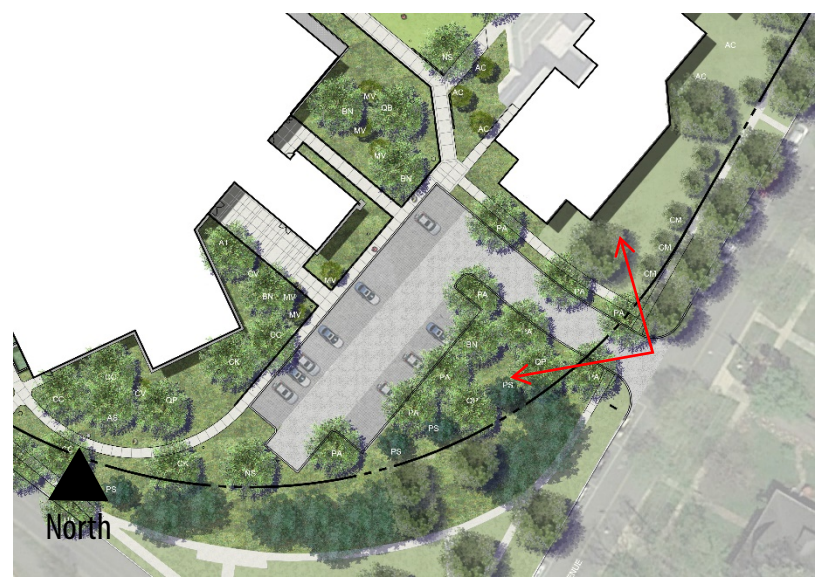
Existing
VIEW FROM TAKOMA ENTRY



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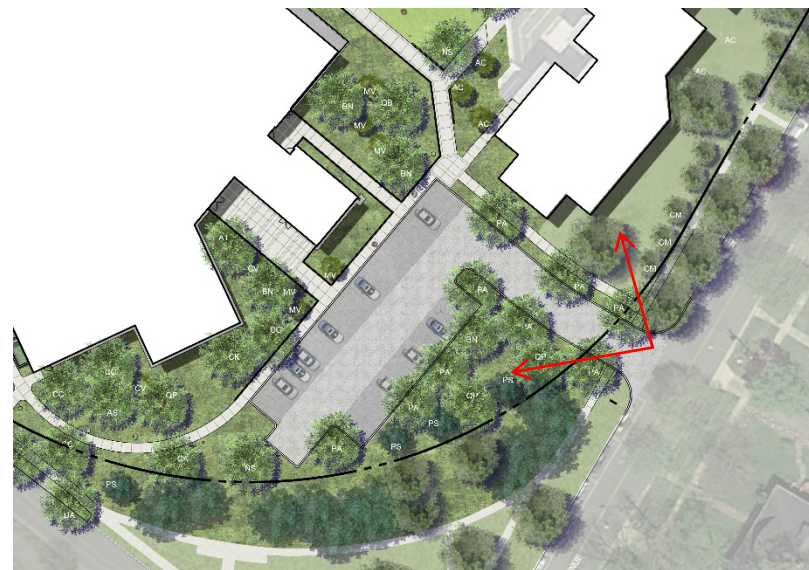
Current Approach (Young New Trees)
VIEW FROM TAKOMA ENTRY



Existing & new trees are not transparent as they are part of the materials palette.



Current Approach (Mature New Trees)
VIEW FROM TAKOMA ENTRY





Existing
VIEW FROM NEW YORK AVE

Existing trees are not transparent as they are considered part of the materials palette.



Service road

Existing
VIEW FROM NEW YORK AVE

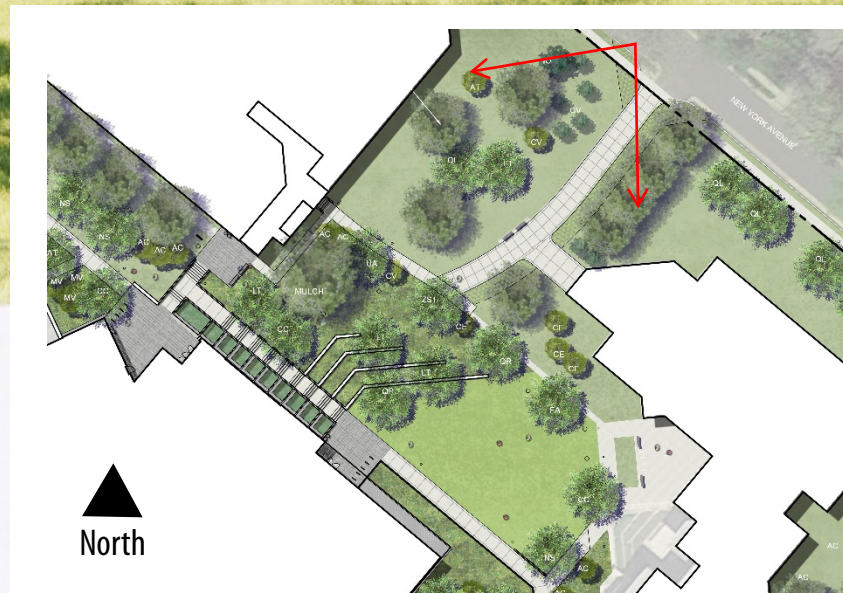


Existing & new trees are not transparent as they are part of the materials palette.



Service road

Current Approach (Young New Trees)
VIEW FROM NEW YORK AVE

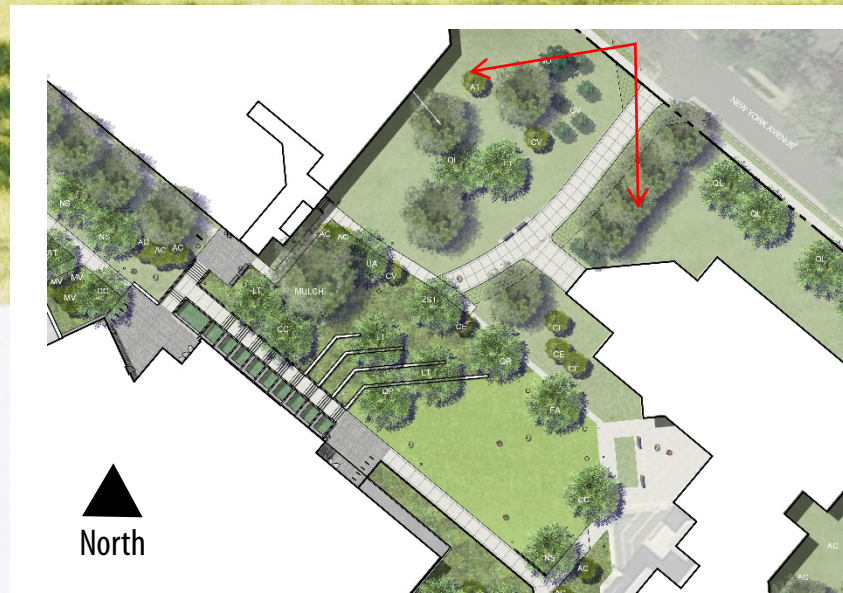


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Service road

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VIEW FROM NEW YORK AVE





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General Work Sequence - Tree Removal

1. PRE-CONSTRUCTION

1. Meeting prior to any land disturbance to review stress reduction measures.

Members include: Montgomery College (MC), Barton Malow Construction (BMC) Superintendent, Licensed Arborist (BMC Subcontractor), Forest Conservation Inspectors (Parks & Planning, and Takoma Park), Dept of Permitting Services (DPS) Sediment Inspector

2. Installation of all stress reduction measures
3. Installation of temporary tree protection by licensed tree expert, including fencing and supports.
4. Installation of forest and tree protection signage as required by the Forest Conservation Inspectors

2. DURING CONSTRUCTION:

1. Periodic inspections will be made by the Forest Conservation Inspectors
2. MC and BMC will notify the Forest Conservation Inspectors immediately if any damage to trees occurs within undisturbed areas

3. POST CONSTRUCTION

1. Final inspection with Forest Conservation Inspectors
2. With Forest Conservation Inspectors Approval, removal of protection measures
3. Any additional long-term protective measures by MC to be installed

Engagement



HOTLINE
800-879-9879



**SCHEDULED MEETINGS
BY APPOINTMENT**



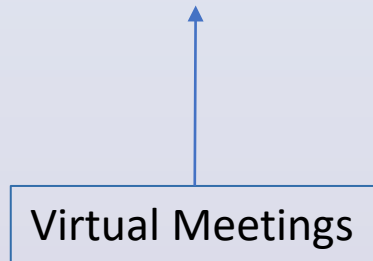
WEBSITE
[montgomerycollege.edu/
tpss-design](http://montgomerycollege.edu/tpss-design)



PROJECT EMAIL
[community@
montgomerycollege.edu](mailto:community@montgomerycollege.edu)



**MEETING SCHEDULE
REGULAR PROJECT
UPDATE FORUMS**



Q&A

SMITHGROUP
LINK STRATEGIC PARTNERS

Barton
Malow

MC **MONTGOMERY**
COLLEGE