

**BOARD OF VISITORS BUILDINGS AND GROUNDS COMMITTEE
MINUTES**

Joint Open Session with the Finance and Resource Management Committee

The Buildings and Grounds Committee and the Finance and Resource Management Committee of the Board of Visitors of Virginia Polytechnic Institute and State University convened on Monday, March 20, 2023 at 8:37 a.m. in joint open session in Latham Ballroom C, D, E, F of the Inn at Virginia Tech and Skelton Conference Center (901 Prices Fork Rd, Blacksburg, VA 24061). A quorum of the joint Committee was present.

Board of Visitors Members Present:

Tish Long (Rector)
Ed Baine (Vice Rector and Committee Chair)
Shelly Butler Barlow (Committee Chair)
Sandy Cupp Davis
Carrie Chenery
Greta Harris (Committee Member)
C.T. Hill (Committee Member)
Brad Hobbs (Committee Member)
Anna James (Committee Member)
Chris Petersen (Committee Member)
Jeff Veatch

Constituent Representative(s) Present:

Robert Weiss (Faculty Representative)
Serena Young (Staff Representative)

Also present were the following Virginia Tech staff members and guests:

President Tim Sands, Callan Bartel, Lynsay Belshe, Bob Broyden, Brock Burroughs, Cyril Clarke, Al Cooper, David Crotts, Corey Earles, Jeff Earley, Alisha Ebert, Ted Faulkner, Mark Gess, Emily Gibson, Suzanne Griffin, Kay Heidbreder, Tim Hodge, Elizabeth Hooper, Travis Hundley, Frances Keene, Chris Kiel, Chris Kiwus, Sharon Kurek, Jack Leff, Lauren Malhotra, Rob Mann, Meghan Marsh, Elizabeth McClanahan, Nancy Meacham, Scott Midkiff, Jeff Mitchell, Liza Morris, Justin Noble, Kim O'Rourke, Mark Owczarski, James Perkins, Charlie Phlegar, Zo Qazi, Amy Sebring, Brennan Shepard, Oliver Shuey, Ken Smith, John Tarter, Dwyn Taylor, Jon Clark Teglas, Rob Viers, Tracy Vosburgh, Michael Walsh, Melinda West, Chris Wise, and Nick Woods

- * # + **1. Approval of the 2024-2030 Capital Outlay Plan:** In November, the Board of Visitors approved an update to the 2047 Campus Master Plan which made adjustments to its long-term land use plans. Today, the Committees reviewed for approval the Six-Year Capital Outlay Plan.

Capital Outlay Plans identify the university's top priorities for future facility improvements and ensure debt capacity would be sufficient for the plan, but do not authorize action or spending for individual projects listed on the plan. The

university prepares an updated Six-Year Capital Outlay Plan every two years as part of its normal planning and budgeting cycle. The Plan is a critical component of positioning the university for state support of major Educational and General projects and for advancing high priority projects that may be funded entirely with nongeneral fund resources. Thus, in the future, we may expect separate requests for planning and construction of projects for consideration, and we will make those decisions when the time is appropriate. The next state capital outlay plan will be for 2024-2030 and will be established in the 2024 budget development process. Traditionally, the state requires each institution to submit a capital plan in June of the year before a new biennium begins. Based on that timetable, a plan from the university for 2024-2030 will be due to the state in June of 2023.

The university will provide an update to the status of the 2024-2030 Plan at a future Board of Visitors meeting.

The Committees recommended the 2024-2030 Capital Outlay Plan to the full Board for approval.

There being no further business, the meeting adjourned at 8:46 a.m.

Open Session Meeting

The Buildings and Grounds Committee of the Board of Visitors of Virginia Polytechnic Institute and State University convened on Monday, March 20, 2023 at 9:01 a.m. in open session in the Smithfield Room of the Inn at Virginia Tech and Skelton Conference Center to depart for a campus tour (901 Prices Fork Rd, Blacksburg, VA 24061). A quorum of the Committee was present.

Board of Visitors Members Present:

- Tish Long (Rector)
- Shelly Butler Barlow (Committee Chair)
- Greta Harris (Committee Member)
- C.T. Hill (Committee Member)
- Chris Petersen (Committee Member)

Constituent Representative(s) Present:

None

Also present were the following Virginia Tech staff members and guests: President Tim Sands, Bob Broyden, Corey Earles, Alisha Ebert, Ted Faulkner, Mark Gess, Emily Gibson, Alan Grant, Patrick Hilt, Mary-Ann Ibeziako, Chris Kiel, Chris Kiwus, Kayla Lambert, Jack Leff, Meghan Marsh, Daniella Miller, Jeff Mitchell, Liza Morris, Saied

Mostaghimi, Heidi Myers, Justin Noble, Nam, Nguyen, James Perkins, Matt Stolte, Dwyn Taylor, Jon Clark Teglas, Paul Winistorfer, and Chris Wise

Agenda Item

1. **Consent Agenda:** The Committee approved the items listed on the Consent Agenda.

a. **Approval of the Minutes from the November 2022 Meeting:** The Committee approved the minutes from the November 14, 2022 meeting.

* b. **Resolution to Approve a Corrected Deed Easement for Town of Blacksburg Water Line:** The Committee reviewed for approval a resolution to approve a corrected deed easement for Town of Blacksburg water line. As part of a residential housing project that is in support of the Virginia Tech Corporate Research Center, a water line easement to the Town of Blacksburg to connect with a main water line on Virginia Tech's property in the area of the Wood Processing Lab has been requested to be corrected.

The Committee recommended the Resolution to Approve a Corrected Deed Easement for Town of Blacksburg Water Line to the full Board for approval.

c. **Acceptance of the Quarterly Capital Project Status Report:** The Committee accepted the quarterly capital project status report.

* 2. **Approval of a Resolution for Conveyance of Easements:** The Committee reviewed for approval a resolution for conveyance of easements. The university on occasion has the need to convey easements to outside entities to support its mission. The university is requesting that the Executive Vice President and Chief Operating Officer or her/his designee be authorized to approve the conveyance of easements.

The university will provide a recurring update of easements conveyed at future Board of Visitors meetings.

The Committee recommended the Resolution for Conveyance of Easements to the full Board for approval.

+ 3. **Update on Agricultural Facilities and Partnerships:** The Committee received an update from Alan Grant, dean of the College of Agriculture and Life Sciences, and Paul Winistorfer, dean of the College of Natural Resources and Environment, on agricultural facilities planning and construction.

+ 4. **Update on the Utilities Master Plan:** The Committee received an update on the Utilities Master Plan from Mary-Ann Ibeziako, assistant vice president for

infrastructure and chief sustainability officer. In 2018, Virginia Tech completed its most recent master planning effort resulting in 'Beyond Boundaries 2047: The Campus Plan.' In 2020, Virginia Tech revised its Climate Action Commitment, setting sustainability goals and milestones thru 2050. The Utilities Master Plan will provide a comprehensive framework to ensure that future programmatic needs are met and that the university remains a leader in the field of higher education infrastructure. The project is underway and expected to be completed in late 2024.

5. Future Agenda Items and Closing Remarks: The Committee discussed potential topics for inclusion on future meeting agendas.

There being no further business, the meeting adjourned at 10:02 a.m.

Open Session Dedication Ceremony

The Buildings and Grounds Committee of the Board of Visitors of Virginia Polytechnic Institute and State University reconvened on Monday, March 20, 2022 at 10:15 a.m. in open session in the Lobby of the Inn at Virginia Tech and Skelton Conference Center (901 Prices Fork Rd, Blacksburg, VA 24061) to depart for a dedication ceremony at the Merryman Center. A quorum of the Committee was present.

Board of Visitors Members Present:

- Ed Baine (Vice Rector)
- Sharon Brickhouse Martin
- Shelly Butler Barlow (Committee Chair)
- Greta Harris (Committee Member)
- C.T. Hill (Committee Member)
- Chris Petersen (Committee Member)

Constituent Representative(s) Present:

None

Also present were the following Virginia Tech staff members and guests: Whit Babcock, Joseph Barlow, Jr., Dave Cianelli, John Dooley, Jerry Gaines, Reyna Gilbert-Lowry, Matt Goff, Angela Hayes, Chris Helms, Chris Kiwus, Charlie Phlegar, Sue Rowdon, Jon Clark Teglas, Paul Winistorfer, Danny White, and additional invited guests

Agenda Item

6. Dedication Ceremony: The Committee attended the dedication of the track and field/cross country head coach's office in Cassell Coliseum for Dr. Jerry Gaines, '71.

The Committee returned to the Inn at Virginia Tech and Skelton Conference Center at 11:25 a.m.

Open Joint Session Agenda

**FINANCE AND RESOURCE MANAGEMENT COMMITTEE
AND BUILDINGS AND GROUNDS COMMITTEE**

Latham CDEF, the Inn at Virginia Tech

8:00 a.m.

March 20, 2023

<u>Agenda Item</u>	<u>Reporting Responsibility</u>
*#+ 1. Approval of the 2024-2030 Capital Outlay Plan	Ken Miller Chris Kiwus Bob Broyden

* Requires full Board approval

Discusses Enterprise Risk Management topic(s)

+ Discusses Strategic Investment Priorities topic(s)

Open Session Agenda

BUILDINGS AND GROUNDS COMMITTEE

Monday, March 20, 2023

*Open session meeting resumes at 9:00 a.m.
in the Smithfield Room of the Inn at Virginia Tech and Skelton Conference Center.*

<u>Agenda Item</u>	<u>Reporting Responsibility</u>
1. Consent Agenda	Committee Chair
<ul style="list-style-type: none"> a. <i>Approval of the Minutes from the November 2022 Meeting</i> * b. <i>Resolution to Approve a Corrected Deed Easement for Town of Blacksburg Water Line</i> c. <i>Acceptance of the Quarterly Capital Project Status Report</i> 	
* 2. Approval of a Resolution for Conveyance of Easements	Bob Broyden
# + 3. Update on Agricultural Facilities and Partnerships	Alan Grant
<ul style="list-style-type: none"> <i>College of Agriculture and Life Sciences</i> <i>College of Natural Resources and Environment</i> 	Paul Winistorfer
# + 4. Update on the Utilities Master Plan	Mary-Ann Ibeziako
5. Future Agenda Items and Closing Remarks	Committee Chair

*Bus departs for ceremony at 10:15 a.m.
from the Lobby of the Inn at Virginia Tech and Skelton Conference Center.*

<u>Agenda Item</u>	<u>Reporting Responsibility</u>
6. Dedication Ceremony	Committee Chair

Consent Agenda

BUILDINGS AND GROUNDS COMMITTEE

Monday, March 20, 2023

The Committee will consider for approval and acceptance the items listed on the Consent Agenda.

Consent Agenda

- a. Approval of the Minutes from the November 2022 Meeting
- * b. Resolution to Approve a Corrected Deed Easement for Town of Blacksburg Water Line
- c. Acceptance of the Quarterly Capital Project Status Report

*** Requires full Board approval.**

CAPITAL PROJECTS UPDATE

PREPARED FOR THE BUILDINGS AND GROUNDS COMMITTEE OF THE BOARD OF VISITORS

MARCH 20, 2023



Project Portfolio

- 18 authorized projects -- active and complete (w/in 1-year warranty phase)
- Total value of ~\$1.3B
- Adds ~1.6M gross square feet (GSF) of new construction
- Renovates nearly 300K GSF of existing space



(Progressive) Capital Construction Executive Summary

Date Prepared: 20 FEB 2023

LEGEND:	Design	Construction	SD = Schematic Design	PD = Preliminary Design	WD = Working Drawings
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Project Title	Total Project Budget (\$M)	Construction Budget (\$M) <i>(Construction contract value)</i>	New Const (GSF)	Renovation (GSF)	CY 2022				CY 2023				CY 2024				CY 2025							
					JAN-MAR	APR-JUN	JUL-SEP	OCT-DEC	JAN-MAR	APR-JUN	JUL-SEP	OCT-DEC	JAN-MAR	APR-JUN	JUL-SEP	OCT-DEC	JAN-MAR	APR-JUN	JUL-SEP	OCT-DEC				
					FY22		FY23		FY24		FY25		FY26		FY22		FY23		FY24		FY25		FY26	
					Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2
Improve Kentland Facilities (Phase II) -- Various Locations	\$12.5	\$10.1	28,403																					
Creativity & Innovation District Living Learning Community	\$105.5	\$85.3	232,000																					
Gas-Fired Boiler at Central Steam Plant	\$8.2	\$3.8	N/A																					
Holden Hall Renovations	\$74.9	\$58.5	82,905	20,240																				
Chiller Plant Phase II	\$42.9	\$32.7	N/A																					
Livestock & Poultry Research Facilities (Ph I) -- Various Locations	\$25.3	\$18.2	129,100																					
Dietrick Renovation	\$9.1	\$6.8	6,298	11,960																				
Data & Decision Sciences Building (D&DS)	\$79.0	\$58.9	120,000																					
Corps Leadership & Military Science Building	\$52.0	\$37.9	65,428	8,449																				
Multi-Modal Transit Facility (Note 1)	N/A	N/A	13,606																					
New Upper Quad Residence Hall	\$42.0	\$32.0	56,650																					
HITT Hall (Note 2)	\$85.0	\$65.5	101,000																					
Innovation Campus - Academic Building (Note 2)	\$302.1	\$226.3	299,733																					
Undergraduate Science Laboratory Building	\$90.4	\$69.5	102,746																					
Student Wellness Improvements	\$70.0	\$56.3		217,708																				
Life, Health, Safety, Accessibility and Code Compliance (Note 3)	\$10.4	\$3.9																						
Building Envelope Improvements	\$47.2	\$41.9	N/A																					
Mitchell Hall (Replace Randolph Hall)	\$248.0	\$186.0	284,000																					
Planning: New Business Building -- Design Only	\$8.0	\$60.6M	104,000																					
TOTALS	\$1,312.5		1,625,869	258,357																				

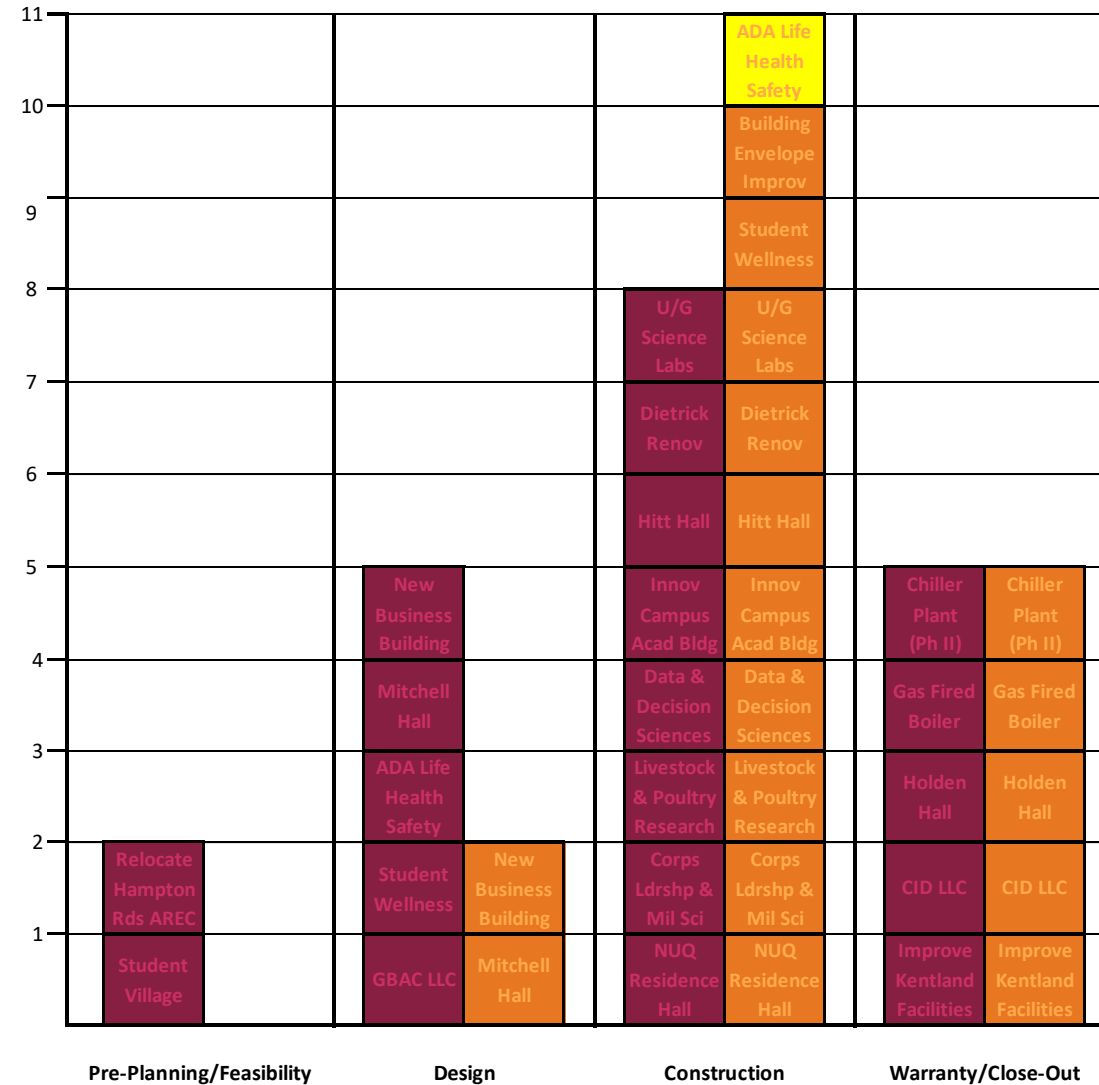
Note 1: Non-VT project
 Note 2: Multiple GMPs results in design/construction overlap (fast track)
 Note 3: Project will be executed in prioritized sub-projects

Project Portfolio Distribution

State/BOV Authorized Projects

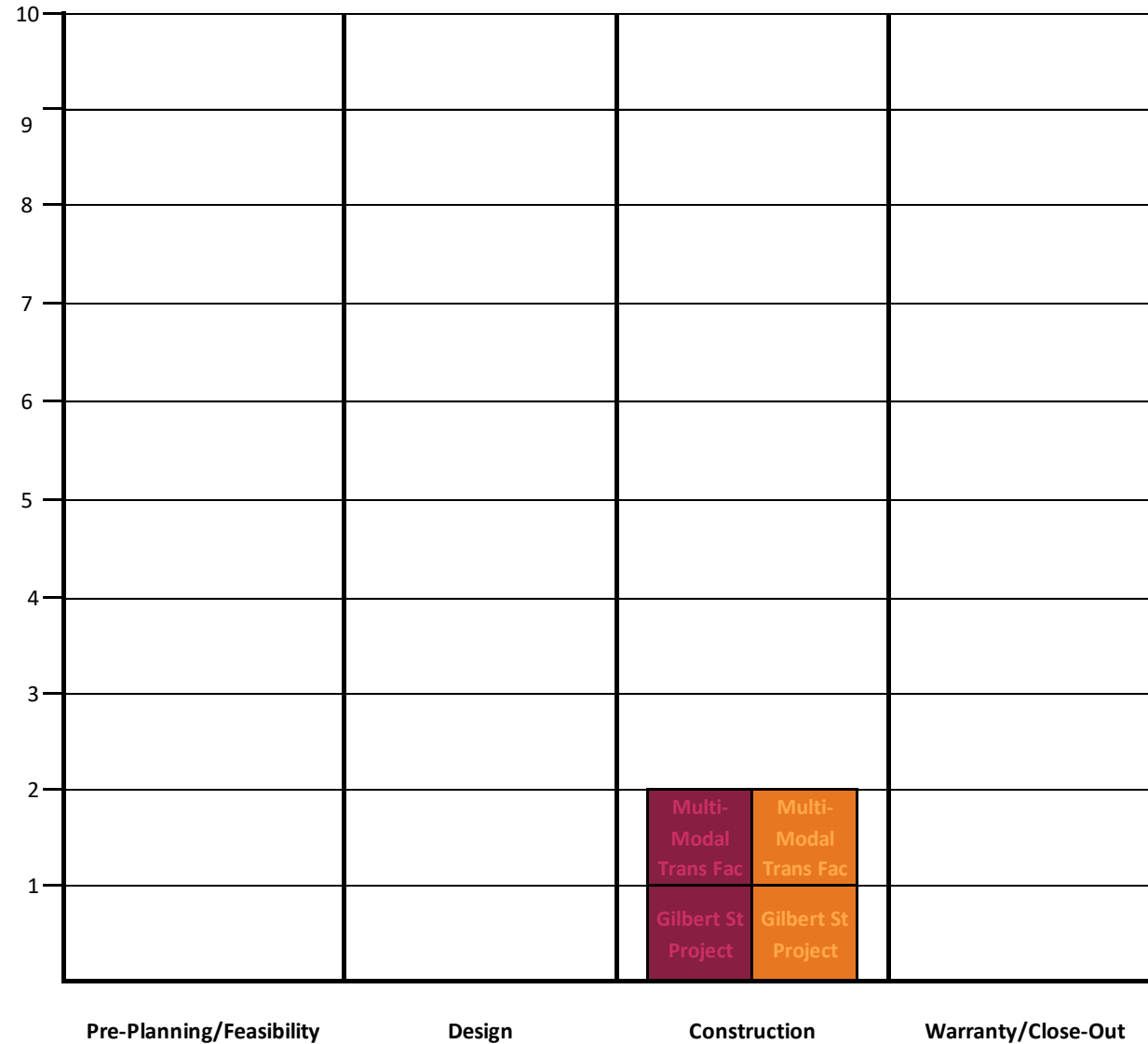
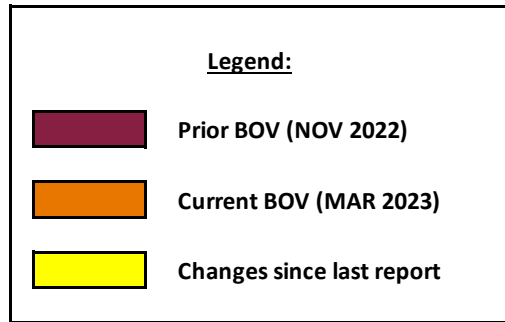
Legend:

- Prior BOV (NOV 2022)
- Current BOV (MAR 2023)
- Changes since last report

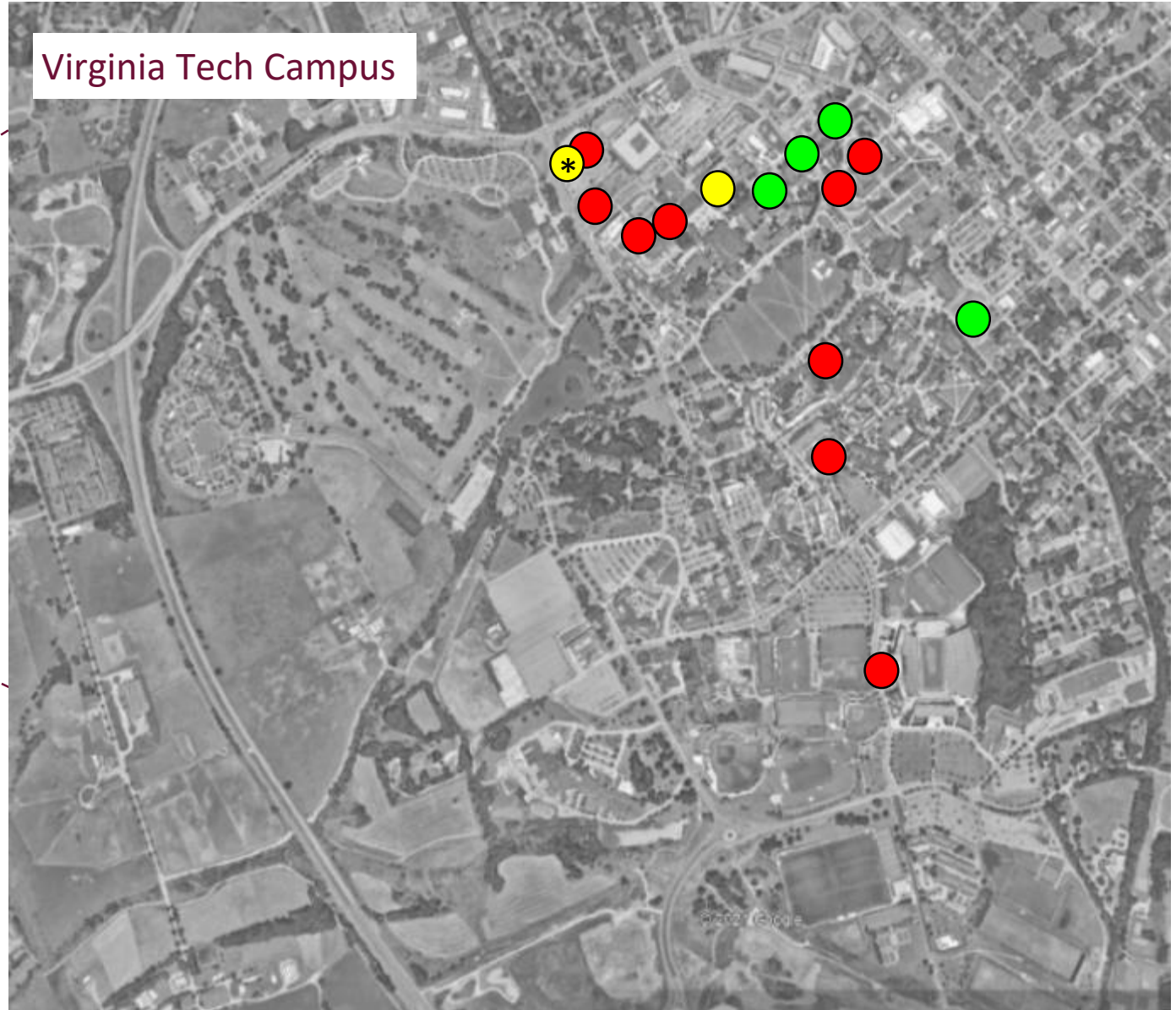
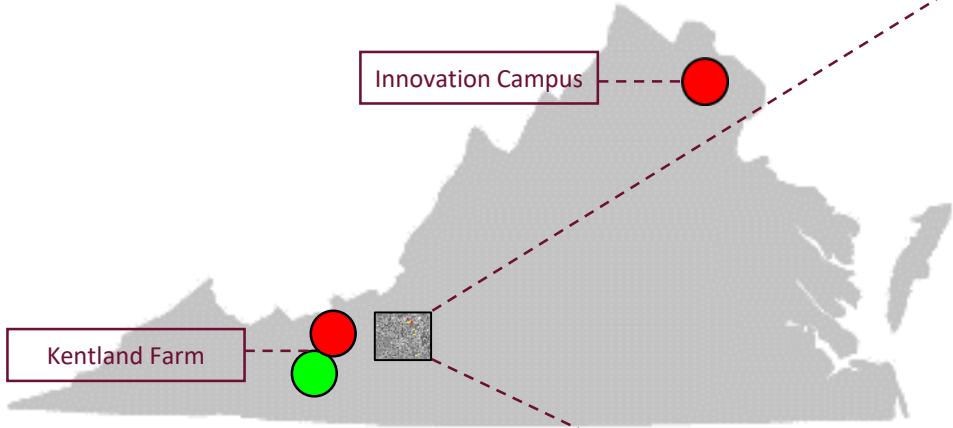


Project Portfolio Distribution

Supported/Non-VT Projects



Capital Project Portfolio



Legend

- Yellow circle = In Design
- Red circle = Under Construction
- Green circle = Warranty/Complete
- * = *Design only*

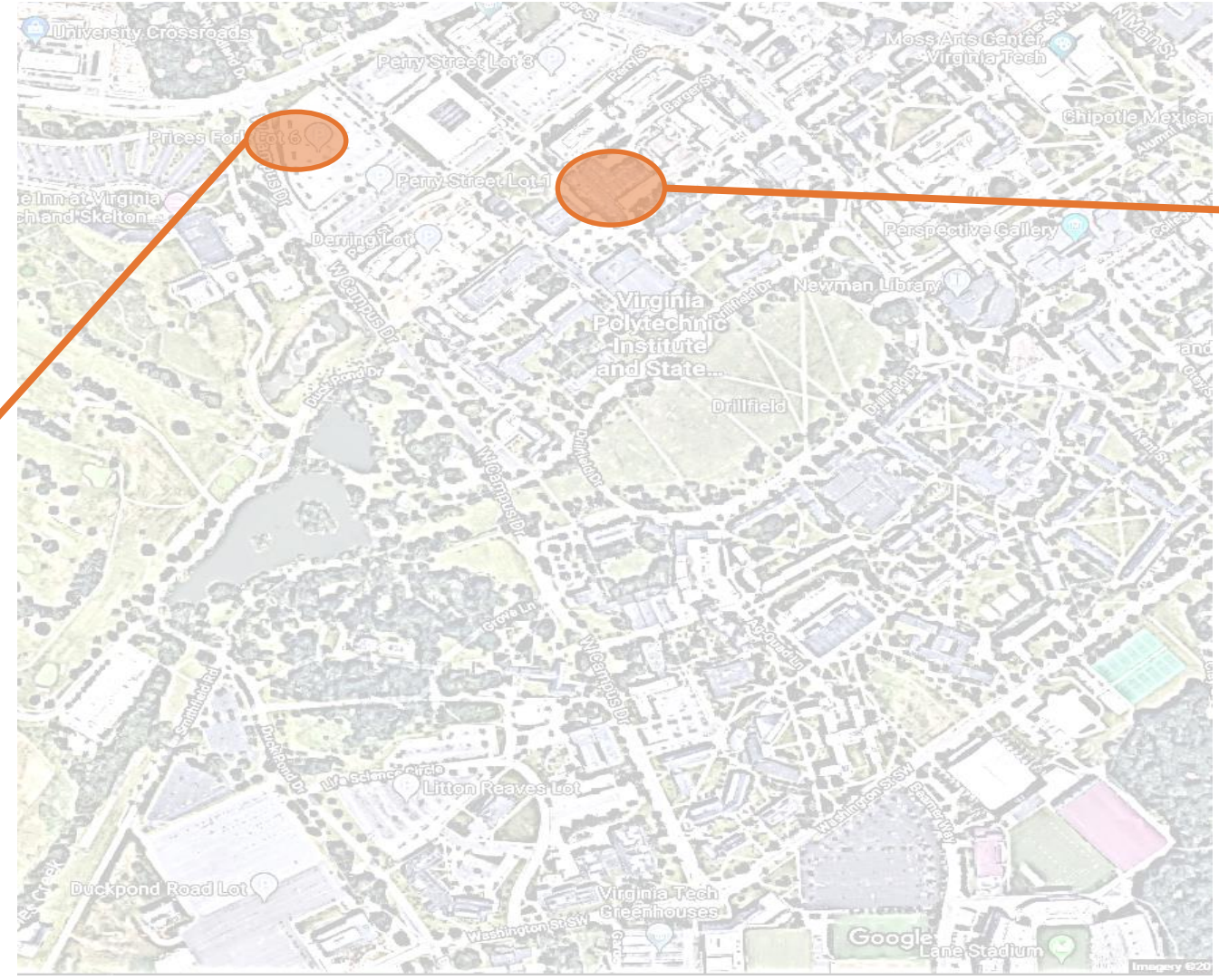
In Design



Projects In Design



New Business Building

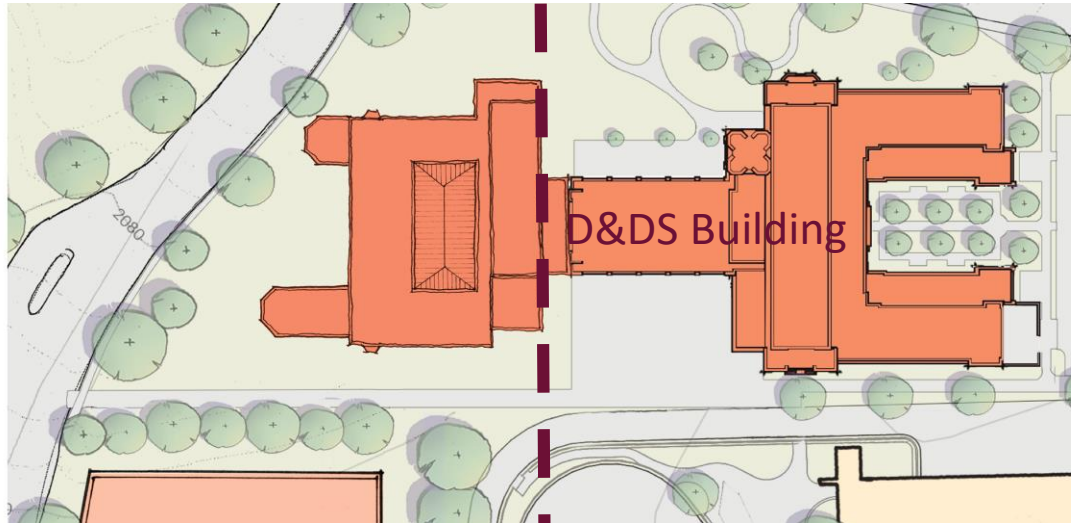


Mitchell Hall



Planning: New Business Building

CMaR
BOV Authorized



Status:

- Schematic Design underway
- Negotiating CMaR contract

Next Actions:

- Execute CMaR contract
- Targeting BOV Construction Authorization in summer 2023

LEGEND:	Design	Construction	SD = Schematic Design	PD = Preliminary Design	WD = Working Drawings
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Project Title	Total Project Budget (\$M)	Construction Budget (\$M) <i>(Construction contract value)</i>	New Const (GSF)	Renovation (GSF)	CY 2022				CY 2023				CY 2024				CY 2025			
					JAN-MAR	APR-JUN	JUL-SEP	OCT-DEC	JAN-MAR	APR-JUN	JUL-SEP	OCT-DEC	JAN-MAR	APR-JUN	JUL-SEP	OCT-DEC	JAN-MAR	APR-JUN	JUL-SEP	OCT-DEC
					FY22		FY23		FY24		FY25		FY26							
	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2				
Planning: New Business Building -- <i>Design Only</i>	\$8.0	\$60.6M	104,000					SD			PD		WD							
TOTALS	\$1,312.5		1,625,869	258,357																

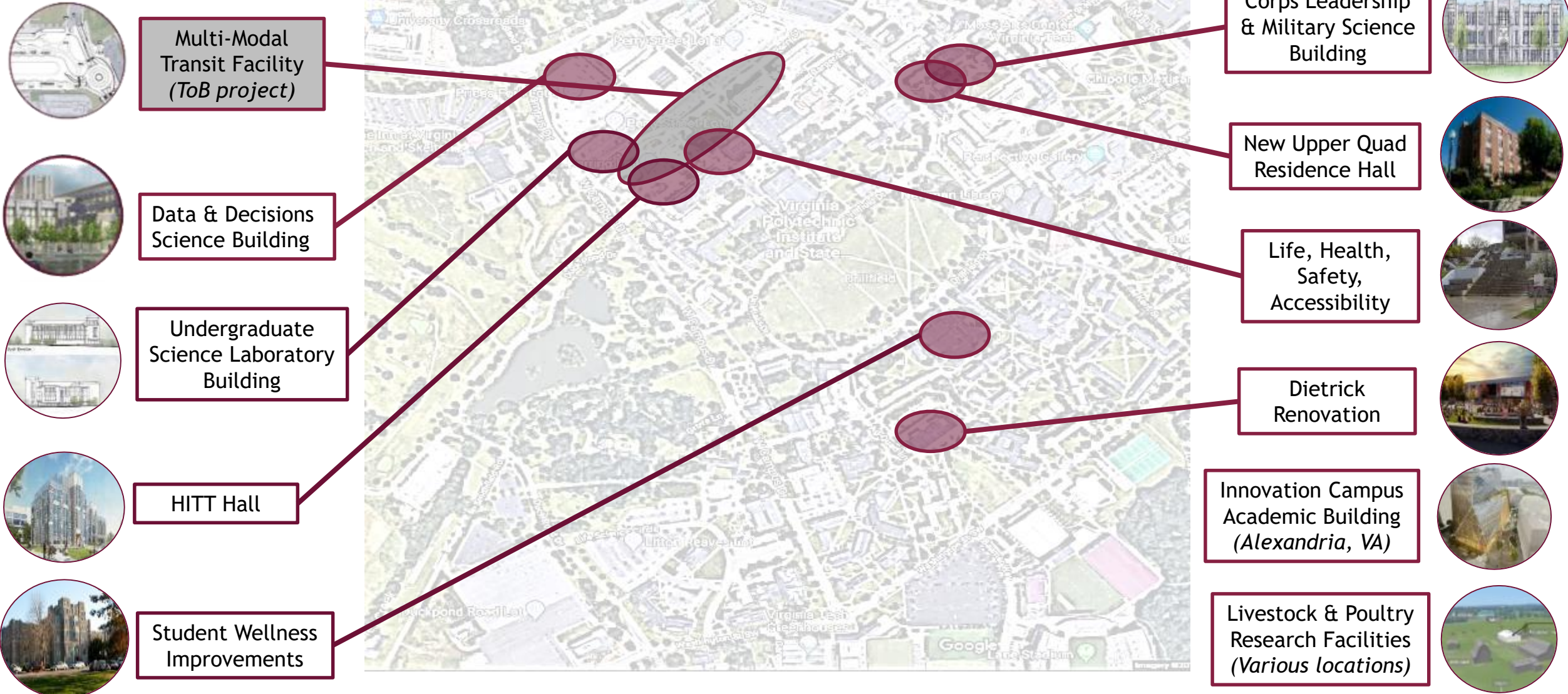
Designer: Moseley

Builder: TBD

Under Construction



Active Construction Projects



Innovation Campus-Academic Building



CM at Risk
State Authorized

Status:

- Project on track (55% complete)
- Structural steel topped out on 7 FEB 2023

Next Actions:

- Anticipated completion in spring/summer 2024

LEGEND:	Design	Construction	SD = Schematic Design	PD = Preliminary Design	WD = Working Drawings
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Project Title	Total Project Budget (\$M)	Construction Budget (\$M) <i>(Construction contract value)</i>	New Const (GSF)	Renovation (GSF)	CY 2022				CY 2023				CY 2024				CY 2025			
					JAN-MAR	APR-JUN	JUL-SEP	OCT-DEC	JAN-MAR	APR-JUN	JUL-SEP	OCT-DEC	JAN-MAR	APR-JUN	JUL-SEP	OCT-DEC	JAN-MAR	APR-JUN	JUL-SEP	OCT-DEC
					FY22		FY23		FY24		FY25		FY26							
	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2				
Innovation Campus - Academic Building (Note 2)	\$302.1	\$226.3	299,733																	

Note 2: Multiple GMPs results in design/construction overlap (fast track)

Design-Bid-Build
State Authorized

Life, Health, Safety, Accessibility & Code Compliance



Status:

- Phase 1: (Derring Steps Elevators) Construction contract awarded
- Contractor mobilizing and initiating construction
- Note: Overall capital project will be executed in multiple phases

Next Actions:

- Anticipated completion in spring 2024

LEGEND:	Design	Construction	SD = Schematic Design	PD = Preliminary Design	WD = Working Drawings
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Project Title	Total Project Budget (\$M)	Construction Budget (\$M) <i>(Construction contract value)</i>	New Const (GSF)	Renovation (GSF)	CY 2022				CY 2023				CY 2024				CY 2025							
					JAN-MAR	APR-JUN	JUL-SEP	OCT-DEC	JAN-MAR	APR-JUN	JUL-SEP	OCT-DEC	JAN-MAR	APR-JUN	JUL-SEP	OCT-DEC	JAN-MAR	APR-JUN	JUL-SEP	OCT-DEC				
					FY22		FY23		FY24		FY25		FY26		FY22		FY23		FY24		FY25		FY26	
					Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2				
Life, Health, Safety, Accessibility and Code Compliance (Note 3)	\$10.4	\$3.9				wd																		

Building Envelope Improvements

**Design-Bid-Build
 BOV Authorized**



Status:

- Envelope improvements planned for four buildings
- Contract for first building awarded and underway

Next Actions:

- First building targeted for completion in completion winter/spring 2024

LEGEND: Design Construction **SD = Schematic Design** **PD = Preliminary Design** **WD = Working Drawings**

Project Title	Total Project Budget (\$M)	Construction Budget (\$M) <i>(Construction contract value)</i>	New Const (GSF)	Renovation (GSF)	CY 2022				CY 2023				CY 2024				CY 2025				
					JAN-MAR	APR-JUN	JUL-SEP	OCT-DEC	JAN-MAR	APR-JUN	JUL-SEP	OCT-DEC	JAN-MAR	APR-JUN	JUL-SEP	OCT-DEC	JAN-MAR	APR-JUN	JUL-SEP	OCT-DEC	
					FY22		FY23		FY24		FY25		FY26								
					Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	
Building Envelope Improvements	\$47.2	\$41.9	N/A																		

Designer: Quinn Evans

Builder: WM Jordan

Undergraduate Science Laboratory Building

CMAR
State Authorized



Status:

- Project tracking at 30% complete

Next Actions:

- Anticipated completion in June 2024

LEGEND: Design Construction **SD = Schematic Design** **PD = Preliminary Design** **WD = Working Drawings**

Project Title	Total Project Budget (\$M)	Construction Budget (\$M) <i>(Construction contract value)</i>	New Const (GSF)	Renovation (GSF)	CY 2022				CY 2023				CY 2024				CY 2025							
					JAN-MAR	APR-JUN	JUL-SEP	OCT-DEC	JAN-MAR	APR-JUN	JUL-SEP	OCT-DEC	JAN-MAR	APR-JUN	JUL-SEP	OCT-DEC	JAN-MAR	APR-JUN	JUL-SEP	OCT-DEC				
					FY22		FY23		FY24		FY25		FY26		FY22		FY23		FY24		FY25		FY26	
					Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2				
Undergraduate Science Laboratory Building	\$90.4	\$69.5	102,746																					

Designer: ZGF

Builder: Skanska

Dietrick Renovation (& Quillen Spirit Plaza)

**Design-Bid-Build
 BOV Authorized**



Status:

- Project on track (95% complete)
- Interior renovations complete

Next Actions:

- Anticipated plaza completion spring 2023

LEGEND:	Design	Construction	SD = Schematic Design	PD = Preliminary Design	WD = Working Drawings
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Project Title	Total Project Budget (\$M)	Construction Budget (\$M) <i>(Construction contract value)</i>	New Const (GSF)	Renovation (GSF)	CY 2022				CY 2023				CY 2024				CY 2025							
					JAN-MAR	APR-JUN	JUL-SEP	OCT-DEC	JAN-MAR	APR-JUN	JUL-SEP	OCT-DEC	JAN-MAR	APR-JUN	JUL-SEP	OCT-DEC	JAN-MAR	APR-JUN	JUL-SEP	OCT-DEC				
					FY22		FY23		FY24		FY25		FY26		FY22		FY23		FY24		FY25		FY26	
					Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2
Dietrick Renovation	\$9.1	\$6.8	6,298	11,960																				

Designer: Hanbury

Builder: Branch Builds

Hitt Hall

**CM at Risk
 BOV Authorized**



Status:

- Project on track (35% complete)

Next Actions:

- Anticipated completion in March 2024

LEGEND:	Design	Construction	SD = Schematic Design	PD = Preliminary Design	WD = Working Drawings
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Project Title	Total Project Budget (\$M)	Construction Budget (\$M) <i>(Construction contract value)</i>	New Const (GSF)	Renovation (GSF)	CY 2022				CY 2023				CY 2024				CY 2025			
					JAN-MAR	APR-JUN	JUL-SEP	OCT-DEC	JAN-MAR	APR-JUN	JUL-SEP	OCT-DEC	JAN-MAR	APR-JUN	JUL-SEP	OCT-DEC	JAN-MAR	APR-JUN	JUL-SEP	OCT-DEC
					FY22		FY23		FY24		FY25		FY26							
					Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2
HITT Hall	(Note 2)	\$85.0	\$65.5	101,000																

Note 2: Projects will be executed in prioritized sub-projects

Designer: Cooper Cary

Builder: W M Jordan

Corps Leadership & Military Science Building

CM at Risk
BOV Authorized



Status:

- Project on track (80% complete)

Next Actions:

- Anticipated completion in July 2023

LEGEND: Design Construction **SD = Schematic Design** **PD = Preliminary Design** **WD = Working Drawings**

Project Title	Total Project Budget (\$M)	Construction Budget (\$M) <i>(Construction contract value)</i>	New Const (GSF)	Renovation (GSF)	CY 2022				CY 2023				CY 2024				CY 2025							
					JAN-MAR	APR-JUN	JUL-SEP	OCT-DEC	JAN-MAR	APR-JUN	JUL-SEP	OCT-DEC	JAN-MAR	APR-JUN	JUL-SEP	OCT-DEC	JAN-MAR	APR-JUN	JUL-SEP	OCT-DEC				
					FY22		FY23		FY24		FY25		FY26		FY22		FY23		FY24		FY25		FY26	
					Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2
Corps Leadership & Military Science Building	\$52.0	\$37.9	65,428	8,449																				

Designer: Clark - Nexsen

Builder: Vannoy

New Upper Quad Residence Hall



Status:

- Project on track (75% complete)



Next Actions:

- Anticipated completion in fall 2023

LEGEND: Design Construction **SD = Schematic Design** **PD = Preliminary Design** **WD = Working Drawings**

Project Title	Total Project Budget (\$M)	Construction Budget (\$M) <i>(Construction contract value)</i>	New Const (GSF)	Renovation (GSF)	CY 2022				CY 2023				CY 2024				CY 2025			
					JAN-MAR	APR-JUN	JUL-SEP	OCT-DEC	JAN-MAR	APR-JUN	JUL-SEP	OCT-DEC	JAN-MAR	APR-JUN	JUL-SEP	OCT-DEC	JAN-MAR	APR-JUN	JUL-SEP	OCT-DEC
					FY22		FY23		FY24		FY25		FY26							
					Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2
New Upper Quad Residence Hall	\$42.0	\$32.0	56,650																	

Designer: Clark - Nexsen

Builder: Vannoy

Data & Decisions Sciences Building



CM at Risk
State Authorized



Status:

- Project on track (98% complete)

Next Actions:

- Anticipated completion in April 2023

LEGEND:	Design	Construction	SD = Schematic Design	PD = Preliminary Design	WD = Working Drawings
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Project Title	Total Project Budget (\$M)	Construction Budget (\$M) <i>(Construction contract value)</i>	New Const (GSF)	Renovation (GSF)	CY 2022				CY 2023				CY 2024				CY 2025			
					JAN-MAR	APR-JUN	JUL-SEP	OCT-DEC	JAN-MAR	APR-JUN	JUL-SEP	OCT-DEC	JAN-MAR	APR-JUN	JUL-SEP	OCT-DEC	JAN-MAR	APR-JUN	JUL-SEP	OCT-DEC
					FY22		FY23		FY24		FY25		FY26							
					Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2
Data & Decision Sciences Building (D&DS)	\$79.0	\$58.9	120,000																	

Designer: Moseley

Builder: Kjellstrom & Lee

Livestock & Poultry Research Facilities (Phase I)

Design-Bid-Build
State Authorized



Poultry Facility



Swine Facility



Equine Facility



Beef Facility

Status:

- Construction underway on 4 of 6 bid packages:
 Poultry: 99% complete Swine: 99% complete
 Equine: 100% complete Beef: 99% complete
 Hay barns: 0% complete

Next Actions:

- Bids package #5 for 3 new hay barns under procurement

LEGEND:	Design	Construction	SD = Schematic Design	PD = Preliminary Design	WD = Working Drawings
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Project Title	Total Project Budget (\$M)	Construction Budget (\$M) <i>(Construction contract value)</i>	New Const (GSF)	Renovation (GSF)	CY 2022				CY 2023				CY 2024				CY 2025			
					JAN-MAR	APR-JUN	JUL-SEP	OCT-DEC	JAN-MAR	APR-JUN	JUL-SEP	OCT-DEC	JAN-MAR	APR-JUN	JUL-SEP	OCT-DEC	JAN-MAR	APR-JUN	JUL-SEP	OCT-DEC
					FY22		FY23		FY24		FY25		FY26							
Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2					
Livestock & Poultry Research Facilities (Ph I) -- Various Locations	\$25.3	\$18.2	129,100																	

Designer: Spectrum Design

Builder: (Various)

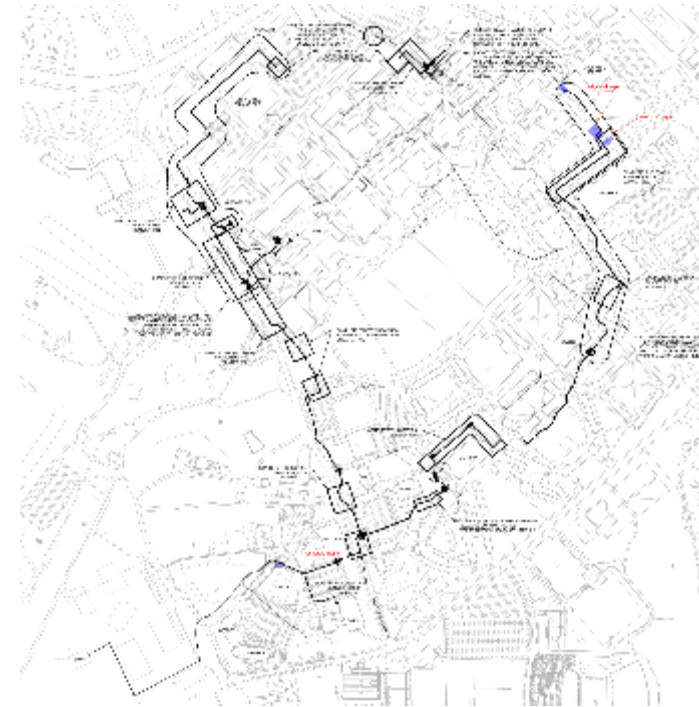
Chiller Plant (Phase II)

Complete



Status:

- Project complete



Next Actions:

- Close out project

Design-Bid-Build
State Authorized

LEGEND:	Design	Construction	SD = Schematic Design	PD = Preliminary Design	WD = Working Drawings
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Project Title	Total Project Budget (\$M)	Construction Budget (\$M) (Construction contract value)	New Const (GSF)	Renovation (GSF)	CY 2022				CY 2023				CY 2024				CY 2025			
					JAN-MAR	APR-JUN	JUL-SEP	OCT-DEC	JAN-MAR	APR-JUN	JUL-SEP	OCT-DEC	JAN-MAR	APR-JUN	JUL-SEP	OCT-DEC	JAN-MAR	APR-JUN	JUL-SEP	OCT-DEC
					FY22		FY23		FY24		FY25		FY26							
					Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2
Chiller Plant Phase II	\$42.9	\$32.7	N/A																	

Designer: AEI

Builder: Faulconer

Gas-Fired Boiler at Central Steam Plant

Design-Bid-Build
BOV Authorized



Status:

- Project complete; full DEQ compliance

Next Actions:

- Close out project

LEGEND:	Design	Construction	SD = Schematic Design	PD = Preliminary Design	WD = Working Drawings
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Project Title	Total Project Budget (\$M)	Construction Budget (\$M) <i>(Construction contract value)</i>	New Const (GSF)	Renovation (GSF)	CY 2022				CY 2023				CY 2024				CY 2025			
					JAN-MAR	APR-JUN	JUL-SEP	OCT-DEC	JAN-MAR	APR-JUN	JUL-SEP	OCT-DEC	JAN-MAR	APR-JUN	JUL-SEP	OCT-DEC	JAN-MAR	APR-JUN	JUL-SEP	OCT-DEC
					FY22		FY23		FY24		FY25		FY26							
					Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2
Gas-Fired Boiler at Central Steam Plant	\$8.2	\$3.8	N/A		WARRANTY															

Designer: AEI

Builder: Southern Air

Holden Hall Renovation

CM at Risk
State Authorized

Complete



Status:

- Warranty period complete

Next Actions:

- Close out project

LEGEND: Design Construction SD = Schematic Design PD = Preliminary Design WD = Working Drawings

Project Title	Total Project Budget (\$M)	Construction Budget (\$M) <i>(Construction contract value)</i>	New Const (GSF)	Renovation (GSF)	CY 2022				CY 2023				CY 2024				CY 2025			
					JAN-MAR	APR-JUN	JUL-SEP	OCT-DEC	JAN-MAR	APR-JUN	JUL-SEP	OCT-DEC	JAN-MAR	APR-JUN	JUL-SEP	OCT-DEC	JAN-MAR	APR-JUN	JUL-SEP	OCT-DEC
					FY22		FY23		FY24		FY25		FY26		FY24		FY25		FY26	
					Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2
Holden Hall Renovations	\$74.9	\$58.5	82,905	20,240	WARRANTY															

Designer: Moseley

Builder: WM Jordan

Creativity & Innovation District Living Learning Community

**Design-Build
 BOV Authorized**



Status:

- Warranty period complete

Next Actions:

- Close out project

LEGEND: Design Construction **SD = Schematic Design** **PD = Preliminary Design** **WD = Working Drawings**

Project Title	Total Project Budget (\$M)	Construction Budget (\$M) <i>(Construction contract value)</i>	New Const (GSF)	Renovation (GSF)	CY 2022				CY 2023				CY 2024				CY 2025							
					JAN-MAR	APR-JUN	JUL-SEP	OCT-DEC	JAN-MAR	APR-JUN	JUL-SEP	OCT-DEC	JAN-MAR	APR-JUN	JUL-SEP	OCT-DEC	JAN-MAR	APR-JUN	JUL-SEP	OCT-DEC				
					FY22		FY23		FY24		FY25		FY26		FY22		FY23		FY24		FY25		FY26	
					Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2
Creativity & Innovation District Living Learning Community	\$105.5	\$85.3	232,000																					

Designer: Hanbury

Builder: WM Jordan

Improve Kentland Facilities (Phase II)

Design-Bid-Build
State
Authorized

APR Building



MRL Building



BETR Building



Status:

- APR Building construction complete
- BETR Building construction complete
- MRL Building construction complete

Next Actions:

- APR Building: None -- warranty period complete)
- BETR Building: None -- warranty period complete)
- MRL Building: Resolve manure treatment issue (design/warranty issue)

LEGEND: Design Construction SD = Schematic Design PD = Preliminary Design WD = Working Drawings

Project Title	Total Project Budget (\$M)	Construction Budget (\$M) (Construction contract value)	New Const (GSF)	Renovation (GSF)	CY 2022				CY 2023				CY 2024				CY 2025				
					JAN-MAR	APR-JUN	JUL-SEP	OCT-DEC	JAN	MAR	APR-JUN	JUL-SEP	OCT-DEC	JAN-MAR	APR-JUN	JUL-SEP	OCT-DEC	JAN-MAR	APR-JUN	JUL-SEP	OCT-DEC
					FY22		FY23		FY24		FY25		FY26								
Q3 Q4		Q1 Q2		Q3 Q4		Q1 Q2		Q3 Q4		Q1 Q2		Q3 Q4		Q1 Q2							
Improve Kentland Facilities (Phase II) -- Various Locations	\$12.5	\$10.1	28,403		WARRANTY																

Designer: Spectrum Design

Builder(s): APR = Snyder; MRL & BETR = CPPI

Multi-Modal Transit Facility



Design-Bid-Build Town of Blacksburg (ToB) Project



Status:

- Construction underway (approx 60% complete)

Next Actions:

- Anticipated completion in fall 2023

LEGEND:	Design	Construction	SD = Schematic Design	PD = Preliminary Design	WD = Working Drawings
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Project Title	Total Project Budget (\$M)	Construction Budget (\$M) <i>(Construction contract value)</i>	New Const (GSF)	Renovation (GSF)	CY 2022				CY 2023				CY 2024				CY 2025			
					JAN-MAR	APR-JUN	JUL-SEP	OCT-DEC	JAN-MAR	APR-JUN	JUL-SEP	OCT-DEC	JAN-MAR	APR-JUN	JUL-SEP	OCT-DEC	JAN-MAR	APR-JUN	JUL-SEP	OCT-DEC
					FY22		FY23		FY24		FY25		FY26		FY27		FY28			
					Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2
Multi-Modal Transit Facility	(Note 1)	N/A	N/A	13,606																

Note 1: Non-VT project

Designer: Wendel (ToB contract)

Builder: WM Schlosser (ToB contract)



Definitions

- **State Authorized:** Authorized and funded (whole or in part) by the Virginia General Assembly
- **BOV Authorized:** Authorized and funded by the Virginia Tech Board of Visitors

- **Schematic Design Phase** = 0% to approx 20% design complete
- **Preliminary Design Phase** = Approx 20% to approx 50% design complete
- **Working Drawing Phase** = Approx 50% to 100% design complete

- **GMP** = Guaranteed Maximum Price

Construction Methods

Design-Bid-Build (DBB):

- A/E completes full design
- Invitation For Bid (IFB) issued...contract awarded to lowest bidder

Construction Manager at Risk (CMaR):

- A/E completes full design
- Prospective CMaR's compete for project during early stage of design
- CMaR selected based upon "best value" during Schematic Design phase
- When final designs are complete, CMaR develops Guaranteed Maximum Price (GMP)

Design-Build (D/B):

- A/E completes partial design ("criteria docs")
- D/B teams (builder + A/E) compete for project and propose full price for project delivery
- Selection based upon "best value"
- D/B team completes design and executes construction

UPDATE ON AGRICULTURAL FACILITIES AND PARTNERSHIPS

Alan L. Grant, Ph.D.

Dean of the College of Agriculture and Life Sciences

Paul M. Winistorfer, Ph.D.

Dean of the College of Natural Resources and Environment

March 20, 2023



NON-CAPITAL PROJECT PROGRESS



Eastern Shore AREC Pump House exterior repairs and new dock



PFRC Q-Lab

Completed projects:

- Eastern Shore AREC Exterior Building Repairs
- Quarantine Lab Room 8 Renovation at Prices Fork Research Center
- 2nd feed mixer at Kentland Dairy Center
- 7 minor projects

NON-CAPITAL PROJECT PROGRESS



Turfgrass Research Center
New Equipment Shed Rendering



Southern Piedmont Irrigation Pond Dam



Active projects

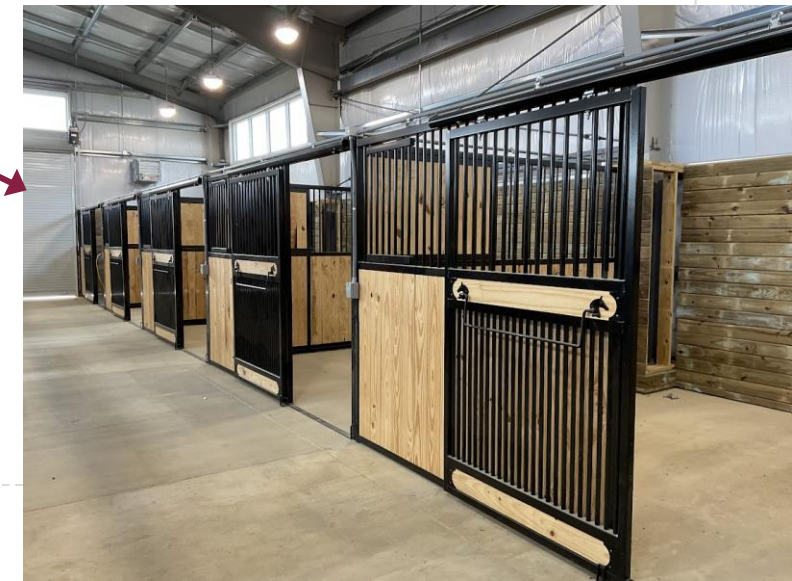
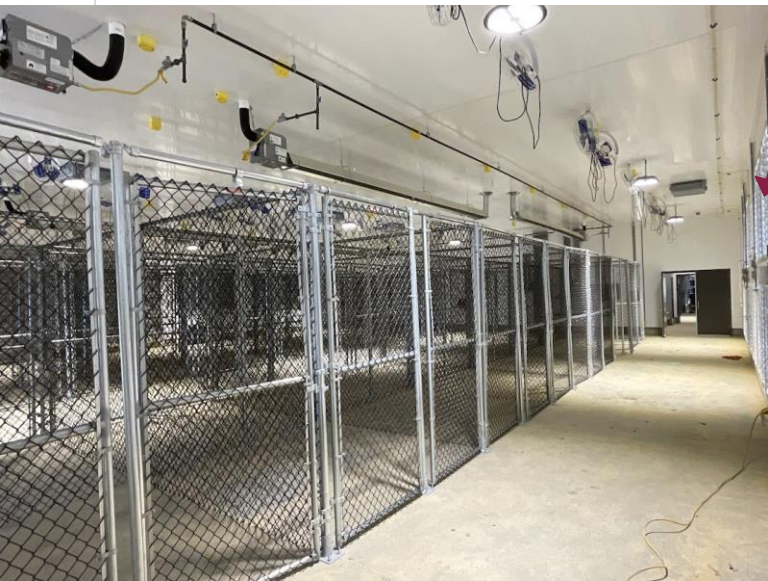
- 10 projects in construction
- 19 projects in design
- 9 new unit-funded projects in planning or design
- Working with the Division of Campus Planning, Infrastructure, and Facilities on new Dam Safety program for ponds at ARECs
- Collaborating with the university's Zero Waste Consultant for updates to Compost Facility planning

CAPITAL PROJECT PROGRESS - CONSTRUCTION



LIVESTOCK AND POULTRY RESEARCH FACILITIES, Phase 1, Bid Package Updates:

- BP 1 Swine: 99% complete. Target Substantial Completion: March 2023
- BP 2 Beef Nutrition and Kentland Hay Shed: 99% complete. Target Substantial Completion: April 2023
- BP 3 Turkey and Broiler Grow-out Facilities: 99% Complete (buildings). Target Substantial Completion: March 2023
- BP 4 Equine and Equipment Storage: 100% complete. Substantial Completion: February 2023
- BP 5 Three Hay Sheds: Bidding to begin March 2023
- BP6 Final Demolition: Drawings being finalized for bidding.



CAPITAL PROJECT PROGRESS - PLANNING



Hampton Roads AREC Relocation Study:

- Complete and delivered to General Assembly December 2022.
- Three sites reviewed; \$102M-\$116M building and land development cost (2022 dollars)
- Six-year timeline to design, build, and move.

- Agency 229 Six-year Capital Outlay Plan development
 - Center Woods Complex Improvements
 - System-wide AREC Improvements, Phase 1
 - Glade Road Research Center Replacement
 - HABB-II Plant and Environmental Sciences Research Facility
 - Livestock and Poultry Research Facilities, Phase 2



Programming Study

Plant & Environmental Sciences Research Facility(HABB-II)



Technology and Connectivity

- Kentland Dark Fiber project complete; upgraded bandwidth from 200MB to 10GB and lowered monthly charges
- Network Equipment Upgrade and Expansion Project:
 - All equipment has arrived except for the wireless access antennas
 - Staff is now installing, configuring, and testing the backend equipment needed to get some of the equipment onto the network
 - Installations have started and will continue for much of the year



Technology and Connectivity

- AREC Bandwidth Upgrade Project complete; significant upgrades in fiber connectivity to most of the locations
- AREC Audio Visual upgrades:
 - Phase I complete
 - A new phase is in project initiation to look at upgrading some of the smaller AREC offices



A/V Installation at Alson H. Smith Jr. AREC

VIRGINIA'S AGENCY 229 AGRICULTURAL EXPERIMENT STATION COOPERATIVE EXTENSION

VIRGINIA-MARYLAND
COLLEGE OF
VETERINARY
MEDICINE

COLLEGE OF
AGRICULTURE
AND LIFE
SCIENCES

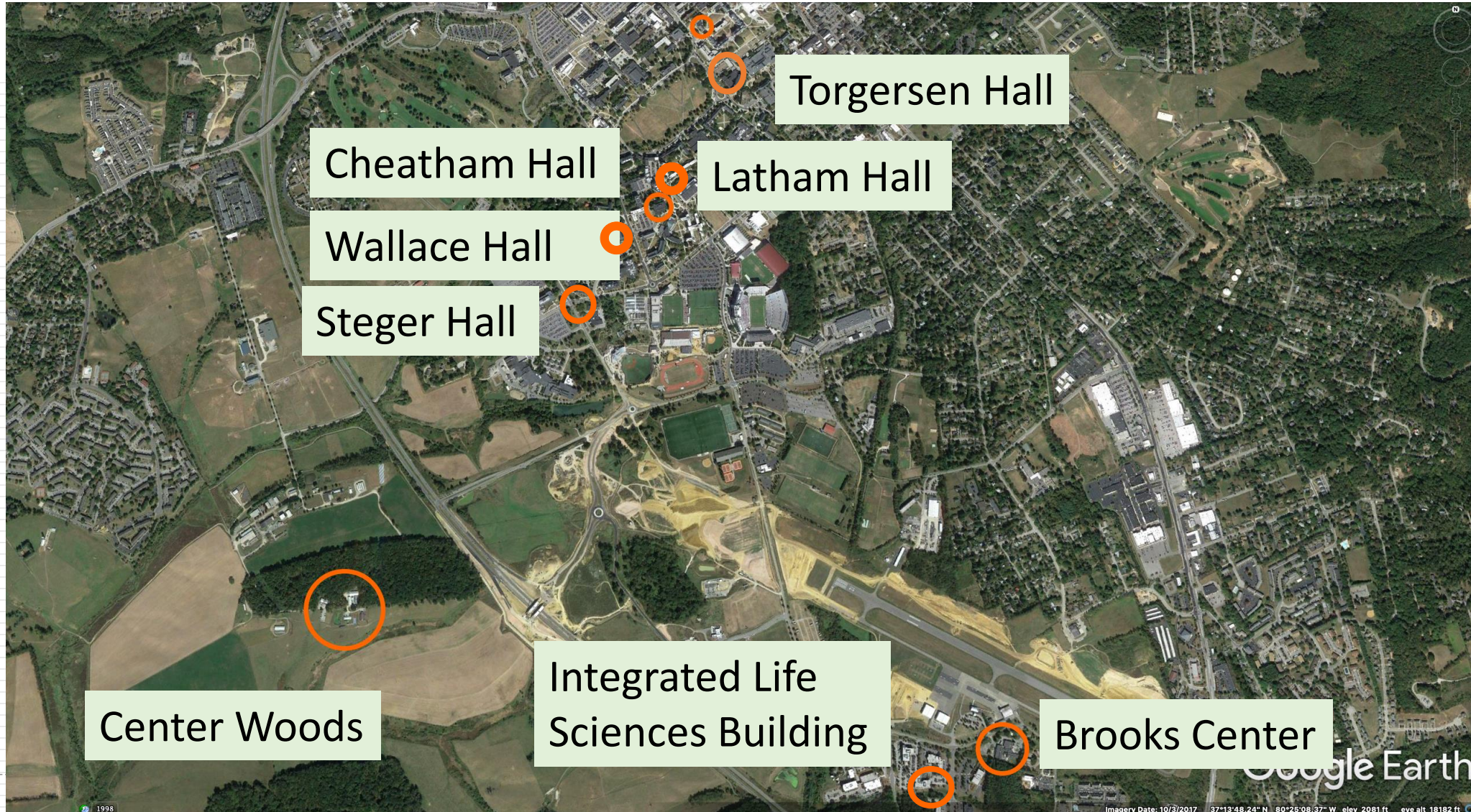
COLLEGE OF
NATURAL
RESOURCES AND
ENVIRONMENT

*College of Natural Resources
and Environment*

PAUL M. WINISTORFER, DEAN



CNRE Locations on Blacksburg Campus



CNRE Locations in Blacksburg - Arlington



Leased space in University City Blvd Mall

for the Conservation Management Institute –

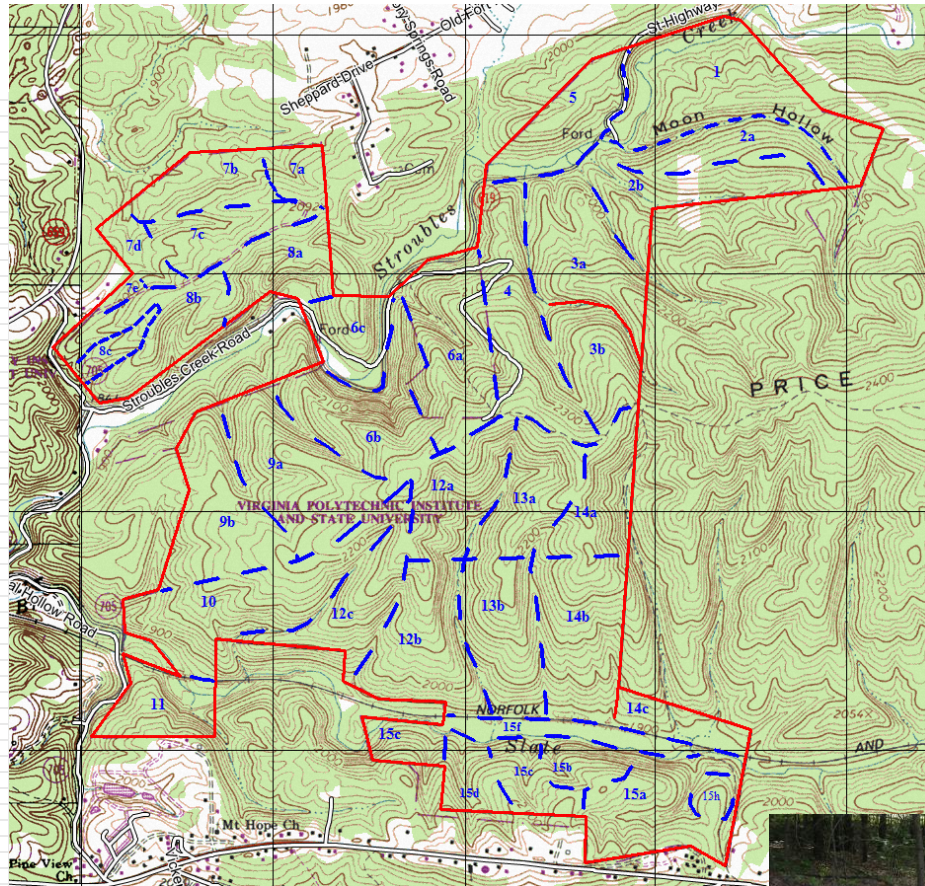
- \$2.5 million research expenditures per year; since Year 2000 \$40 million in expenditures
- \$40,000 annual lease



VT Research Center Arlington – The Center for Leadership In Global Sustainability; The Center for Environmental Security

- 175 master students enrolled
 - \$80,947 annual lease for four offices and two cubicles
- The classroom rentals for the XMNR are additional

CNRE Locations in Blacksburg - Fishburn Forest



- 1200 acres located on Price Mountain
- 8 miles West of Campus
- Access via Prices Fork Road (north side)
- Access via State Hwy 114 (South Side)
- Used weekly for forestry teaching, research, outreach
- Cell tower lease income
- All management, road, improvement costs born by the college
- Critical for our forestry program long term



Reynolds Homestead Forestry Field Station - Critz, Virginia - 70 miles from Blacksburg



Cheatham Hall - Dedicated 1973 - at capacity



Cheatham Hall is fully occupied; college investment of \$2 million over a decade to upgrade labs, offices, classrooms, advising center, student lounge, hallways,

Google Earth

Cheatham Hall - Dedicated 1973 - at capacity

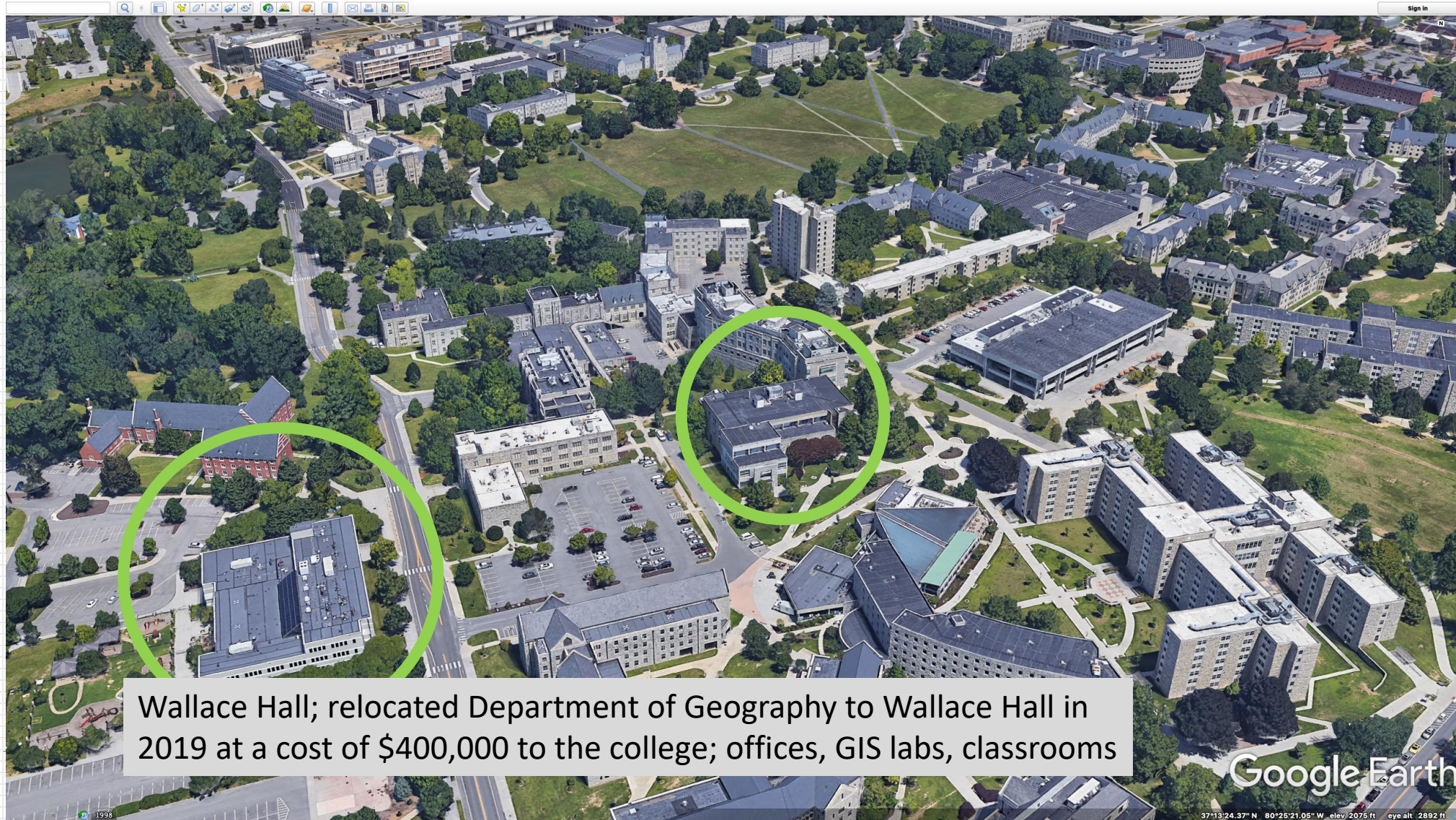


Recently completed renovation:

- Classroom 317 – ceiling, lights, paint, projection, glass boards, seating - \$75,000
- Biomaterials chemistry lab – hoods, benches, cabinets, floor, lights - \$300,000
- Major renovation project each year since 2010



Wallace Hall - CNRE Department of Geography - Home to Meteorology Program



Wallace Hall; relocated Department of Geography to Wallace Hall in 2019 at a cost of \$400,000 to the college; offices, GIS labs, classrooms

Google Earth

37°13'24.37" N 80°25'21.05" W elev 2076 ft eye alt 2892 ft

Thomas M. Brooks Forest Products Center

- Home to the Department of Sustainable Biomaterials
- The first building in what is now the Corporate Research Center
- 40,000 sq. ft. of offices, classrooms, high bay engineering labs – 3 separate building projects/additions
- Home to Center for Packaging and Unit Load Design – Ikea and Amazon certified test labs
- Student instruction in labs and classrooms; travel back-and-forth to campus is an obstacle



Thomas M. Brooks Forest Products Center



Wood Engineering Lab is a high-bay lab with fork truck access, large test frames for testing wood assemblies, and conditioning chambers.



Innovation Lab Renovated to become a clean, well-equipped lab for student instruction in packaging

Thomas M. Brooks Forest Products Center

- Additional lab and classroom space is needed
- Flat roof, plywood siding is a maintenance issue continually
- Electrical, HVAC, windows are end of life
- Additional parking is needed
- Cosmetic upgrade throughout is needed
- A shipping container was purchased to provide secure external storage



Thomas M. Brooks Forest Products Center

Student access from bus stop is challenging – sidewalk is needed from Kraft Drive to the Brooks Center. Covered bus stop is needed. It can take students up to 30 minutes to travel from campus to the Brooks Center

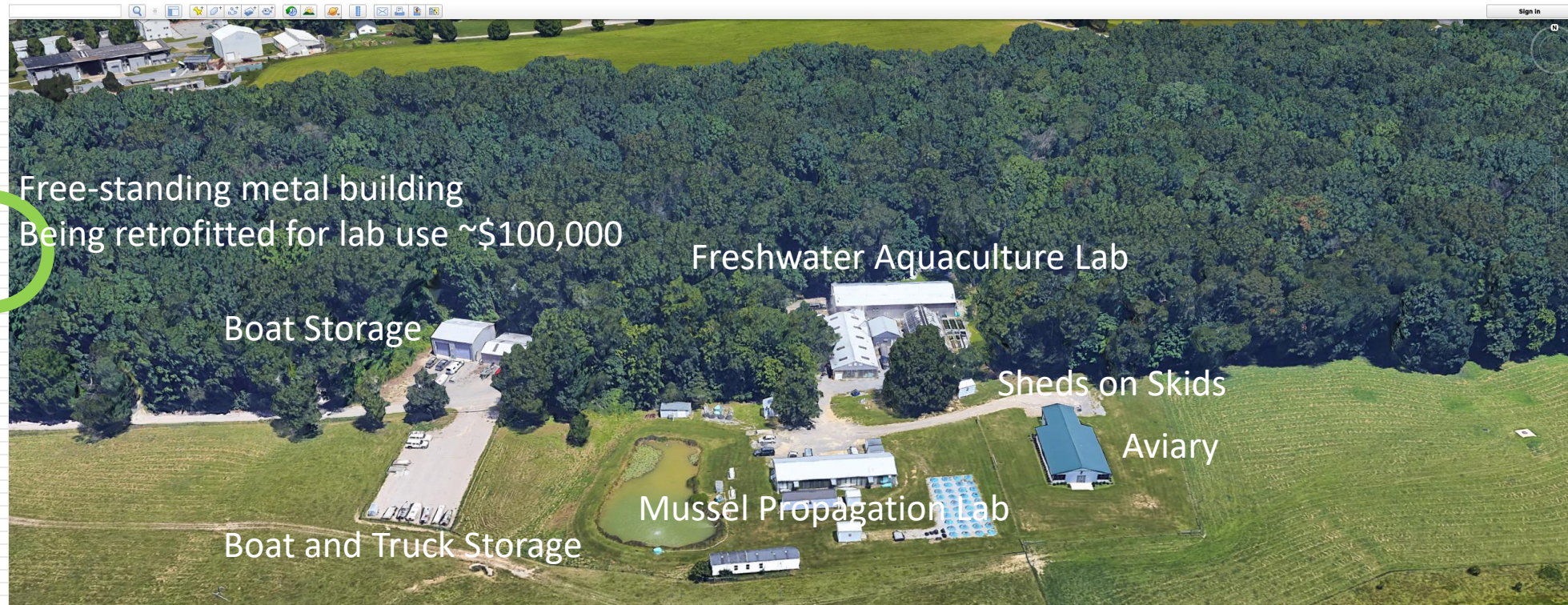


Center Woods - 39 Acre Forest and Infrastructure Adjacent to Campus and Route 460



- Aviary constructed at a cost of \$700,000 with college resources
- Faculty purchase storage sheds for field equipment – sheds on skids from Lowes/Home Depot
- Fleet of boats need indoor storage – some theft in the past (more than 20 boats and trucks)
- Road maintenance is an issue
- Well water

Center Woods - 39 Acre Forest and Infrastructure Adjacent to Campus and Route 460



- Agency 229 Capital Priority is to construct a 28,000 sq. ft. metal building with labs, offices, maintenance facility, indoor storage
- Relocate Conservation Management Institute from Univ. City Mall and eliminate lease payment
- Provide needed space for researchers, post doctoral researchers, staff
- Long term preservation and use of Center Woods by college faculty, staff, and students

College of Natural Resources and Environment

- CNRE facilities are at capacity, in every building, every space.
- College continues to make internal investments in renovations.
- Facilities and Infrastructure are not nationally competitive at a time of significant faculty retirements and recruitment.
- Center Woods is priority #1; Brooks Center is priority #2.
- Advocate for multiple smaller capital projects/renovations at the state level rather than one large capital request. \$20-25 million addition to Cheatham Hall would prepare us for the decades ahead and be a good return on investment .

*College of Natural Resources
and Environment*

Thank You!

PAUL M. WINISTORFER, DEAN



PROJECT NAME	PROJECT DESCRIPTION	ESTIMATED TOTAL PROJECT COST	FUND SOURCE	PROJECT TEAMS	CONTRACT COMPLETION DATE	PROJECT STATUS
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CAPITAL PROJECTS
Updates through February 28, 2023

PROJECTS IN CONSTRUCTION

Improve Kentland Facilities, Phase II	Applied Reproduction Facility (APR): 4,510 SF barn at Vet-Med for palpation and breeding instruction. Bovine Extension, Teaching and Research (BETR) Facility: 3,500 SF classroom building and 5,100 SF demonstration arena at livestock center on Plantation Road. Metabolic Research Laboratory (MRL): 11,330 SF animal laboratory at the Dairy Center at Kentland Farm.	\$12,463,000	Capital Outlay	Spectrum	Fall 2020	All projects have reached substantial completion and have certificate of occupancy. Minor corrective work is ongoing.
				Snyder, CPPI		
New Virginia Seafood AREC Building	21,698 SF, 3-story building to replace existing aging and structurally unsound facility in Hampton, Virginia with state-of-the-art aquaculture research and extension facilities. Facility owned and developed by Virginia Tech Foundation.	\$9,260,000	Various	RRMM	April 2022	Certificate of Occupancy has been received. Remaining punch list and change order items are nearly complete. Commissioning continues to find and address issues. Final equipment connections pending delivery and startup. Move in is complete and old building vacated.
				E.T. Gresham		
Livestock and Poultry Research Facilities, Phase I	Pkg 1: New Swine Center at Kentland Farm. Pkg 2: New Beef Nutrition Facility & Hay Shed at Kentland Farm Pkg 3: New Broiler & Turkey Grow-out facilities at the Turkey Research Center (Glade Rd.) Pkg 4: New Equitation Barn & Equipment Storage Building at Livestock Center (Plantation Rd.) Pkg 5: 3 New Hay Sheds at Smithfield Horse Center, Fields west of US 460, and Heth Farm Pkg 6: Final Demolition of remaining facilities	\$31,074,000	Capital Outlay	Spectrum	Packages 1-4: Winter 2022/23	Packages 1-4 are under construction and progressing toward completion this winter. Priority 1 Equipment buy-out is nearly complete. Occupancy to occur over spring and summer. Packages 5-6: Package 5 is being prepared for bidding to secure funding. Package 6 will follow once the existing swine center is fully vacated.
				Pkg 1: SIMCON Pkg 2: CPPI Pkg 3: CPPI Pkg 4: Clark Nexsen Pkg 5: TBD Pkg 6: TBD		

PROJECTS IN DESIGN

(none)

PROJECT INITIATION / PLANNING STAGE

System-Wide AREC Improvements, Phase I	Renew and expand aging and deteriorating AREC facilities. Revised phasing will address all capital needs at specific ARECs during each phase.	TBD	Capital Outlay	TBD	TBD	Reviewing priority needs to determine 2-3 ARECs for inclusion in Phase I scope.
				TBD		
Relocation of Hampton Roads AREC	Study requested by the General Assembly to evaluate possible relocation of the Hampton Roads AREC to a new site. Report to assess existing asset inventory, programmatic needs, new site requirements and possible alternatives.	\$500,000	Capital Outlay	AECOM	Dec-22	Study is complete. Final report delivered to General Assembly in December 2022.
				TBD		
Human and Agricultural Biosciences Building II	Construct new research lab facility for the School of Plant and Environmental Sciences to co-locate numerous research teams in one location with modernized facilities to focus on studying climate change.	\$68,000,000	Capital Outlay	EYP	TBD	Re-programming effort completed with a \$53.5 M construction target. Draft Feasibility report is under review for inclusion on 2024-2030 CALS' six-year capital outlay plan request.
				TBD		
2024-2030 6-Year Capital Outlay Plan	Capital budget requests for six projects: CNRE Center Woods, System-Wide AREC Improvements Phase I, Glade Road Relocation, Livestock and Poultry Research Facilities Phase II, Human and Agricultural Biosciences Building II, and System-Wide AREC Improvements Phase II.	TBD	TBD	TBD	TBD	Plan is under development for December submission to Capital Budgeting and Financing
				TBD		

NON-CAPITAL PROJECTS
Updates through February 28, 2023

PROJECTS COMPLETED SINCE LAST REPORT

<u>Minor Projects (<\$25,000 each):</u> Middleburg AREC House 318 Plumbing Repairs Shenandoah Valley AREC Drainage Improvements Shenandoah Valley AREC PRV Installation Southwest AREC Power Upgrades for Smart Feeders Tidewater AREC Emergency Elec. Meter Replacement Tidewater AREC Hog Barn Electrical Repairs Employee House 315 Interior and Exterior Repairs	Repairs to deteriorated piping, hot water heater, and laundry facilities. Minor grading and new underdrain to correct drainage problems around main barn area. Installation of equipment to manage increased water service pressure from county. Additional power and data circuits in Cattle Barn for new feeding equipment. Emergency installation of new electric meter base after new smart meter began to overheat. Miscellaneous electrical and lighting repairs in swine area. Wall damage repairs and exterior maintenance.	\$48,000	CALS / VAES	-	Winter 2022/2023	Complete
				-		
Prices Fork Quarantine Lab Room 8 Renovation	Minor Modifications to improve workflow and safety within Entomology Quarantine Facility at Prices Fork Research Center.	\$37,000	CALS	In house	Winter 2022/2023	Work is complete.
				Multiple		

PROJECT NAME	PROJECT DESCRIPTION	ESTIMATED TOTAL PROJECT COST	FUND SOURCE	PROJECT TEAMS	CONTRACT COMPLETION DATE	PROJECT STATUS
Eastern Shore AREC - Exterior Building Repairs	Multiple buildings are in need of exterior repairs. Head house (1214) and Shop Building (1215) is in need of structural repairs to walls and repointing. Implement Shed (1216), Sweet Potato Storage (1217), Produce Grading (1218), and Insectary (1220) need exterior waterproofing, door repair, pointing repairs and gutters.	\$596,000	Maintenance Reserve	Structures Group ET Gresham	Winter 2022/2023	Work is complete.
Kentland Farm Dairy Center 2nd Feed Mixer installation	An additional feed mixer has been purchased by the School of Animal Sciences for use at the Dairy to increase capacity and feed variability. This project is to provide necessary electrical upgrades to run the equipment.	\$18,000	CALS	- Shively	Winter 2022/2023	Work is complete.
PROJECTS IN CONSTRUCTION						
<u>Minor Projects (<\$25,000 each):</u> Reynolds Homestead FRRC Exterior Repairs Shenandoah Valley AREC Working Pens Middleburg AREC Laundry Hookup Middleburg AREC Freeze Damage Repairs	Repair deteriorating eaves and trim on main AREC building. Installation of new working pens and open shed. Washer and dryer connections for two buildings. Repairs in 812 Annex due to frozen pipes bursting during holiday break.	\$40,000	CALS / VAES	- Multiple	Ongoing	In Progress
AREC Exterior Signage Upgrades	Installation of 2 new exterior signs at each AREC with refreshed design to match current branding.	\$81,000	CALS / VAES	- Westview, Gropen	TBD	Signage installation complete at Tidewater, Southwest Virginia, Alson H. Smith Jr., Eastern Virginia, Middleburg, Southern Piedmont, and Shenandoah Valley ARECs. Final design and fabrication pending at others.
Beef Barn Repairs	Exterior and interior demolition followed by the installation of new roofing, hay loft flooring, doors, windows and lighting. This work was originally included in LPRF Phase 1, but removed due to scope concerns.	\$1,064,000	Maintenance Reserve	HDH, FEA Thor, SRC	Summer 2023	Construction in progress. Roofing and lighting replacement complete. Structural repairs underway. Additional structural deterioration discovered during construction requiring extension of project schedule.
Eastern Virginia AREC - Experiment Building Renovation	Renovation and upgrade of existing under-utilized office, workshop and meeting space. Building HVAC system has failed and is not working. Electrical and plumbing are outdated. Building is not ADA accessible. General condition is deteriorating.	\$195,000	Maintenance Reserve	Structures Group Eagle River	Spring 2023	Construction is underway. Project extended due to additional design required for mechanical and electrical repairs.
Tidewater AREC - Water system repair	Water line from well to main office complex is failing in multiple locations and requires frequent repairs, creating water quality concerns. Project is to connect to public water system with 2-inch water line, add backflow preventer, and re-connect non-potable water line to well for irrigation purposes.	\$40,000	Maintenance Reserve	- Lewis Construction	Spring 2023	City water line is complete to new meter. New water line from meter to building installed November 2022. Remaining work to occur Spring 2023.
Prices Fork Quarantine Lab Emergency Generator	Installation of new backup generator for operational reliability at Entomology Quarantine Facility at Prices Fork Research Center.	\$66,000	CALS	Gibson Engineering Davis H. Elliott	Summer 2023	Generator has been ordered. Projected ship date is April 2023. Installation to follow.
Southern Piedmont AREC - Packhouse Restroom Repairs	Packhouse (0897) restroom is in need of plumbing repairs and upgrade to be reconfigured for ADA access. Packhouse roof is leaking and needs repair.	\$122,000	Maintenance Reserve	Thompson & Litton Stoker Construction	Spring 2023	Work is underway, nearing final completion.

PROJECT NAME	PROJECT DESCRIPTION	ESTIMATED TOTAL PROJECT COST	FUND SOURCE	PROJECT TEAMS	CONTRACT COMPLETION DATE	PROJECT STATUS
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PROJECTS IN DESIGN

<p><u>Minor Projects (<\$25,000) each:</u> Tidewater AREC Peanut Storage Shed Eastern Virginia AREC RTK Tower Installation Tidewater AREC RTK Tower Installation Southern Piedmont AREC RTK Tower Installation Southwest AREC Ram Barn Shed Extension</p>	<p>960 square foot prefabricated structure for field storage of harvested peanuts. Power and data connections for new GPS and Wi-Fi tower. Power and data connections for new GPS and Wi-Fi tower. Power and data connections for new GPS and Wi-Fi tower. Extend existing lean-to shed for additional feed pens, bunk space, holding pens and loadout.</p>	\$52,000	CALS / VAES	-	Various	In Progress
				Multiple		
Grenhouse F5 Structural and Mechanical Repairs	End wall of Greenhouse F5 at the Lutz Greenhouse Complex on Washington Street has deteriorate and needs to be repaired, along with mechanical equipment installed in the wall. Electrical repairs are also required.	TBD	Maintenance Reserve	-	TBD	Final cost is being developed with term contract greenhouse contractor.
				Puckett		
Heth Farm Shed and Silo Demolition	Demolish two structures that are currently unsafe and operationally unnecessary	TBD	CALS	TBD	TBD	Lead and asbestos study complete. Obtaining quotes and permits for demolition.
				TBD		
Judging Pavilion Repairs	Exterior and interior demolition followed by installation of new flooring, doors, windows, HVAC system, lighting, a covered walkway and exterior paint. This work was originally included in LPRF Phase 1, but removed due to scope concerns.	\$362,000	Maintenance Reserve	TBD	TBD	Scope review with University Building Official (UBO) is necessary to resolve code requirements and funding eligibility. Project deferred to 2023.
				TBD		
Campbell Arena Repairs	New enclosure of the existing open-air steel structure constructed of metal panel siding over steel girts and posts. This work was originally included in LPRF Phase 1, but removed due to scope concerns. Existing equitation barn to be repurposed for small animal research and extension activities.	\$93,000	Maintenance Reserve, CALS	Hughes	TBD	A/E Proposal development underway.
				TBD		
Hampton Roads AREC Chiller Replacement	Existing chiller failed and must be replaced before cooling season.	\$150,000	Maintenance Reserve	Virginia A&E	Summer 2023	Bid documents being finalized.
				TBD		
Alson H. Smith Jr. AREC Chilled Water System repairs	Existing chillers are leaking and utilize a refrigerant that is no longer readily available. System condition is deteriorating and in need of major repair and replacement.	\$338,000	Maintenance Reserve	TBD	TBD	Contractor quote under review.
				TBD		
Middleburg AREC Stable exterior repairs	Existing roof and windows are leaking. Several stalls are unusable due to leaks. Several windows are rotten.	\$100,000	Maintenance Reserve	5 Design	TBD	Design work underway.
				TBD		
Middleburg AREC Clinic/Admin Building HVAC repairs	Two existing heat pump systems have failed during critical and ongoing research projects.	\$40,000	Maintenance Reserve	5 Design	TBD	Design work underway.
				TBD		
Prices Fork Quarantine Lab Autoclave installation	Installation of new 3-phase electric service and new autoclave for more reliable sterilization process.	TBD	CALS	5 Design	TBD	Bidding is in progress.
				TBD		
Tidewater AREC Main Office and Lab Roof Replacement	Existing roof is leaking causing damage to main lobby interior walls and classroom area.	\$78,000	Maintenance Reserve	HDH	TBD	A/E Proposal development underway.
				TBD		
Tidewater AREC Entomology Lab Heat Pump Replacement	Existing heat pump is failing and must be replaced.	\$15,000	Maintenance Reserve	-	TBD	Seeking contractor quotes (3-bid)
				TBD		
Southern Piedmont AREC - Building Repairs	Repair/replace siding and five deteriorated lean-to equipment storage sheds attached to four tobacco curing barns (0893A, 0893B, 0893C, 0893D)	\$51,000	Maintenance Reserve	TBD	TBD	A/E Proposal development underway.
				TBD		
Turfgrass Research Center Equipment Shed	New 1,440 square foot open-front pole shed at the Turfgrass Research Center for weather-protected storage	\$25,000	CALS	-	TBD	Space request approved. Design approved by A&E. Seeking contractor quotes.

PROJECT NAME	PROJECT DESCRIPTION	ESTIMATED TOTAL PROJECT COST	FUND SOURCE	PROJECT TEAMS	CONTRACT COMPLETION DATE	PROJECT STATUS
Tongrass Research Center Equipment Shed	of equipment.	\$25,000	CALS	TBD	TBD	Space request approved. Design approved by AARB. Seeking contractor quotes.
Alphin-Stuart Arena Parking Lot paving	Paving over existing gravel parking area to reduce annual maintenance, solve drainage problems, expand number of spaces, and provide all-weather parking surface. Heavy-duty asphalt section to be installed for possible future bus turnaround.	TBD	CALS	-	May 2023	Contractor quote in progress
				Blackstone Construction		
PROJECT INITIATION / PLANNING STAGE						
Compost Facility (to support main campus & surrounding farms)	CALS is experiencing significant and growing land pressure to meet nutrient management plan requirements, which would be greatly eased by the proposed compost facility. This initiative also has an extremely high level of student support as well as potential partnerships with Dining Services, Athletics and Facilities. Project is included in 228-2 Capital Budget Request, but is a high priority for separate, earlier funding, if possible, due to regulatory risk exposure from limited manure storage during winter months.	\$1,823,000	TBD	Coker Composting & Consulting, Reduction in Motion	TBD	Zero Waste consultant team updating plan, assessing current waste stream, and evaluating alternate composting methods.
				TBD		
Turkey Farm Processing Building Repair	Interior Demolition followed by the installation of new cold-formed steel stud interior partitions, new doors and a window, fiberglass reinforced plastic paneling and epoxy painted floors. This work was originally included in LPRF Phase 1, but removed due to scope concerns.	\$140,000	Maintenance Reserve	TBD	TBD	Scope and budget development.
				TBD		
Moore Farm Barn 0501 Repairs	This highly visible and prominent barn is for many purposes such as lambing of sheep, loafing facility, hay bale storage, emergency storage for weather-affected crops, and equipment and parts storage. The condition of the roof and siding is poor, failing to provide the necessary weather protection. Without mitigation soon, the condition will deteriorate to the point of loss.	TBD	Maintenance Reserve	TBD	TBD	Scope and budget development.
				TBD		
Moore Farm Shed 0508 Repairs	This hay shed was built in the 1950's and received heavy use for that purpose. Over the years its condition has continued to worsen and recent wind and snow storms have accelerated the deterioration. In order to execute research projects utilizing recently renovated fields, the Beef Cattle unit now needs to utilize this shed as a working facility for cattle. This would involve pouring a concrete floor and moving in cattle working equipment. However, the structural condition of this facility is poor and should be addressed prior to additional use. It may be more cost effective to rebuild than to repair this structure.	TBD	Maintenance Reserve	TBD	TBD	Scope and budget development.
				TBD		
Alson H. Smith AREC - Repair paving and parking	Existing asphalt parking lot and drives are deteriorating and in need of repaving.	\$56,000	Maintenance Reserve	TBD	TBD	Scope and budget development. Construction planned in FY 2023.
				TBD		
Southern Piedmont AREC - Pavement repairs	Existing main parking lots (3) and primary internal roadways are deteriorating and in need of repair. Approximately 1,300 square feet of milling and 8,400 square yards of 2-inch asphalt overlay required.	\$126,000	CALS / VAES	-	TBD	Contractor quote received. Funding options being evaluated.
				TBD		
Middleburg AREC - Exterior Repairs	Siding on several buildings is in need of repair/replacement due to advanced age: Annex (0812), Frame Beef Barn (0807), Milking Barn and Milk House (0809), Loafing Barn (0810), Clinic/Admin Building (0823), Stable (0824). 8 run-in sheds (0799) are deteriorating and in need of repair or replacement. Corn House and Machinery Shed (0803) is in need of structural repairs. Basement of Annex (0812) floods and needs drainage corrections.	\$158,000	Maintenance Reserve	TBD	TBD	Scope and budget development.
				TBD		
Shenandoah Valley AREC - Repair/Replace Sheep Barn	Sheep Barn (0854) has rotten posts at ground level and leaking roof. The building should be evaluated for repair or replacement.	\$76,000	Maintenance Reserve	TBD	TBD	Scope and budget development.
				TBD		
Shenandoah Valley AREC - Renovate Carriage House	Renovate Carriage House to add two single-user public restrooms and welcome center area for visitors to the McCormick Farm.	TBD	CALS / VAES	TBD	TBD	Scope and budget development underway. Study will be necessary to address development within historic property for Department of Historic Resources.
				TBD		
Smithfield Equine Complex	Develop new facilities for Equine Complex on Plantation Road including covering outdoor arena, add bleachers, restrooms, announcer stand, fencing, quarantine facility.	TBD	Private	TBD	TBD	Scope and budget development.
				TBD		
Smithfield Equine Classroom Renovations, Phase 2	Completion of building envelope repairs, restroom repairs, accessibility improvements.	\$110,000	Maintenance Reserve, CALS	TBD	TBD	Scope and budget development.
				TBD		
Southern Piedmont AREC Greenhouse Controls Upgrade	Minor project to make power connections for new Smart Greenhouse controls in two greenhouse ranges.	TBD	CALS	-	TBD	Equipment is being ordered.

PROJECT NAME	PROJECT DESCRIPTION	ESTIMATED TOTAL PROJECT COST	FUND SOURCE	PROJECT TEAMS	CONTRACT COMPLETION DATE	PROJECT STATUS
Southern Piedmont AREC Greenhouse Controls Upgrade	Minor project to make power connections for new Smart Greenhouse controls in two greenhouse ranges.	TBD	CALS	Pucket Greenhouses, Growlink	TBD	Equipment is being ordered.
Shenandoah Valley AREC Security Camera installation	Minor project to add security cameras for monitoring historic property.	\$13,000	CALS	-	TBD	Proposal under review by Security Oversight Committee and Office of University Planning.
				Convergint		
Alson H. Smith Jr. AREC Fuel Containment Pit Sealing	Minor project to seal concrete joints and cracks, and add a liner to secondary containment pits around two fuel tank areas.	\$15,000	CALS	-	TBD	Contractor quote under review.
				Consolidated Waterproofing		
Kentland Farm Road Repairs	Pavement condition is deteriorating in areas of high traffic and poor drainage at Kentland Farm. Several sections will need spot repairs and pavement overlay. Other areas in better shape only need seal coat. Additionally, the Kentland UAV runway needs an overlay.	\$350,000	CALS, ICTAS	TBD	TBD	Refining phasing plan
				Blackstone Construction		

INFORMATION TECHNOLOGY (IT) PROJECTS
 Updates through February 28, 2023. New information is in bold.

PROJECTS COMPLETED						
AREC Audiovisual (A/V) Upgrades - Phase I	Installation of new audio and video equipment for ARECs to provide enhanced conferencing abilities in classrooms.	\$70,000	CALS/VAES	CALS IT Vendor: Lee Harman and Sons	December 2022	New classroom A/V projects completed this last quarter for Southern Piedmont and Tidewater ARECs. This completes Phase I of the AREC A/V upgrades. A new phase is under review and described in project initiation section below.
AREC Bandwidth and Internet Connectivity Updates	Project to significantly upgrade the bandwidth for all eleven locations. Connectivity has been limited and unable to meet emerging requirements and ongoing systems support.	\$225,000 Annual Service Charges	CALS/VAES	CALS IT Vendor: Shentel and Comcast	December 2022	Eight of the ARECs were significantly upgraded from an average bandwidth of 130 Megabytes (MB) to now having an impressive 1 Gigabyte (GB) at each location. This bandwidth (1GB) could not be attained at the other locations, but Eastern Shore doubled the bandwidth to 100MB and Reynolds Plantation nearly quadrupled bandwidth to 10MB. After analysis, it was determined that the 50MB connectivity at Eastern Virginia is more than sufficient to meet current and ongoing needs, so no updates planned for that location.

PROJECTS IN PROGRESS						
Bandwidth and Internet Connectivity Improvements (Non-AREC)	Identify and implement bandwidth upgrade opportunities across campus locations to enhance research and address emerging requirements.	Various	CALS / VAES	CALS IT Division of IT	Ongoing	1) Kentland Dark Fiber: Complete. Upgraded from 200MB to 10GB on 01/30/2023. Improved bandwidth and at a cheaper monthly cost! 2) Kentland Swine Center Connection: Complete. New facility connected to CALS network on 01/13/23. 3) Kentland Hay Shed: In planning. 4) Turkey Farm (Glade Rd.): Complete. New facility connected to CALS network on 02/22/23. 5) Turfgrass Center is currently using a cellular hotspot for internet service and CALS is working with vendor to upgrade to fiber connectivity (awaiting on Town of Blacksburg permits).
AREC Voice-Over Internet Protocol (VOIP) Conversion	Convert legacy telephone systems at all ARECs to unified Voice Over Internet Protocol (VOIP) systems to match the voice service on campus.	\$75,000	CALS / VAES	CALS IT Division of IT	On Hold	VOIP conversion projects have been completed at 8 of the 11 ARECs. Remaining locations include Hampton Roads, Reynolds Homestead, and Southwest Virginia ARECs where the existing telephone service has been adequate. The existing service contract expires in two years and the Division of IT has announced that a new Zoom phone contract has been awarded to replace the existing system. It does not make sense to migrate any additional offices to the legacy system, and instead wait to migrate these to the new Zoom offering once it becomes available.
Network Equipment Upgrades and Expansion	This project replaces or upgrades aging Local Area Network (LAN) equipment as well as expand in-building wireless and some external wireless capabilities. This effort also includes the procurement and installation of new "backend" equipment that will be installed on campus to manage and operate the networks at the ARECs and other extension offices.	\$1,140,000	CALS / VAES	CALS IT	Ongoing	All equipment has arrived except for the wireless access antennas. Staff is now installing, configuring, and testing the campus backend equipment needed to get the new equipment integrated into the network. New equipment is being moved to its final location in preparation for installation. Installations will occur throughout the year and dependent upon technician availability and the need to impact local operations.
Real Time Kinematic (RTK)	This project installs Real-Time Kinematic (RTK) systems at select ARECs. RTK enables the ARECs to implement precision agriculture research practices by increasing the precision of standard GPS from an accuracy of 2-4 meters to ~1 centimeter.	\$213,000	CALS / VAES	CALS IT John Deere Trimble	Ongoing	RTK tower and equipment has been installed at Tidewater and Eastern VA AREC. Mobile units for Middleburg AREC and Shenandoah Valley AREC have been received. Tower installations for Eastern Shore and Southern Piedmont are expected to be installed within the next couple of weeks.

PROJECT NAME	PROJECT DESCRIPTION	ESTIMATED TOTAL PROJECT COST	FUND SOURCE	PROJECT TEAMS	CONTRACT COMPLETION DATE	PROJECT STATUS
	<p>Eastern Virginia AREC Field-level Wireless (SmartFarm Project)</p> <p>Installation of new technology, similar to Wi-Fi but with better exterior coverage and security management, in fields at Eastern Virginia AREC to study the effectiveness of this equipment for supporting data-intensive agricultural, plant-based research as well as providing ready access to the internet and data network.</p>	\$53,000	CALs / VAES	<p>CALS IT Dell JMA Pierson Wireless</p>	TBD	<p>After further analysis, this project may not provide the wireless coverage as expected. In addition, costs for new devices (current equipment is not compatible) and annual service charge questions have led to a temporary pause in the project pending clarification from the vendor.</p>
PROJECT INITIATION / PLANNING STAGE						
	<p>Kentland 5G Proposal (SmartFarm Project)</p> <p>A project has been initiated to potentially install new technology in fields that is similar to Wi-Fi but with better exterior coverage and security management. The proposal is to study the effectiveness of this equipment for supporting data-intensive agricultural, animal-based research. This initial project is would create a 5G/CBRS testbed at Kentland Farm.</p>	TBD	TBD	<p>CALS IT Division of IT MAAP VTNSI 5G Consortium</p>	TBD	<p>5G Consortium toured Kentland Farms and learned of potential 5G agricultural applications on January 30 and 31. Continued discussions required to determine roles and responsibilities, funding, and opportunities. Previous efforts have been stymied due to the inability to get tower installation approval at Kentland.</p>
	<p>AREC Audiovisual (A/V) Upgrades - Phase 2</p> <p>Installation of new audio and video equipment for ARECs to provide enhanced conferencing abilities in classrooms. Much of this second phase is focused on some of the smaller AREC offices.</p>	\$130,000	CALs / VAES	<p>CALS IT Vendor: Lee Harman and Sons</p>	TBD	<p>This phase is reviewing the potential for adding A/V systems to Eastern Virginia, Eastern Shore, Middleburg, Shenandoah, and Southwest Virginia AREC offices.</p>

UTILITIES MASTER PLAN



Mary-Ann Ibeziako
Assistant Vice President for Infrastructure and Chief Sustainability Officer

March 20, 2023

OVERVIEW & SCOPE

The Utilities Master Plan will provide a comprehensive framework to ensure that future programmatic needs are met and that the university remains a leader in the field of higher education infrastructure.

Thermal Systems

- *Steam*
- *Chilled Water*

Civil Utilities

- *Sanitary Sewer*
- *Storm Water*
- *Potable Water*
- *Domestic Hot Water*

Electrical Utilities

- *VTES Campus Distribution*

Technology Systems

- *Network Infrastructure & Services Outside Plant (Data/Telecom Infrastructure)*

BRIDGES MASTER PLAN & CAC

Campus Master Plan

In 2018, Virginia Tech completed its most recent master planning effort resulting in 'Beyond Boundaries 2047: The Campus Plan.'

Utilities Master Plan

The Utilities Master Plan will provide a comprehensive roadmap to align campus wide utility systems with the strategies of the Campus Master Plan and the sustainability goals of the Climate Action Commitment.

Climate Action Commitment

In 2020, Virginia Tech revised its Climate Action Commitment, setting sustainability goals and milestones thru 2050.

EXPECTED OUTCOMES



- *Campus-wide stakeholder collaboration and alignment (academic & operational)*
- *Asset management centric program that is responsive to capacity, condition, performance, etc.*
- *Future-looking prioritization of service-level risks and opportunities*
- *Alignment with existing strategic facilities investment programs (facilities renewal, maintenance reserve, capital outlay, etc.)*
- *Sustainable, programmatic utility planning framework*

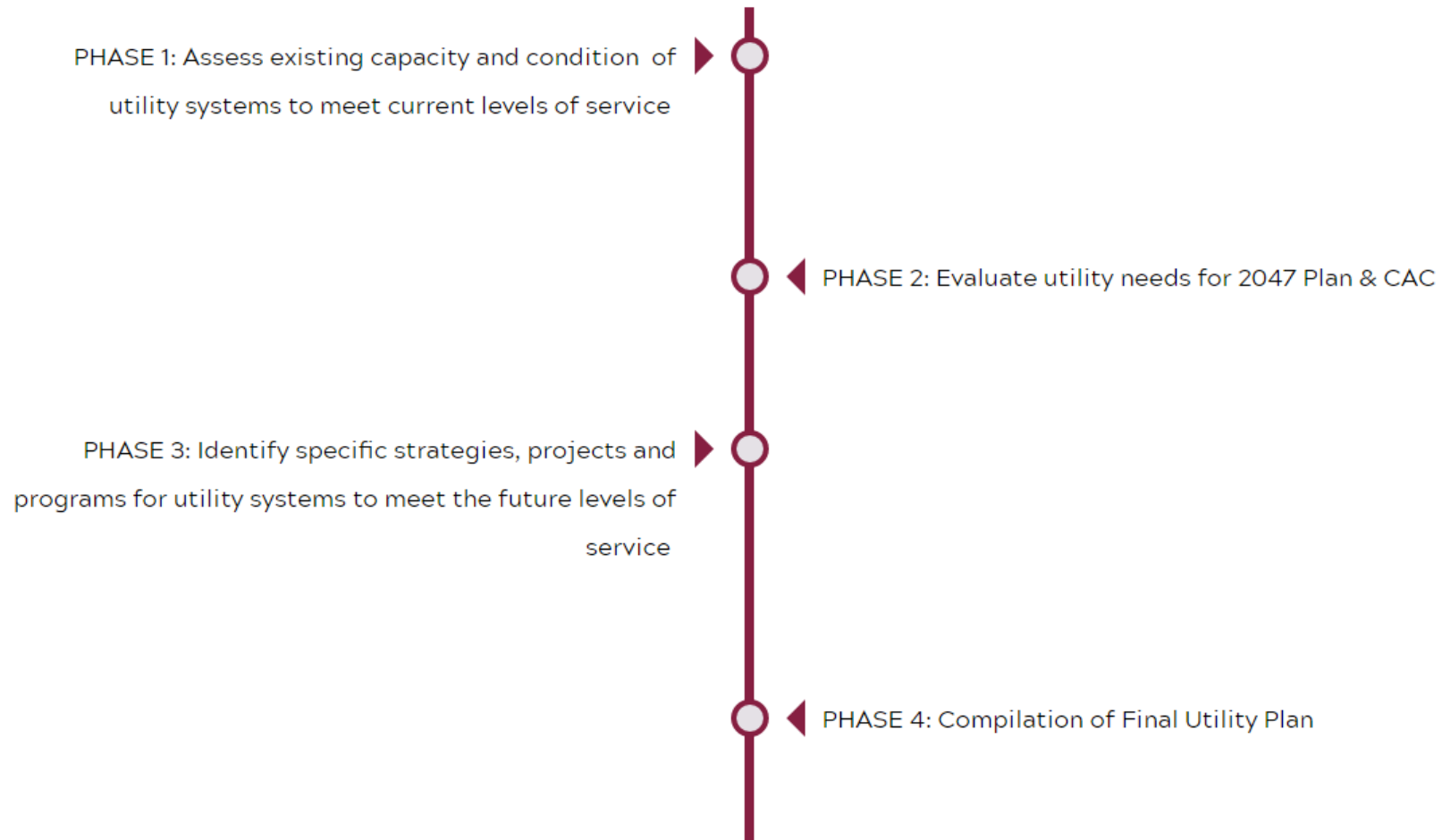
STAKEHOLDER ENGAGEMENT

ATTACHMENT G



PHASED APPROACH

Implementation



SUMMARY



The Utilities Master Plan will provide a comprehensive framework to ensure that:

- Future programmatic needs are met in sync with the institution's Strategic Plan, Campus Master Plan, and Climate Action Commitment*
- Virginia Tech remains a leader in the field of higher education infrastructure*