NC STATE UNIVERSITY

Campus Development Committee

Monday, October 28, 2024
Holladay Hall, Conference Room 18
2:00 PM – 3:00 PM

Attendance and Distribution
Members Present: Warwick Arden; Charles Maimone; Alyson Wilson

Subcommittee Representatives present: Lisa Van Roekel (for Alicia Knight); Allen Boyette; Barbara Moses; Bill Davis; Cameron Smith; ~~Dana Harris;~~ Doug Morton; ~~Lisa Johnson~~; Patrick Deaton; Sumayya Jones-Humienny

Guests: N/A

Approval of the Minutes
The minutes of the September 23, 2024 meeting were approved and have been posted.

Approval of the Consent Agenda: N/A

Project Execution Subcommittee Information Items

1. Project Status Updates - see the associated presentation "*2024-10-28 CamDevCmte Pres1 Proj Exec Updates*" [pdf slide presentation] C. Smith presented for additional information.
    a. Electrical Distribution Upgrade (Power Forward)
        i. With one more year of construction, an additional $2.5M is needed to complete the project. Impacts to parking are only temporary for staging and underground switchgear being replaced. No parking is removed long term, and all spaces will be refurbished with construction completion.
    b. CC Substation Reconstruction
        i. This project repairs the damage from a fire. A meeting will be held to understand why no bids were received and to notify potential bidders the project will be rebid in the first quarter of 2025.
    c. CVM Equine Hospital
        i. Of the $120M budget, $100M is allocated to the hospital, which is within budget, and $20M is allocated to the Centennial Biomedical Campus (CBC) central utility plant (CUP), which needs an additional $7.5M for the expansion required to support the CVM Equine Hospital addition and renovation project. Facilities will request the $7.5M from the State Capital and Infrastructure Funds (SCIF) contingency "flex" funds from the Office of State Budget Management (OSBM). These funds are then managed within the UNC System Office.
    d. Research Support Facility
        i. Due to impacts to the Lonnie Poole golf course maintenance facility operations, Facilities is reviewing a new site selection option at the south end of Trailwood Drive.
    e. Mann Hall Renovation Phase 3
        i. To address the high cost of eSports' and the research labs' programmatic needs as well as stormwater control, telecommunications, and audio-visual infrastructure needs, this project requires an additional $10M. This request was submitted on the 2025-27 Biennial Six Year Capital Plan for FY 2025-26, but Facilities will also pursue SCIF contingency flex funds to garner a better chance of obtaining the funds needed to complete the project.
    f. 111 Lampe Renovation
        i. With the UNC System Office's agreement, Facilities is pursuing $15M of additional funding on the 2025-27 Biennial Six Year Capital Plan for FYs 2026-28 to address the Psychology Department's programmatic needs. (They are currently displaced from Poe Hall and utilizing various spaces across campus.)
    g. Small Ruminants Education Unit (SREU) and Metabolism Education Unit (MEU) Relocations

i. C. Smith met with Megan Jacob, Professor of Veterinary Microbiology and the Senior Associate Dean of Administration for CALS, and Todd See, Animal Science Department Head and Professor for CALS, to inform them they need to fundraise for any amount over the $10M the Office of Finance and Administration committed to relocate these programs from their current Trenton Road site on SAS Property (near Reedy Creek) to Lake Wheeler before the ten-year lease ends in 2031.
ii. The $10M will only cover the relocation of the SREU program as designed.
iii. The total estimated budget is $30M for both programs' relocations and it replaces 22 existing buildings (~67,000 GSF) with 9 buildings (~51,000 GSF) designed to meet the housing and care standards set by the Institutional Animal Care and Use Committee (IACUC) and the US Department of Agriculture (USDA).
iv. If CALS cannot fundraise for the additional $20M needed, then the program(s) will have to be reduced/cut.
v. The animal waste lagoon on SREU's 32-acre site has not been used in five years.
vi. The animal waste lagoon on MEU's 32-acres site is still in use and will require time to self-heal; otherwise, the cost to remediate it is $800,000 in today's dollars.
vii. C. Smith inquired whether CALS could borrow money for the relocations. C. Maimone had discussed the debt capacity with D. Harris. He requested CALS produce a financial plan or commitment.
viii. C. Maimone also requested the source documents for the relocation requirements.

Campus Planning Subcommittee Information Items

1. Delegated Authority Determinations: NA

2. Action Items:
    a. CED and CHASS Psych Displacement from Poe CTI 2nd and 3rd Floor New Strategic Lease, Space Request #24-21
        i. The sublease for this space expires in August of 2025. The university intends to continue to house employees displaced from Poe Hall in this location; therefore, a new lease for a duration of five years with options to renew is needed to allow time for proposed Poe Hall remediation plans to be carried out.
        ii. *The Committee approved this request.*

3. Planning Updates:
    a. Wolfline Bus Operations and Maintenance Facility Study (Transportation Campus Development Submission)
        i. L. Van Roekel note the current contract for Wolfline's off-campus site for bus operations and maintenance is expiring. The current landowner will not renew the lease because of plans to develop that property. Real Estate and Development has identified a proximate location to campus for another contractual bus operations and maintenance facility. This project is self-funded through parking fees.
    b. CONFIDENTIAL: RFP for UL Battery Abuse Facility, (Info Item 24.08)
        i. L. Van Roekel updated the Committee that the proposal for an on-campus site was not selected.
    c. Nuclear Research Reactor Feasibility Study (#202314002) – see the associated "*2024-10-28 CamDevCmte Pres2 Adv Nuc Reactor Study Update"* [pdf slide presentation] D. Morton presented for additional information.
        i. D. Morton explained Kostadin Ivanov, Professor of Nuclear Engineering, Alyson Wilson, Interim Vice Chancellor for Research and Innovation, and Julie Smith, Vice Chancellor for External Affairs, Partnerships and Economic Development, and he have been involved in the study that Hatch Associates Consultants is performing with $3M of state appropriated funding. They have been involving stakeholders as well.
        ii. The 2022 CHIPS and Science Act authorized $390M to fund up to four US universities to build advanced nuclear reactors on their campuses.
        iii. Sodium Fast Reactor (SFR) technology is emerging as the likely reactor technology. In addition to strengthening the research test reactor (RTR) sustainability, SFR technology is compatible with the potential molten salt loop (MSL).

iv. The combined ~16-acre site under consideration is at the south end of Centennial Campus at Trailwood Dr. There are two stormwater ponds classified as wetlands; however, these appeared to remain dry during Hurricane Debby in August of 2024. This area is slated for industrial types of development on the 2023 Physical Master Plan. The proposed site assessment layout requires more refinement for the reactor building.
v. The study will be submitted to the state legislators in January of 2025. Other reactors are being built with this proven technology in coordination with national research labs, but this effort will need additional funding because the federal government funds will not cover all costs. Industry partners are also engaged in discussions.
vi. D. Morton noted this is likely a ten-year plus effort. A. Wilson added that more design is needed to compete for the funding. The MSL can provide co-generative power from the heat generated by the reactor to potentially power an independent electric grid.
vii. D. Morton mentioned the AI power crisis identified by Marc Hoit, VC for OIT, that may benefit from a data center located adjacent to the advanced nuclear reactor and MSL to address long-term data and power needs.
viii. This advanced nuclear technology is for research and testing but can also be monetized to support the operating costs.

Other Business: NA

Next Meeting: Monday, November 25, 2024, 1:30 PM – 3:00 PM

Meeting Adjourned: 3:00 PM

2024-10-28 Campus Development Committee Meeting

Project Execution Updates

- Electrical Distribution Upgrade
- CC Substation Reconstruction
- CVM Equine Hospital
- Research Support Facility
- Mann Hall Renovation
- 111 Lampe Renovation
- Small Ruminants (SREU) and Metabolism Education Unit (MEU) Relocation

Project Execution Updates

Electrical Distribution Upgrade (Power forward)

- Needs additional funding = ~$2.5M
  - Projected need = $500,000 (COM support through Fall 2025)
  - Projected need = $900,000 (D&C PM Fee)
  - Projected need = $600,000 (refurbish the parking lot adjacent to the Bragaw Substation)
  - Projected need = $500,000 (additional design and construction contingency through Fall 2025)

CI BBA Report
As of October 15, 2024
Display by Phase

Project: 800319 - Electrical Distribution Upgrade/41924 303
Fund(Code): 41924
Program(Item): 30319

Phase ID	Description	Pending Budget	Budget	Future Encumbrance	PO Balance	Pending Expenditures	Paid-to-Date	BBA
800319-03002	Reserve	0.00	0.00	0.00	0.00	0.00	0.00	0.00
800319-03102	Reserve-Electr Distr Upgrade	0.00	0.00	0.00	0.00	0.00	0.00	0.00
800319-03103	Precon-Elec Distr Upgrade	0.00	1,441,630.73	0.00	8,386.16	1,423.33	1,431,821.24	0.00
800319-03105	Design-Electrical Dist Upgrade	0.00	4,132,100.00	0.00	555,835.00	0.00	3,576,265.00	0.00
800319-03106	Commissioning-Electrical Dist	0.00	712,321.00	18,475.00	167,244.56	17,792.17	508,809.27	0.00
800319-03107	CMRPrecon-Electrical Dist. Upg	0.00	366,036.00	0.00	0.00	0.00	366,036.00	0.00
800319-03110	Construction- Electrical Distr	0.00	45,797,920.31	0.00	11,100,416.11	0.00	34,697,504.20	0.00
800319-03115	ComTech-Electr Dist Upgrade	0.00	60,629.24	0.00	0.00	0.00	57,228.24	3,401.00
800319-03117	Landscape-Electrical Dist Upgr	0.00	158,202.28	0.00	0.00	145,909.87	12,292.41	0.00
800319-03130	Utility Labor -Electrical Dist	0.00	595,635.53	7,602.43	16,702.43	490,659.07	80,671.60	0.00
800319-03133	Utility-Elec Equip-Elect. Dist	0.00	4,556,651.71	0.00	0.00	0.00	4,556,651.71	0.00
800319-03141	Testing-Electrical Distributio	0.00	274,342.00	0.00	54,715.28	0.00	219,626.72	0.00
800319-03160	DCSA-Electrical Dist Upgrade	0.00	0.00	0.00	0.00	0.00	0.00	0.00
800319-03168	Misc Work Orders - Elect Dist	0.00	303,231.54	0.00	0.00	14,491.98	17,612.45	271,127.11
800319-03169	Contingency - Electrical Dist	0.00	287,659.66	0.00	0.00	0.00	19,002.79	268,656.87
800319-03204	Study/Progr-AP Electrical Dist	0.00	75,000.00	0.00	0.00	0.00	75,000.00	0.00
800319-03207	CM Precon - AP Electrical Upgr	0.00	38,640.00	0.00	0.00	0.00	38,640.00	0.00
Total		$0.00	$58,800,000.00	$26,077.43	$11,903,299.54	$670,276.42	$45,657,161.63	$543,184.98

Project Execution Updates

CC Substation Reconstruction

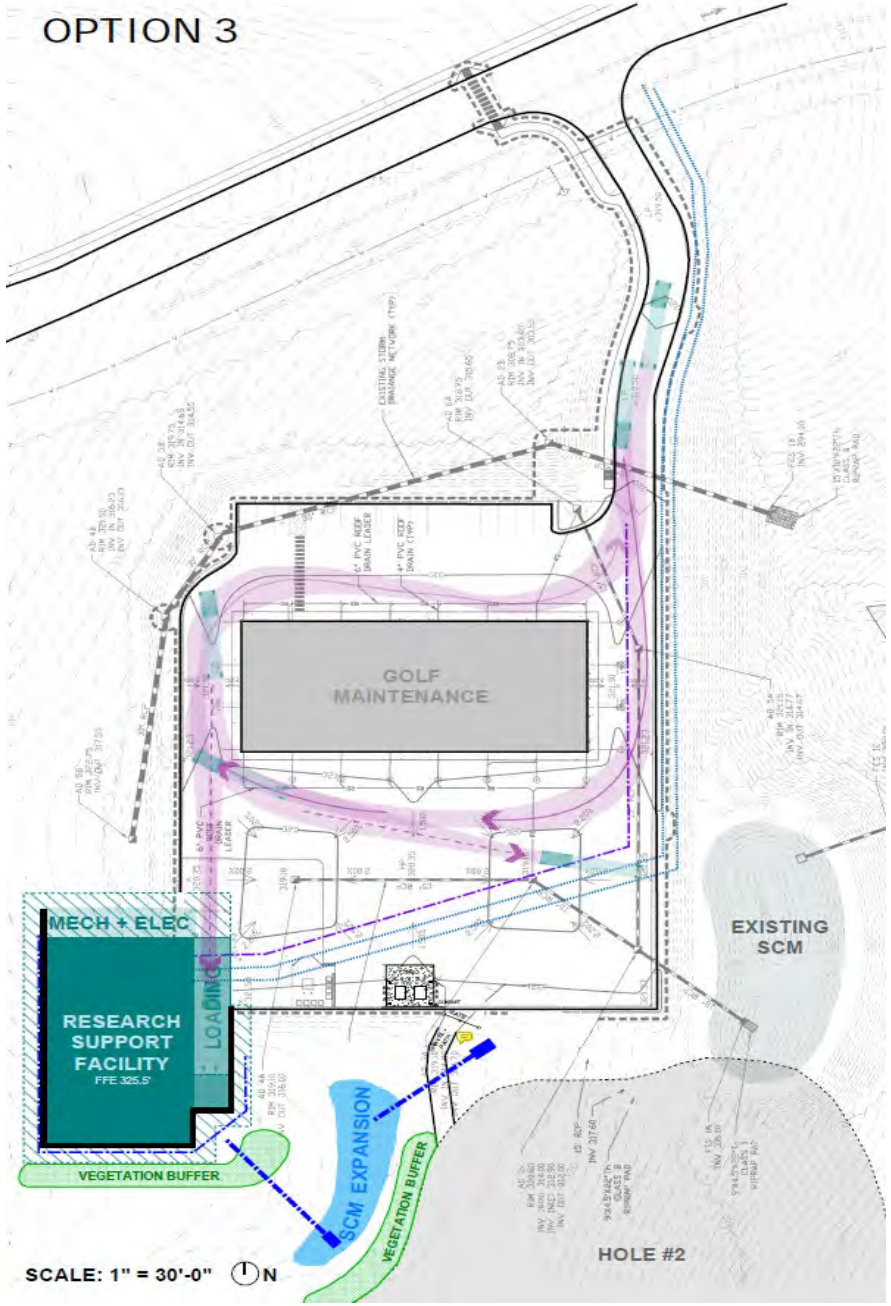
- Did not receive any bids
- Reaching out to bidders to get feedback

CVM Equine Hospital

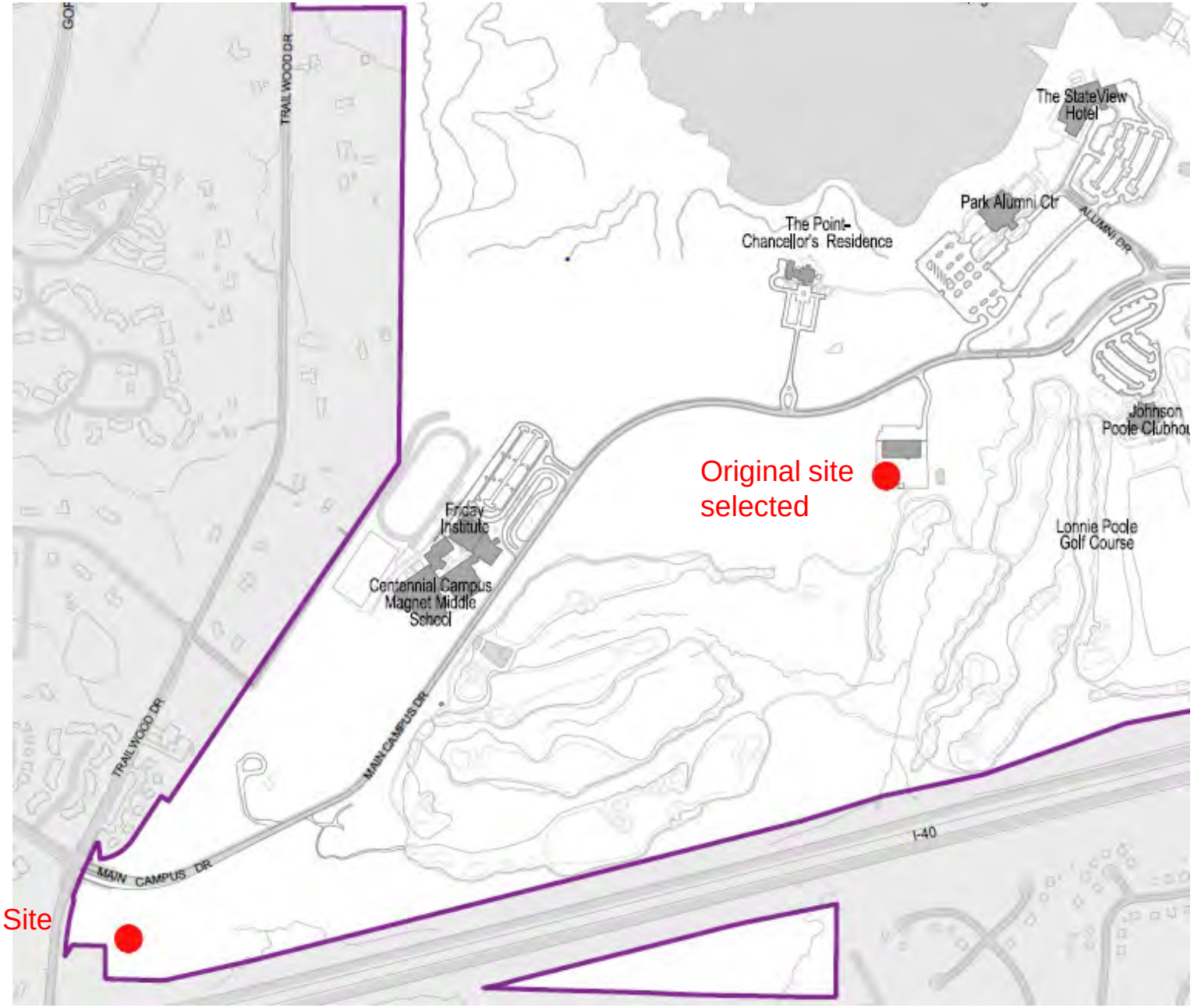
- Need additional funding = $7.5M
  - Central Utility Plant (CUP) Expansion
  - Pursuing SCIF Contingency “Flex” Funds

Research Support Facility

- Revisiting site selection options
- Current site impacts Golf Maintenance Facility operations
- Consider Trailwood/Main Campus Drive (south side)



Research Support Facility Site Selection



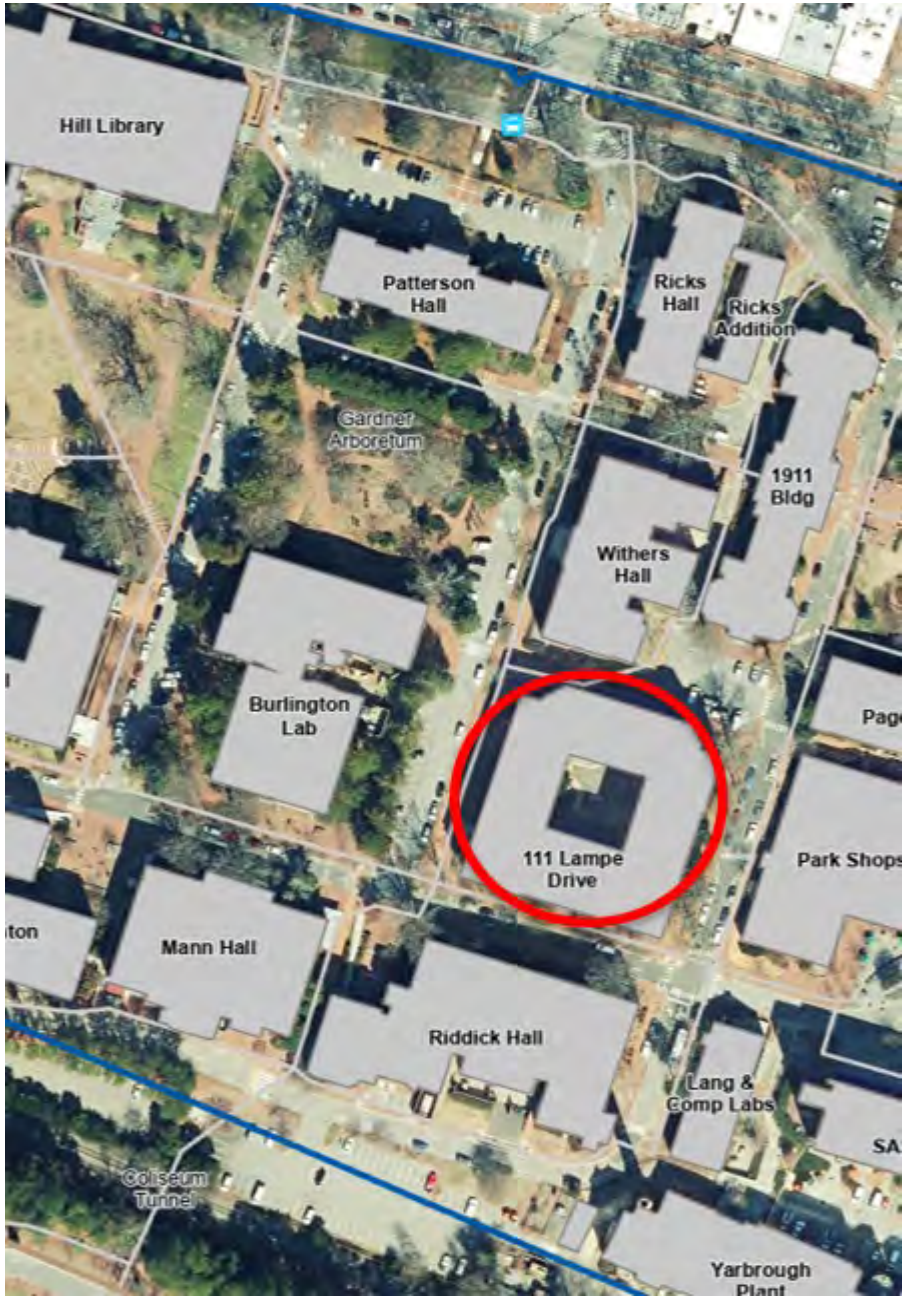
Project Execution Updates

Mann Hall Renovation – Phase 3

- Need additional funding = $10M
  - At risk of “shelling out” one floor
  - Pursuing two options for funding
    - Six-Year Capital Plan request (FY25-26)
    - SCIF Contingency “Flex” Funds

111 Lampe Renovation – Envelope Repairs

- Need additional funding = $15M
  - Ensure enough funding for Psychology space
  - Six-Year Capital Plan request (FY26-28)



Project Execution Subcommittee Updates

- **Small Ruminants Education Unit (SREU) and Metabolism Education Unit (MEU) Relocation**
  - Replaces 22 existing buildings (67K-sf) with 9 proposed buildings (51K-sf)
  - Designed to meet housing and care standards (IACUC and USDA)
  - Addresses biosecurity, facility security and ADA compliance

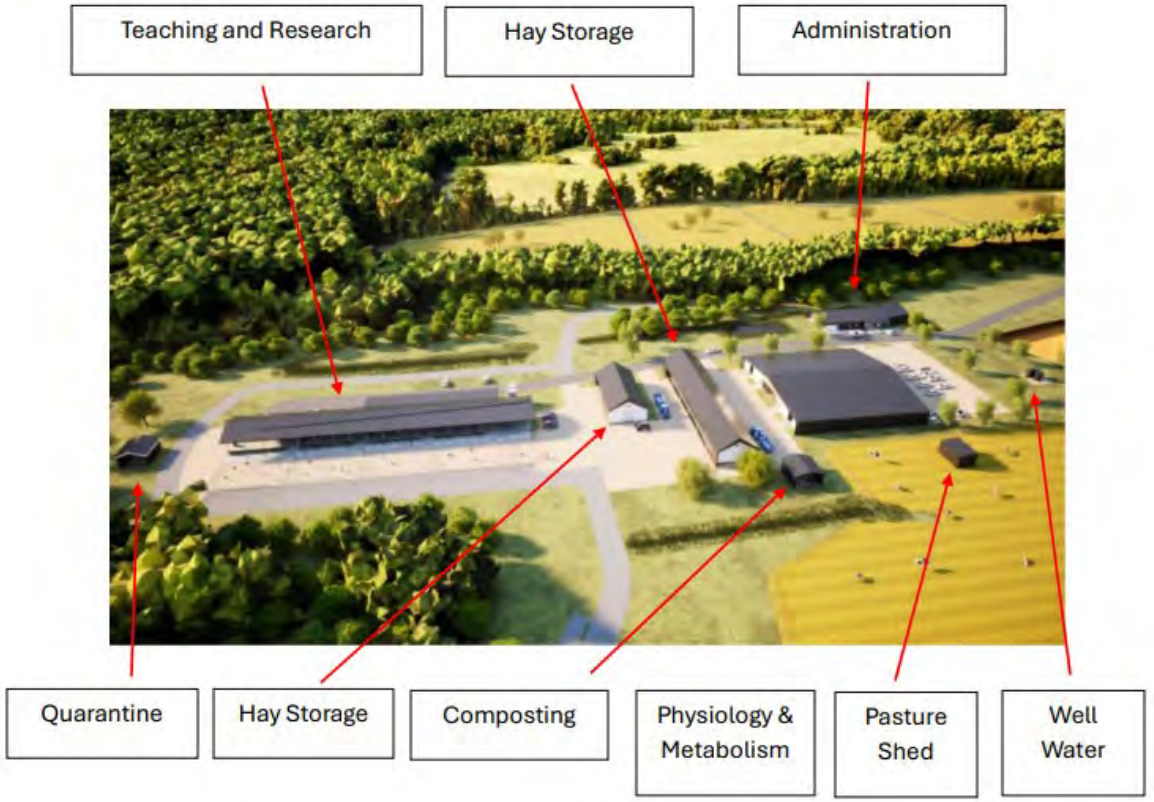
- **Relocate SREU first with the $10M**
  - CALS continues to fundraise for MEU
  - May require an extension of the lease
  - Lease land on Trenton Road reduced by 55%

Table 1.

Proposed Units and Buildings (Total GSF = 51,383) compared to programmatic mapping of existing GSF

				SREU				Shared			MEU	
				Teaching & Research	Hay Storage	Quarantine	Composting	Administration	Well Water	Hay Storage	Physiology & Metabolism	Pasture Shed
			Proposed GSF	12,627	3,302	761	761	5,209	650	6,987	20,654	432
Unit	Building	Building Description	Curent GSF									
SREU	822G	CALS Sheep Barn UFL 190 - Reedy Creek	10,138	9,532				606				
SREU	820K	CALS Shepherds Stor UFL 110 - Reedy Creek	198							198		
SREU	820A	CALS Dwelling - SEU UFL D12 - Reedy Creek	1,265					1,265				
SREU	820T	CALS Pavillion/Storage UFL 123 - Reedy Creek	3,658		3,658							
SREU	820U	Well Pumphouse UFL 124 - Reedy Creek	148						148			
SREU	820I	CALS Livestock Work Shelter UFL 108 - Reedy Creek	1,176	1,176								
SREU	820S	CALS Sheep Nutrition UFL 122 - Reedy Creek	3,217					245		2,972		
SREU	821X	CALS Sheep Shed UFL 168 - Reedy Creek	345			345						
SREU	821W	CALS Wingo Goat Lounge UFL 167 - Reedy Creek	345			345						
SREU	821Y	CALS Sheep Shed UFL 169 - Reedy Creek	1,028	1,028								
MEU	822B	CALS Rumen Physiology UFL 183 - Reedy Creek	4,773					1,505			3,268	
MEU	821Z	CALS Small Ruminant Bldg UFL 180 - Reedy Creek	6,300								6,300	
MEU	822A	CALS Hay Barn - MEU UFL 182 - Reedy Creek	7,500	2,350							5,150	
MEU	822	CALS Forage-Metabolism Res. UFL 181 - Reedy	7,537					84		1,825	5,628	
MEU	820Y	CALS Diet Mix Lab UFL 131 - Reedy Creek	512							512		
MEU	820X	CALS Beef Barn Feed Barn UFL 130 - Reedy Creek	14,490				2,377			10,218		1,895
MEU	821B	Well Pumphouse UFL 135 - Reedy Creek	154						154			
MEU	821A	CALS Hay/Feed Storage UFL 134 - Reedy Creek	1,464							1,464		
MEU	821	CALS Feed Mill Bldg UFL 133 - Reedy Creek	1,096							1,096		
MEU	822H	Well Pumphouse UFL 192 - Reedy Creek	112						112			
MEU	820	CALS Dwelling - MEU UFL D11 - Reedy Creek	1,053					1,053				
MEU	821U	CALS Garage - MEU UFL 164 - Reedy Creek	600							600		
		Total	67,109	14,086	3,658	690	2,377	4,758	414	18,885	20,346	1,895
		GSF Difference		(15,726)	(1,459)	(386)	71	(1,616)	451	236	(11,898)	308	(1,463)

Figure 1. Proposed Small Ruminant and Metabolism Unit Buildings



Small Ruminants (SREU) and Metabolism Education Unit (MEU) Relocation

Figure 3.

- Lease dating back to 2004 originally for 96.8 acres, reduced to 27.6 acres in 2006 , And further reduced to the outlined 7.19 Acres in 2014. Is currently on a year to year lease. This lease would be terminated and property vacated upon relocation of Small Ruminant Unit.
- Part of 10-year lease ending in 2031 that solely supports Small Ruminant Unit. Would be ended and property vacated with relocation of Small Ruminant Unit. Approximately 32 acres. Lagoon on this Property has not been used for over 5 yr.
- Part of 10-year lease ending in 2031 that predominantly supports Metabolism Unit. Lease would need to be extended until funding is raised for relocation. Approximately 32 acres. This lagoon is currently in use.

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Advanced Nuclear Research and Test Reactor Feasibility Study

https://www.ncsu.edu/clean-energy-study/

- The 2022 CHIPS and Science Act authorized $390 million to fund up to four U.S. universities to build advanced research reactors on their campus

- The NC State Legislature provided $3 million in funding for NC State to conduct a feasibility study to assess the technical, financial, and operational aspects of establishing and operating an advanced research reactor

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Advanced Reactor Study: **Process**

- In November 2023, Chancellor Woodson charged the Reactor Feasibility Study Taskforce to complete a feasibility study by 2025. The Steering Committee has been meeting regularly since that time

- An Internal Advisory Committee and External Advisory Board were also formed to provide advice, input, feedback, and evaluation for the feasibility study and its deliverables

- A consulting firm (Hatch) was engaged in April 2024. Since the study kickoff, the project team has conducted several stakeholder workshops focused on topics such as reactor capabilities, technology selection, and site assessment

Advanced Reactor Study: **Technology Selection**

Sodium Fast Reactor (SFR) technology is emerging the likely recommendation

- The final design will likely be a derivative of the SFR technology to strengthen the Research and Test Reactor (RTR) sustainability:
  Multi-purpose Advanced Sodium-cooled Mixed/Coupled Spectrum RTR
- Inherently safe
- Most mature Generation IV technology
- Would create a unique facility with large user base
- General Electric (GE) Vernova in Wilmington, NC has extensive experience with this type of reactor design, which creates an opportunity for not only DOE and/or state support, but also for industry and private funding opportunities (TerraPower, etc.)
- SFR technology is compatible with a potential molten salt loop

Advanced Reactor Study: **Site Assessment**

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Advanced Reactor Study: **Site Assessment**

Reactor Building	18,900 sf
Hot Cell Complex	22,500 sf
Neutron Beam Hall	53,800 sf
Auxiliary Building	5,700 sf
Shipping + Receiving	3,500 sf
E-house	2,400 sf
Admin Building	27,000 sf
Security Building	360 sf
Guard House	360 sf
TOTAL	**134,520 sf**
PLOT AREA	**8.7 acres**

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Advanced Reactor Study: **Next Steps**

- Project team is continuing work on environmental assessments, licensing requirements, engineering and construction evaluations, project financials, and potential collaboration opportunities with industry, other academic institutions, and state and federal entities

- The next stakeholder workshop is scheduled for October 25th and will focus on pre-conceptual design, capital and operating cost drivers, and stakeholder engagement and communication strategies

- Findings and Recommendations Report will be submitted at the beginning of 2025, with a full Final Report following