Architectural Program

University of Kansas Medical Center

University of Kansas Cancer Center

October 18, 2023

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KU Cancer Center

ACKNOWLEDGEMENTS

Project Executive Committee

Roy Jensen	Executive Champion
Stefan Bossmann	Wet Lab
Matthew Mayo	Dry Research
Sunil Abyuankar	GMP
Scott Weir	Common Spaces
Lisa Harlan Williams	Shared Resources
Teresa Christianson	Admin Support
Jeff Wright	Clinical
Jeff Holzbeierlein	Clinical
David Rau	Facilities
Lisa Hoebelheinrich	Vivariam
Susan Harp	User Experience

Architectural Programming Team

Jackie Foy	HDR, Principal in Charge
Jon Crane	HDR, Translational Research Planner
Tom Smith	HDR, Design Principal
Mike Mottet	HDR, Vivarium Planner
Farach Martin	HDR, Laboratory Planner
Dana Zhu	HDR, Design Coordinator
Juno So	HDR, Design Coordinator
Clay Phillips	Helix, Client Executive
Alissa Wehmueller	Helix, Interior Design Principal
Travis Lee	Brack and Associates, Engineer

Executive Summary

Everything we know about cancer, and how to treat and prevent it, stems from research. At The University of Kansas Cancer Center, scientists are looking at cancer from many perspectives – deepening our understanding of cancer's biology and moving findings into the clinic, identifying cancer prevention strategies and improving ways to support patients beyond treatment.

As the only National Cancer Institute (NCI)-designated comprehensive cancer center in the region, and 1 of only 53 in the nation, to receive this elite distinction. The University of Kansas Cancer Center aims to fundamentally transform the cancer care experience –

- To give all people in our region greater access to breakthrough ideas and novel treatments
- Leveraging and expanding capabilities as a trailblazing force in cancer prevention, research and patient care

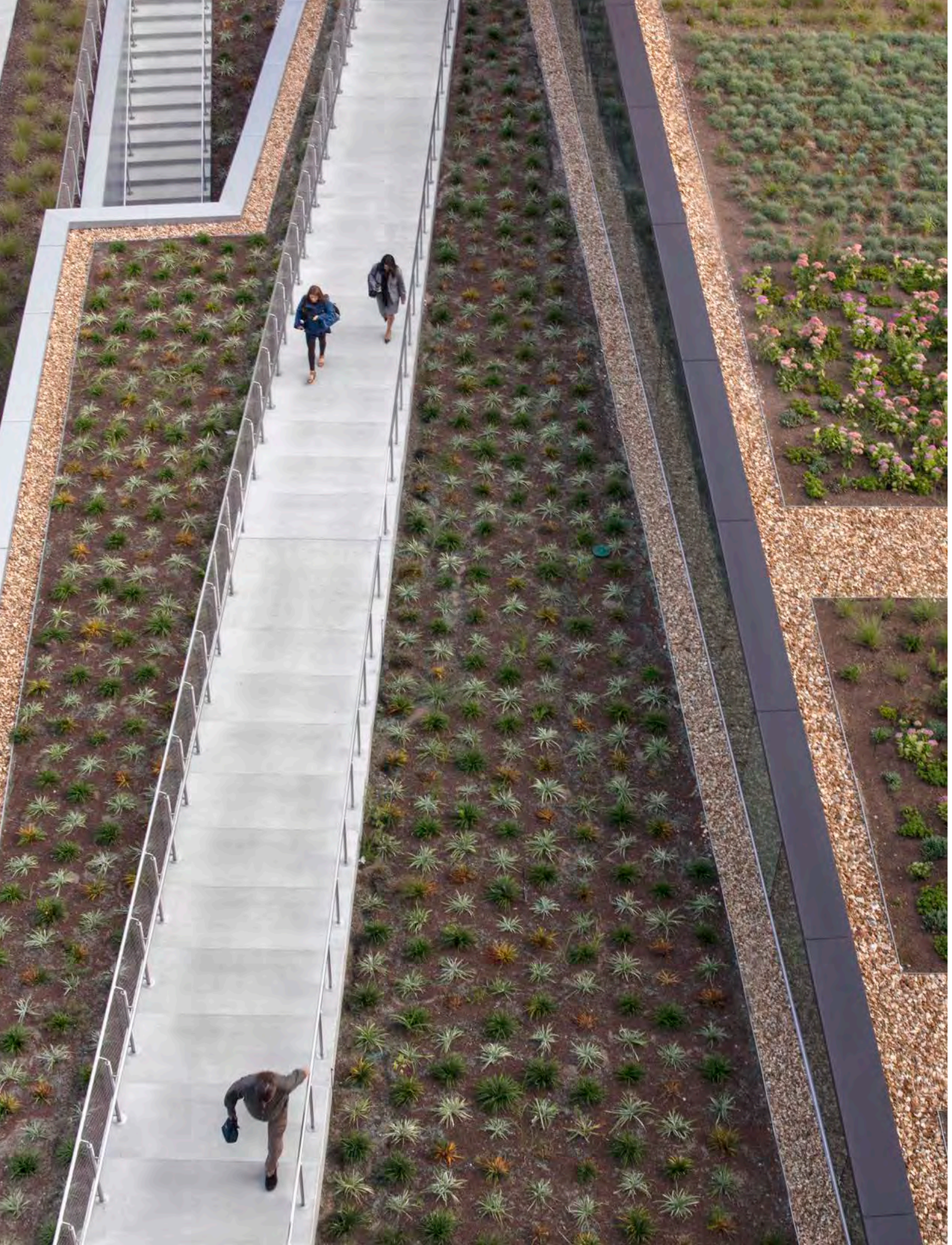
NCI-designated cancer centers are recognized for their scientific excellence, including their depth and breadth of research. They are the backbone of innovative research and care across the country, helping to pioneer today's most groundbreaking advances in cancer treatment. The individual well-being of each patient at the University of Kansas Cancer Center is of the utmost importance. The highest priority is to provide patients and their loved ones with exceptional medical and supportive care.

Cancer is the sole focus for the University of Kansas Cancer Center. With 350 cancer researchers and clinicians, and 150-plus disease-specific oncologists, KUCC is elevating standards in cancer care. KUCC provides unrivaled expertise and experience in diagnosing and treating all forms of cancer, from common and complex to rare.

Working in an academic medical center setting, nationally and internationally renowned investigators conduct pivotal research that propels science forward, leading to improvements in cancer prevention, diagnosis, treatment and survivorship. These intense efforts are crucial to KUCC's most important mission: to achieve the best possible outcome for every patient who trusts in our care.

As a testament to these endeavors, patients treated at an NCI-designated cancer center have a 25% greater chance of survival than patients treated at other cancer centers.

The future home of the University of Kansas Cancer Center will provide a place for clinicians and researchers to come together with one goal, to find a cure for cancer.



KU Cancer Center

Project Overview

Starting in July of 2021, the University of Kansas Medical Center began to explore what it would mean to bring cancer research and cancer care together under one roof. At that time the road to NCI comprehensive designation was through improvement in the category of geographic dispersion of personnel. That requirement still exists today. Early programming work to understand current and future states began and was represented in a new facility.

The time to make these visions and goals a reality is now. The design team of HDR + Helix along with engineering partner Brack and Associates has been engaged to review and validate the previous work and to benchmark along past NCI comprehensive designated centers.

Validation for Success

To fully realize the short and long term future the team embarked on a validation process that included both short term growth and long term growth with the goal of creating a program that could provide phased strategies and alignment with the significant growth that peer institutions have experienced following a NCI comprehensive designation.

Base Program

The base program establishes 212,000 SF of dedicated research space to support both the University of Kansas Cancer Center but also bolsters the vivarium facilities on campus to serve the Medical Center as a whole. Included in the square footage is 7,000 SF for future and immediate expansion. The planning of stacking and adjacencies provide a clear path for future expansion to include additional programs and growth for principal investigators.

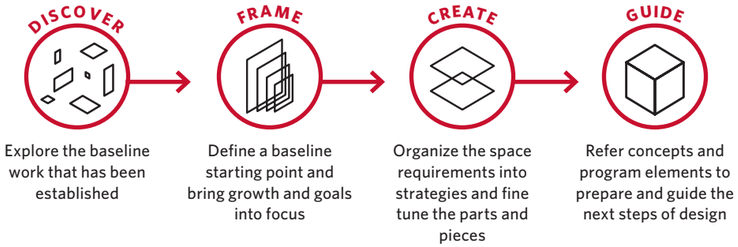
Efficiencies in space will allow for better utilization in both the vivarium as well as the research benching.

As the new building comes on line, space within the existing facilities will open up for reassignment. Additionally, buildings marked for demolition will be emptied, creating room for the implementation of future master plan strategies.

Vision Program

In an effort to ensure the Cancer Center space and planning were comprehensive, a vision plan with additional long term growth was also reviewed and validated. This vision will position the Medical Center to quickly respond to funding changes and staffing increases. The vision program sees an increase of 85,000 SF to accommodate ten year growth projects and accounts for additional shell space.

The Process



Site Analysis

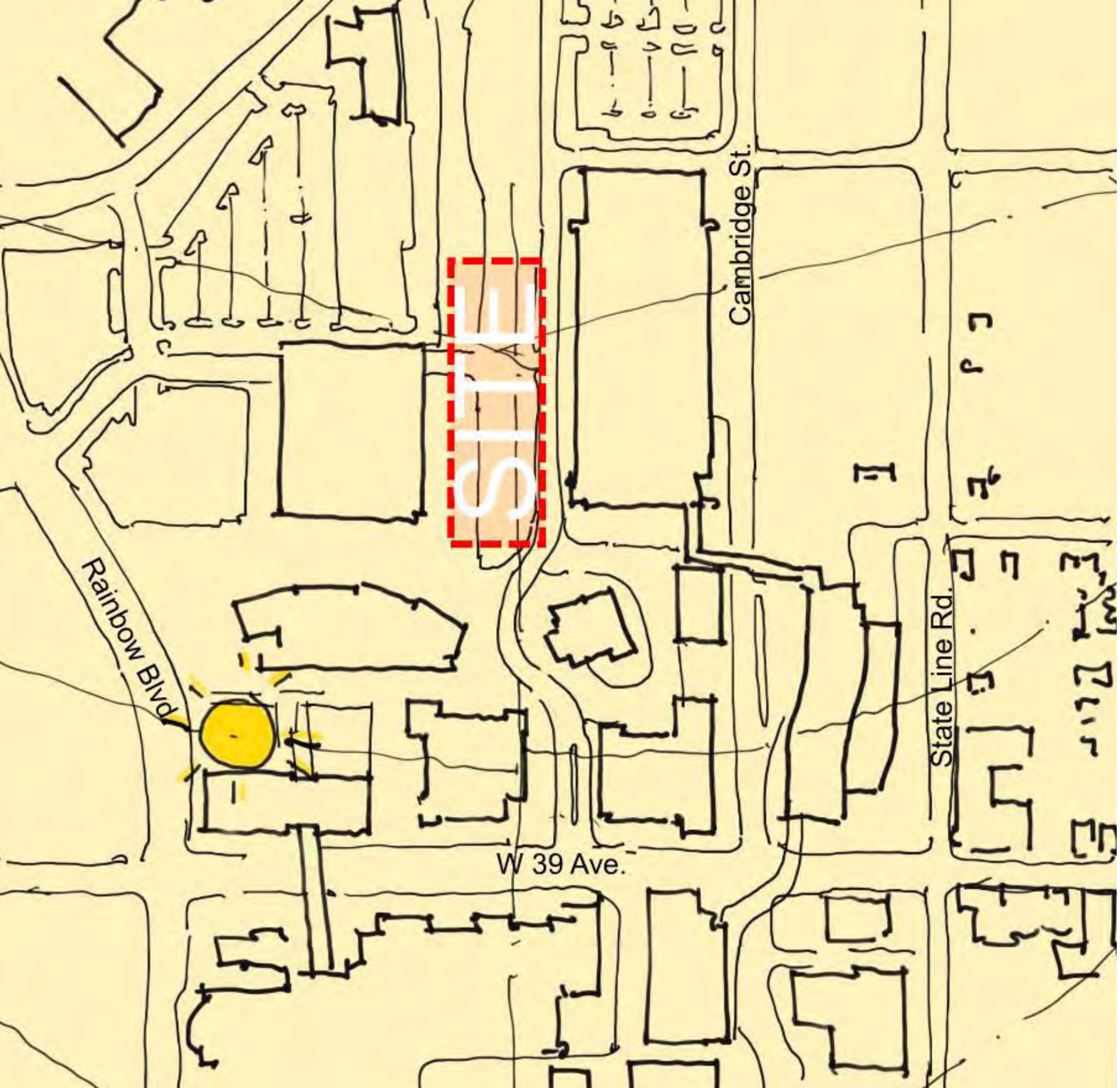
Best for All. During program validation attributes such as site placement, connectivity, and adjacencies to the existing campus have been paramount to the conversation. Understanding the opportunity for shared services and complimentary resources have allowed the program for the Cancer Center to focus on the specific needs inside the building.

Each test fit studied the individual experience for the primary users. The following different perspectives allows the benefits and opportunities of each site to rise to the top:

- The Patient
- The Researcher
- The Clinician
- The Public
- Logistics

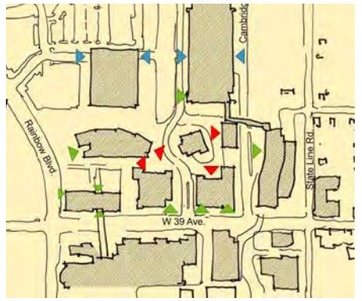
The analysis involved careful review of the various users. More specifically, their entry and first impression to the building, access to services such as parking, dock, and drop off, and their ability to quickly move from building to building.

Site analysis also included proximity of new cancer center program to existing campus facilities. Cancer research needs to maintain connections to the Wahl laboratories and the Hemenway Life Sciences Center due to the supporting research functions which will remain in those existing facilities. Clinical care requires proximity to the Cambridge Tower A, to facilitate patient and staff flow.

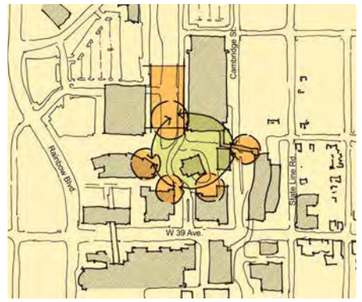


The Space InBetween

TRANSLATIONAL MAPPING
Where does research and care intersect? How can this new Cancer Center build on strategic placement to enhance collaboration from the bench to bedside and back again? Successful placement for this beacon of research and care on campus will provide a physical place for collaboration and connections to occur.



APPROACH
Where is the front door? Where is the backdoor? On this internal and busy site, understanding the approach for each user helps to ensure a positive experience. Wayfinding and flow to and around the building will be a key part of its short and long term success.



MAGNETS
Where are the obvious partners to research and care? Where are the less obvious partners? How can placement of this building act as a magnet to bring people together? The ability to create a sense of place in order to attract and make the Cancer Center a destination on campus will secure its place as a significant building on campus, not just for the physical environment but the work happening inside.

Site Analysis

Beacon
Centrally located to both existing research and clinical spaces allows this option to minimize travel distance to shared and adjacent resources. The rectilinear shape promotes high space utilization within the building and allows the maximum amount of program within the first phase of the project. It's placement on the site also keeps in mind the vision program and long term growth of the Cancer Center.

This option creates a large contiguous floor plate for cancer research and clinical cancer care. A shared central, collaborative core promotes knowledge transfer between clinicians and researchers. Clinical functions are located to the east and proximate to the Cambridge A health facility while the research is adjacent to the Life Science Center.

With multiple options for growth and expansion, clinical and public spaces can expand to the south as older buildings come off line. While the vivarium can see initial needs met to the north and be poised to connect to future research and expand either vertically or horizontally.

Another benefit of the plan is the front door presence along 39th street and the added green space to make wayfinding easier and to create a true front door.

Boomerang
This study focused on integrating green space and moments of respite throughout different elevations within the building .

This concept explores the idea of an elevated main structure atop a smaller footprint to maintain an east-west connection on Eaton Street, provide easier access from patient drop off to parking, and a smooth approach to the dock for service vehicles.

Two wings are situated perpendicular to each other. Research is in the north-south wing and clinical is in the east-west wing. A collaborative hub joins the wings and is a nexus of shared activity.

This option also promotes a presence along 39th Street. Keeping in mind the patient experience as you approach the building and a connection to future streetcar extensions.

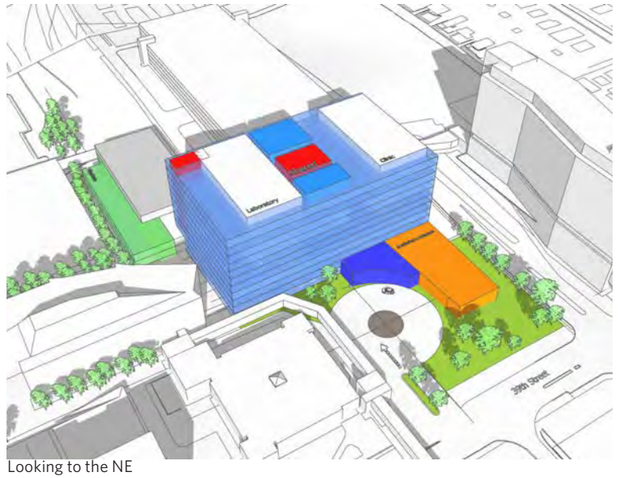
While the configuration does preserve more of the existing surface parking to the north, it does limit growth to a horizontally strategy to the north and the south.

Raise the Roof
This concept physically embodies the idea of a singular center for research care. The idea of multiple functions happening under one roof. The scale and the footprint lend itself to a slightly more poignant building from a far which means meaningful design at the pedestrian level were considered.

This option integrates parking at the lower level for patients, aiding in the patient experience. Again the idea of an elevated main structure allows vivarium functions and public function to be separated and controlled.

With a smaller footprint this option increases in height to accommodate the program and adjacent strategies shift towards vertical connections rather than horizontal thoroughfares. As with all the options, elevated walkways and green space remain important aspects of the concepts.

Beacon

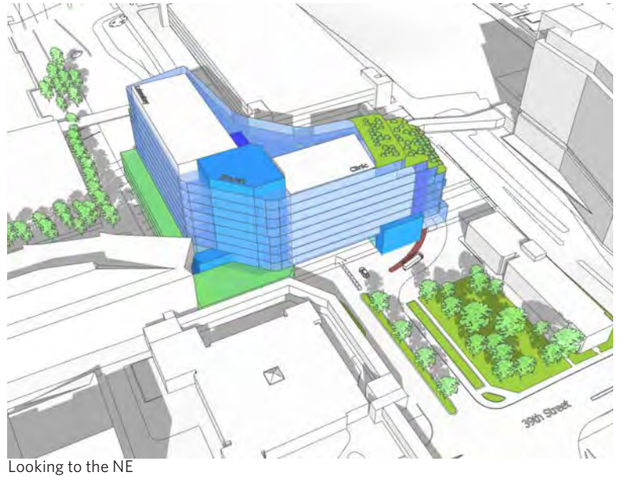


Looking to the NE

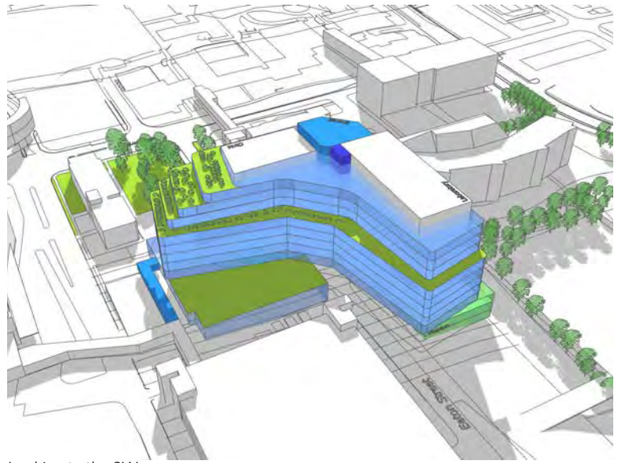
Looking to the SW

Looking to the NW

Boomerang



Looking to the NE



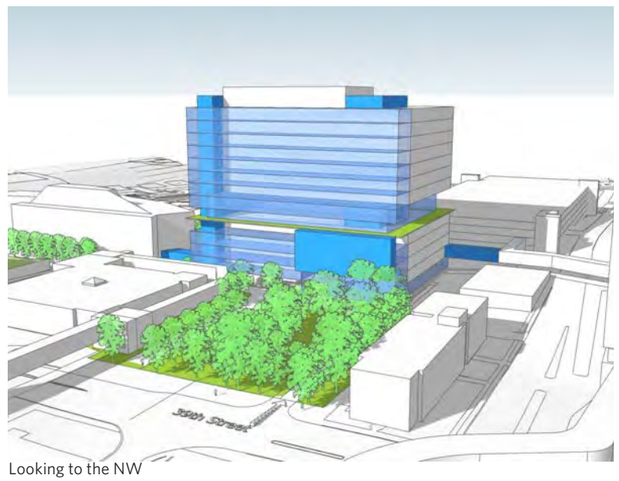
Looking to the SW

Looking to the NW

Raise the Roof

Looking to the NE

Looking to the SW



Looking to the NW

AUGUST 2023

SEPTEMBER 2023

DISCOVER

August 22

- Vivarium Program
  - Tour existing space
  - Determine growth
  - Review cage and wash strategies

DISCOVER

August 7

- Leadership kickoff
  - Establish Focus Groups
  - Set Vision
  - Create objectives
  - Build schedule

Kickoff Word Cloud

FRAME

September 5

- Programming Work Session
  - All Focus Groups
    - Program Validation
    - Growth Projections

FRAME

September 6

- Programming Work Session
  - All Focus Groups
    - Space Adjacencies
    - Shared Resources

Programming Work Sessions

FRAME

September 7

- Programming Work Session
  - All Focus Groups
    - Space Adjacencies
    - Program Validation
- Leadership Report Out
  - Alignment
  - Scouting Report
  - Next Steps

FRAME

September 19

- Leadership Update
  - Test Site Option
  - Program Updates
  - MEP Strategies

FRAME

September 20

- Vivarium Focus Group
  - Initial Volume Analysis Review
  - Species Review and Projection
  - Program Space Impacts

Program

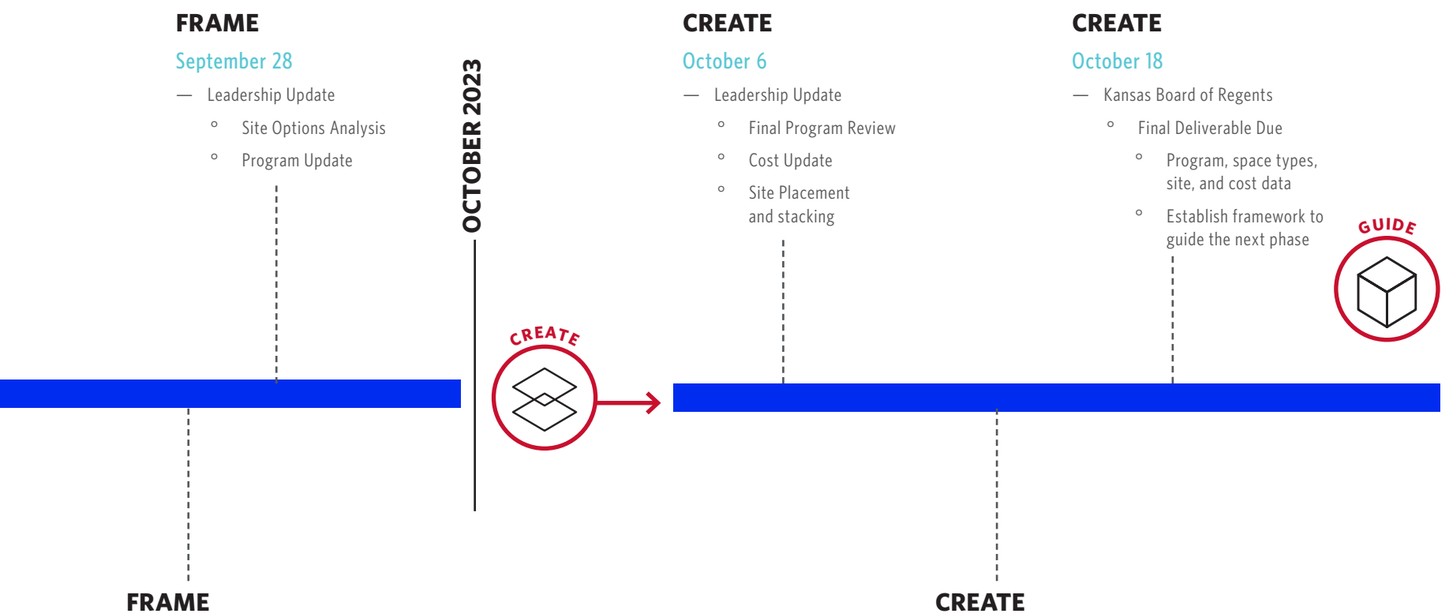
Now and Then. There were two main goals for this programming effort:

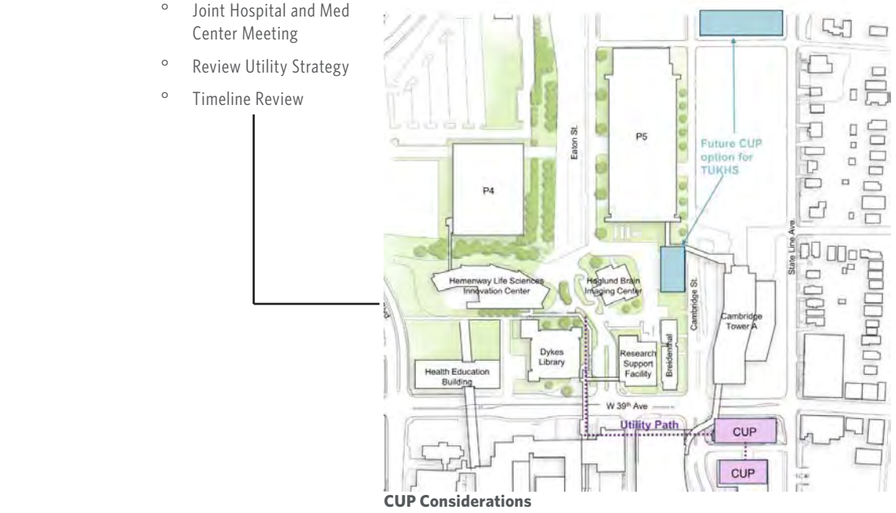
1. To validate past work and ensure the right types and quantity of spaces have been accounted for to guide the next phase of design.

2. Plan both growth and space to meet short term and long term needs and goals of the University of Kansas Cancer Center.

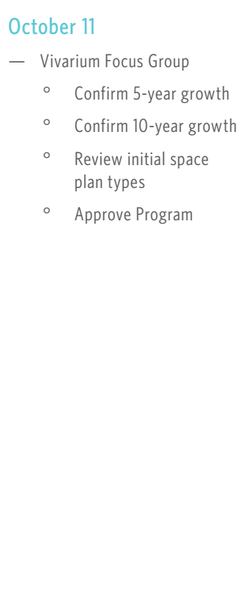
The program presented in this narrative outlines two strategies, 5-year growth needs (the base program) and 10-year growth need (vision program). The proposed program for consideration and approval is only for the 5-year Base Program. The 10-year Vision Program is provided to understand the full potential of the Cancer Center and the importance of building placement, stacking, and adjacencies to accommodate future growth and expansion.

During benchmarking analysis it was determined that the Cancer Center is likely to see a significant increase in grant funding and clinical trials. As a result, the validation effort that reviewed and confirmed growth strategies for the various focus groups revealed a need to consider what the program would look like beyond a 5-year time-frame. The master planning mindset will help the University to stay focused on short term goals while still preserving long term





CUP Considerations



KU Cancer Center

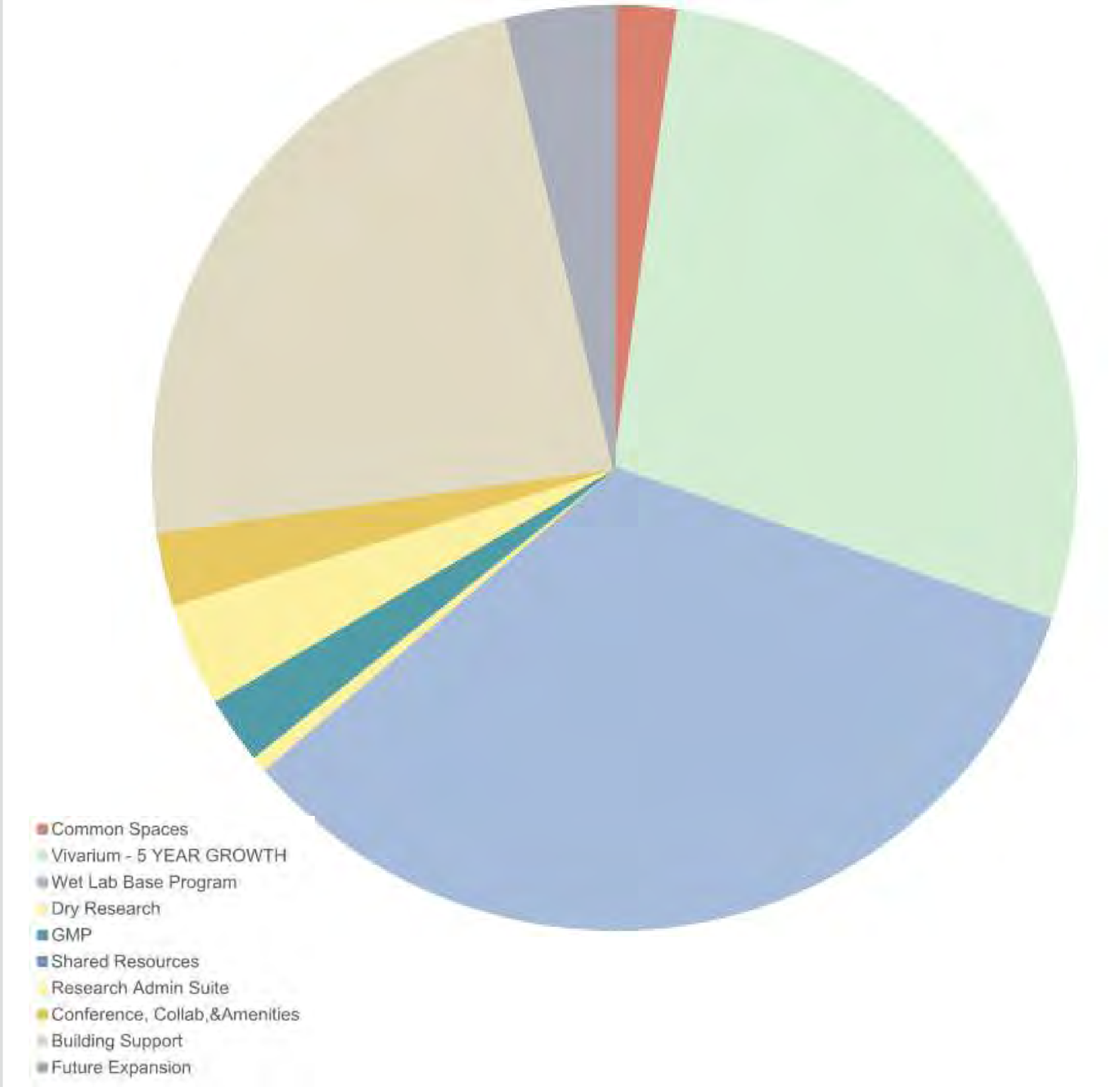
Base Program

Program Summary

5 Year Plan. The program proposed for the new University of Kansas Cancer Center focuses on the next five years and providing the space required to accommodate that growth. The shell space is planned for the following:

- Growth within cancer wet lab space
- Shell space does not account for:
  - Population health and biostatistics moving into the Cancer Center with space sized to accommodate 10 year growth needs
  - 10 Year growth of the vivarium
  - 10 new Principal Investigators

University of Kansas Medical Center | Cancer Center Base Program				
Program Area	Net Square Footage	Grossing Factor	Gross Square Footage	Comments
Viviarium	52,347	1.40	73,286	Includes 5 year growth needs for KUMC
Research				
◦ Wet Lab	62,064	0.00	62,064	Includes space for 32 PIs
◦ Dry Research	1,052	1.40	1,473	
◦ Population Health	0	0.00	0	
◦ Biostatistics	0	0.00	0	
GMP	4,372	0.00	4,372	
Shared Resources	0	1.40	0	
Research Admin	6,688	1.40	9,363	
Common Spaces	4,099	1.30	5,328	
Conference/Collab/ Amenities	4,800	1.30	6,240	
Building Support	43,613	0.00	43,613	Stand alone
Future Expansion	7,000	0.00	7,000	
Subtotal	**186,035**		**212,739**	

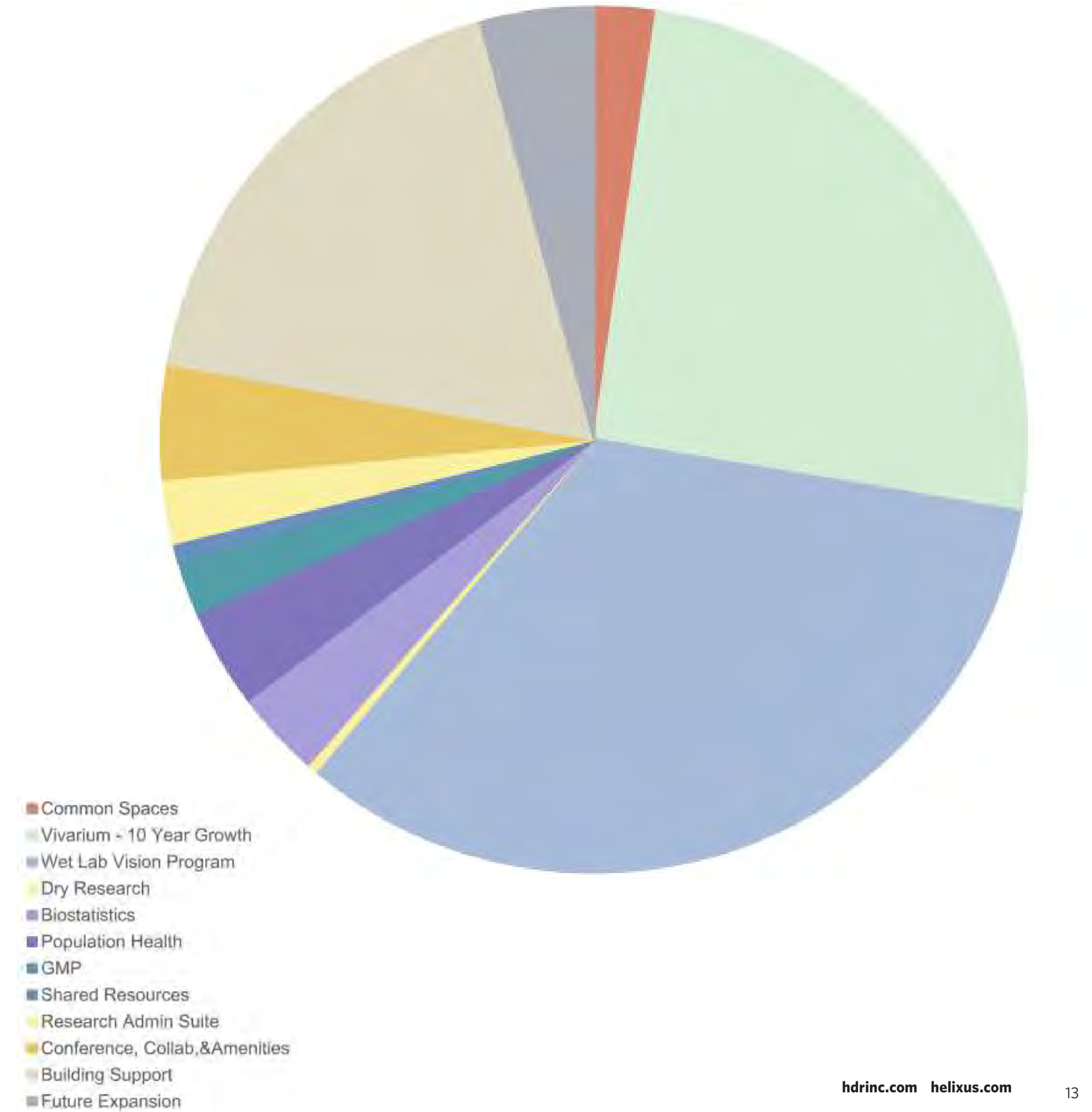


Vision Program

Program Summary

10 years and Beyond. Given the timeline from design to construction to occupancy, another strategy in programming was explored. This strategy means programming for 10 year growth and co-locating groups from the initial move in. The idea is to reduce the need to begin build out of shell space within the first and second year of occupancy.

University of Kansas Medical Center | Cancer Center Vision Program				
Program Area	Net Square Footage	Grossing Factor	Gross Square Footage	Comments
Vivarium	71,797	1.40	100,474	Includes 10 year growth needs for KUMC
Research				
◦ Wet Lab	84,714	0.00	94,714	Includes space for 48 PIs
◦ Dry Research	1,052	1.40	1,473	
◦ Population Health	10,534	1.40	14,580	Includes 10 year growth needs
◦ Biostatistics	9,190	1.40	12,866	Includes 10 year growth needs
GMP	5,750	0.00	5,750	
Shared Resources	1,904	1.40	2,666	
Research Admin	6,940	1.40	9,716	
Common Spaces	6,499	1.30	8,448	
Conference/Collab/ Amenities	12,092	1.30	15,720	
Building Support	50,849	0.00	50,849	Stand alone
Future Expansion	12,000	0.00	12,000	
Subtotal	**283,171**		**329,254**	



University of Kansas Medical Center Research Program | Cancer Center

Departmental Net Sq. Feet:	**52,347**
Departmental Grossing Factor:	**1.40**
Departmental Gross Sq. Feet:	**73,286**

10/18/2023

			Quantity	NSF/Room	Total NSF	Comments
Vivarium - 5 YEAR GROWTH						
	5.01.01	**Large Animal (USDA)**			**10,980**	5,574
	5.03.01	Holding - Large	5	450	2,250	Swine, Primates
	5.03.01	Holding - Small	37	110	4,070	Guinea Pigs, Ferrets, etc.
	5.03.01	Procedure/Surgery/Prep	19	220	4,180	
	5.03.01	General Storage	2	200	400	
	5.03.01	Office/Workspace	0		0	for write up and tech stations
	5.03.01	Custodial Closet	1	80	80	
	5.02.02	**Small Animal (Non-USDA)**			**8,860**	15,042
		Holding Room - Small	9	110	990	Bio/Chem Hazard
		Holding Room - Small II	13	330	4,290	
		Holding Room - Medium	0	510	0	
		Holding Room - Large	0	1,000	0	
	5.03.01	Procedure/Surgery - Small	7	220	1,540	Thimble connected BSC
	5.02.02	Procedure/Surgery - Large	9	110	990	Bio/haz Thimble connected BSC
	5.02.02	Cesium irradiator	1	220	220	
	5.02.02	X-ray irradiator	1	220	220	
	5.03.01	Office/Workspace	2	110	220	for write up and tech stations
	5.03.01	General Storage	1	150	150	
	5.03.01	Custodial Closet	3	80	240	
	5.02.02	Stepdown holding	0	0	0	For post behavior, surgery, imaging barrier animals
	5.02.02	**BSL-2 / Specialized Mice - Barrier**			**7,285**	
		First Floor			**7,285**	
		Specialized Mice (Small Room)	0	110	0	Included Above
		Specialized Mice (Medium Room)	0	220	0	Included Above
		` Specialized Mice (Large Room)	12	440	5,280	Included Above
	5.03.01	Ante	3	125	375	
	5.03.01	Proecedure	6	220	1,320	Included Above
	5.03.01	General Storage	1	150	150	
	5.03.01	Custodial Closet	2	80	160	
	5.02.02	**Metabolic Animals**			**780**	
		Husbandry	1	450	450	
		Isotope Room	1	110	110	Isotope room
		Holding Room	1	110	110	included above
		Procedure	0	110	0	Included Above
	5.03.01	General Storage	1	110	110	
	5.02.02	**Breeding Animals**			**1,110**	
		Holding	1	1,000	1,000	TBD
		Procedure	0	150	0	
	5.03.01	General Storage	1	110	110	

Vivarium

Vivariums, no matter the focus of research, are an essential part of preclinical studies. They provide the controlled environment necessary for the care and maintenance of experimental animals to advance studies and future diagnostics and treatment.

The program carefully outlines the 5-year growth needs for the entire medical center. Reviewing the changing species needs to ensure all will have adequate space.

The vivarium will include space for rodents, aquatics, and large animals. Evaluation of automated cage washing/changing systems is currently under investigation and is likely to be required given the large increase in cages that is forecasted.

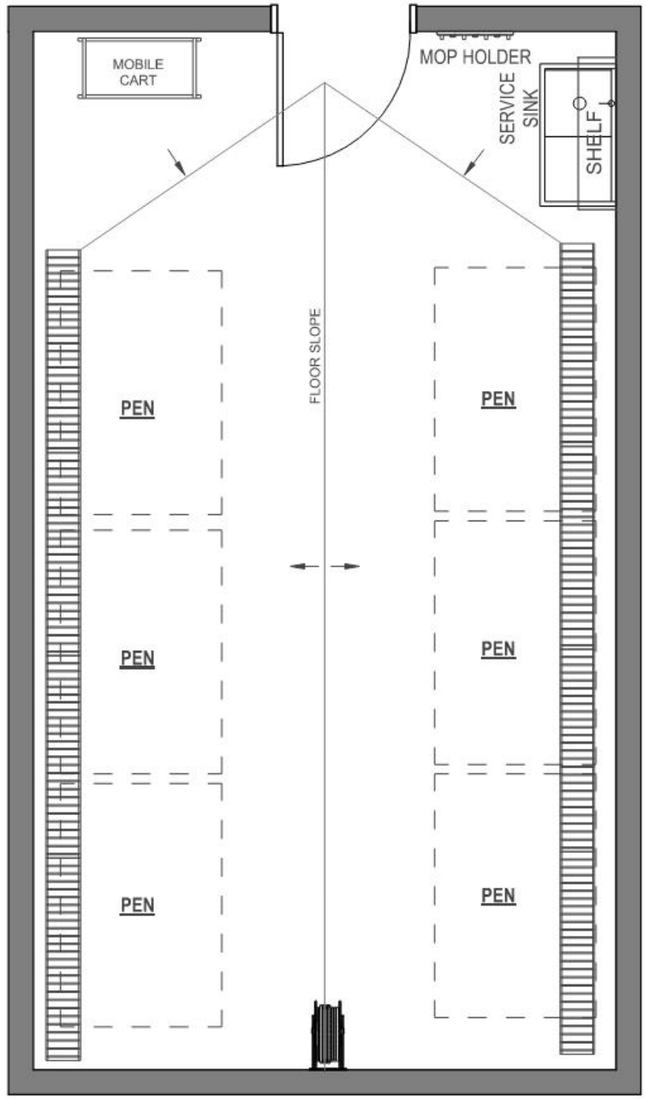
The vivarium will always provide added storage space, more convenient changing stations, and both barrier and conventional holding areas and associated procedure rooms.

In addition, other specialties in animal research will include holding rooms for metabolic animals, a behavioral core, a transgenic core, a small and large animal surgical and imaging core, and the various required support and office space to ensure an efficient operation.

University of Kansas Medical Center Research Program | Cancer Center

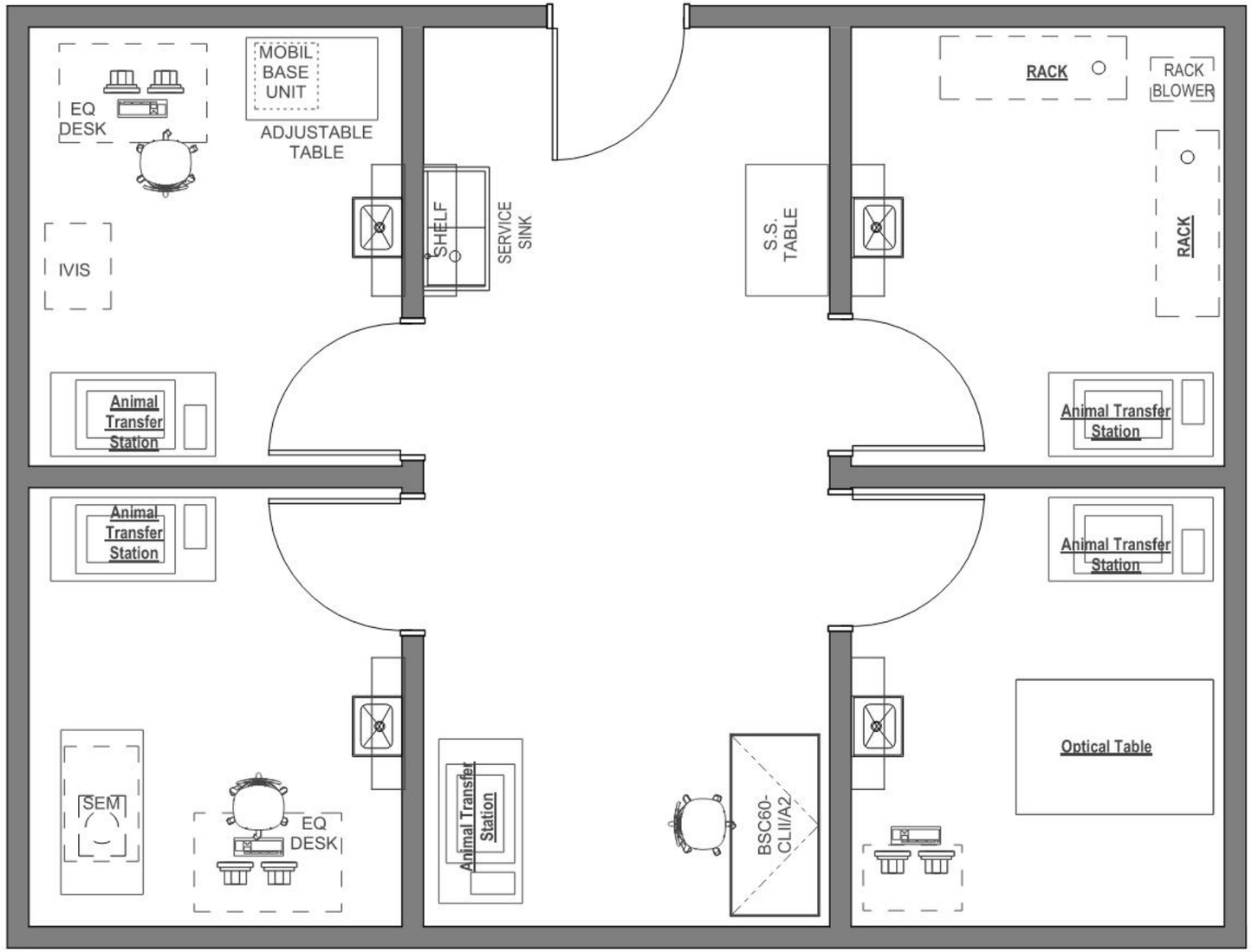
	5.02.02	**Transgenic Core**			**920**	
		Holding	0	110	0	Included Above
		Procedure	0	110	0	Included Above
		Microinjection	1	220	220	
		Trangenic Lab	1	440	440	
		Sterlization	1	110	110	
	5.03.01	General Storage	1	150	150	
	5.02.02	**Aquatics**			**910**	
		Fish Holding	1	500	500	
		Fish Quarantine	1	110	110	
		Tank/Pump Room	1	150	150	
	5.03.01	General Storage	1	150	150	
	5.02.02	**Behavioral Core**			**1,080**	
	5.03.01	Behavioral Prep/Acclimation	1	110	110	
	5.03.01	Behavioral Room Type 'A'	1	150	150	Most rooms for rodents
	5.03.01	Behavioral Room Type 'B'	0	150	0	1 room for primates
	5.03.01	Behavioral Room Type 'C'	0	150	0	1 room for aquatics
	5.03.01	Behavioral Control Room	1	80	80	
	5.03.01	General Storage	1	150	150	
	5.03.01	Equipment Storage	2	200	400	
	5.03.01	Office/Workspace	1	110	110	for write up and tech stations
	5.03.01	Custodial Closet	1	80	80	
	5.02.02	**Imaging Core**			**5,807**	3,567
		Barrier			**4,767**	
	5.03.01	Barrier MicroCT	1	281	281	
	5.03.01	Barrier MRI - 18T	1	1,240	1,240	MRIH on concept plan
	5.03.01	Barrier MRI - 10T	1	597	597	MRIV on concept plan
	5.03.01	Future	1	1,168	1,168	This SF probably will be distributed to the other new spaces
	5.03.01	IVIS	1	281	281	
	5.03.01	Barrier Holding	2	150	300	
	5.03.01	Barrier Procedure	1	150	150	
	5.03.01	Barrier Optical Tomography	1	120	120	
	5.03.01	Barrier Photo Acoustic	1	120	120	
	5.03.01	Barrier Ultrasound	1	120	120	
	5.03.01	X-Ray	1	120	120	
	5.03.01	Blood Lab	1	120	120	
		General Storage	1	150	150	
		Conventional			**1,040**	
	5.03.01	Holding	2	150	300	Stepdown spaces
	5.03.01	Procedure	1	150	150	
	5.03.01	MicroCT	1	120	120	
	5.03.01	Optical Tomography	1	120	120	
	5.03.01	Photo Acoustic	1	120	120	
	5.03.01	Ultrasound	0	0	0	
	5.03.01	X-Ray	0	0	0	
		General Storage	1	150	150	
	5.03.01	Office/Workspace	0	0	0	for write up and tech stations
	5.03.01	Custodial Closet	1	80	80	
	5.02.02	**Surgery Core**			**1,980**	660
		Large Animal			**1,510**	
	5.03.01	Large Animal Surgery	1	440	440	
	5.03.01	Large Animal Prep/Procedure	1	220	220	
	5.03.01	Large Animal Recovery	1	330	330	
	5.03.01	Large Animal Equipment Storage	1	200	200	
	5.03.01	Large Animal Surgeon Prep	1	220	220	
	5.03.01	Large Animal Staff Write Up	1	100	100	
		Surgery Support			**470**	
	5.03.01	Pharmacy	1	120	120	
	5.03.01	Instrument Sterilization / Prep	1	150	150	
	5.03.01	General Storage	1	100	100	
	5.03.01	Office	1	100	100	Lockable safe controlled substances
	5.03.01	**Shared Histology**				
		Dissection Room	1	220	220	
		Histology Lab	1	440	440	
	5.02.02	**Quarantine**			**220**	
	5.03.01	Barrier	1	110	110	
	5.03.01	Conventional	1	110	110	

	5.02.02	**Necropsy**			**880**	
	5.03.01	Large Animal	1	440	440	Primates, swine
	5.03.01	Barrier - Small Animal	1	0	0	Rodents, fish, frogs
	5.03.01	Conventional - Small Animal	0	0	0	
	5.03.01	Morgue - Clean Animals	1	220	220	
	5.03.01	Morgue - Dirty Animals	1	220	220	
	5.02.02	**Cage Wash**			**5,835**	4,218
	5.03.01	Clean Cage Storage	1	1,000	1,000	
	5.02.02	Clean Cage Wash	1	1,200	1,200	Bedding dispensing system
	5.03.01	Dirty Cage Wash	1	1,600	1,600	Waste removal system
	5.03.01	VHP	1	115	115	
	5.03.01	Entry Vestibule	1	220	220	
	5.03.01	Wash Detergent	1	100	100	
	5.03.01	Sterilizers	0	0	0	
	5.03.01	Locker/Change/Toilets	2	800	1,600	
	5.02.02	**Vivarium Receiving**			**3,706**	
		Cold Room Specialized Feed	1	220	220	
	5.03.01	Large Animal Feeding & Bedding	1	220	220	
	5.02.02	Small Animal Feeding and Bedding	1	330	330	Bedding dispensing system
	5.03.01	General Vivarium Storage	1	330	330	
	5.03.01	Receiving and Waste Management	1	1,286	1,286	This SF probably will be distributed to the other new spaces
	5.03.01	Biowaste/Decontamination/Sterilizers	0	0	0	
	5.03.01	Consumables Storage	1	200	200	
	5.03.01	Chemical Storage	2	110	220	
	5.03.01	Cylnder Storage (IN/OUT)	2	110	220	
	5.03.01	Waste Staging	1	150	150	
	5.03.01	Recylcling Staging	1	150	150	
	5.03.01	Maintenance/Repair Shop	1	300	300	
	5.03.01	Custodial Closet	1	80	80	
	5.03.01	Dock Manager Office	0	0	0	
	5.03.01	Chain of Custody	0	0	0	
	5.03.01	Loading Dock Staging	0	0	0	
	5.02.02	**Vivarium Office - Ground Floor**			**1,994**	
	5.03.01	Admininstrative Suite	0	2,521	0	
		Vivarium Office - Director	3	100	300	
	5.03.01	Vivarium Office - Supervisor	2	100	200	
	5.03.01	Tech Workspaces	14	36	504	
	5.03.01	General Storage	1	110	110	
	5.03.01	File Storage	1	110	110	
	5.03.01	Break Room	1	250	250	
		Mail/Copy/Printer	1	120	120	
		Conference Room	1	400	400	
		IT Room	0	0	0	
	5.03.01	General Storage	0	0	0	
				NSF Subtotal:	**52,347**	
				Grossing Factor:	**1.40**	
				DGSF Subtotal:	**73,286**	



LARGE ANIMAL HOLDING ROOM 330 NSF

Sheet Title
ANIMAL HOLDING ROOM
Scale
1/4" = 1'-0"
Sketch Number
LAB-04



LOW DENSITY RODENT HOLDING/ PROCEDURE SUITE 660 NSF

Sheet Title
RODENT HOLDING / PROCEDURE SUITE
Scale
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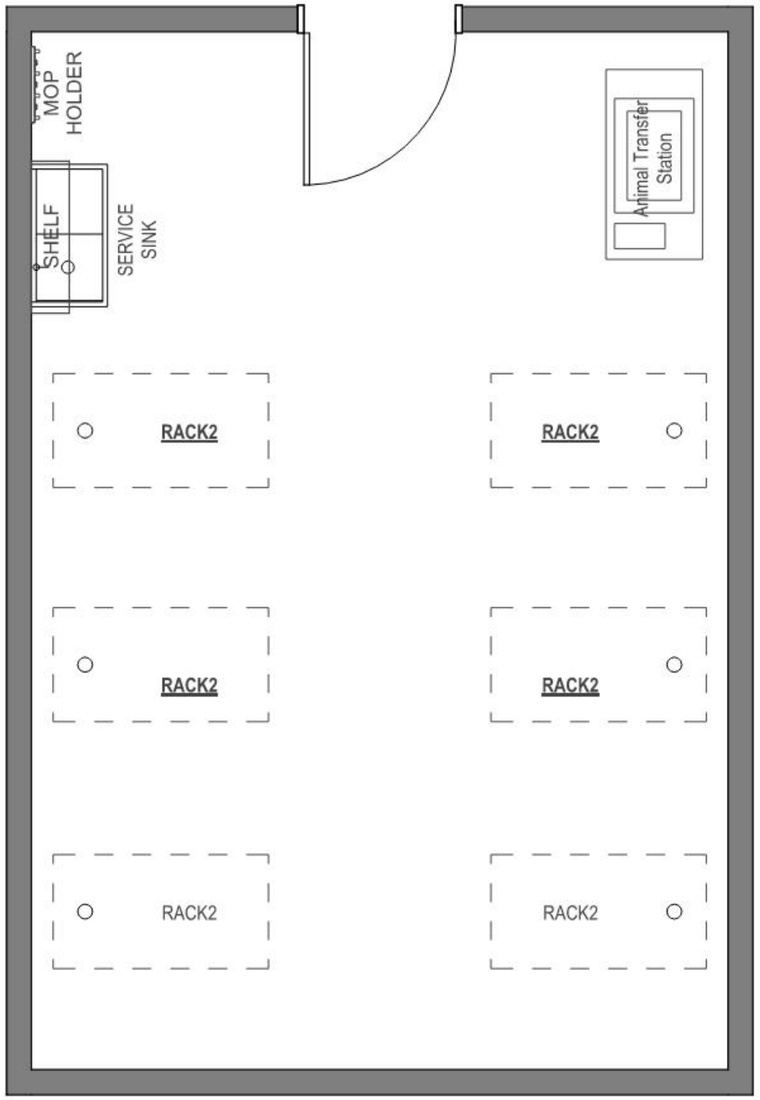
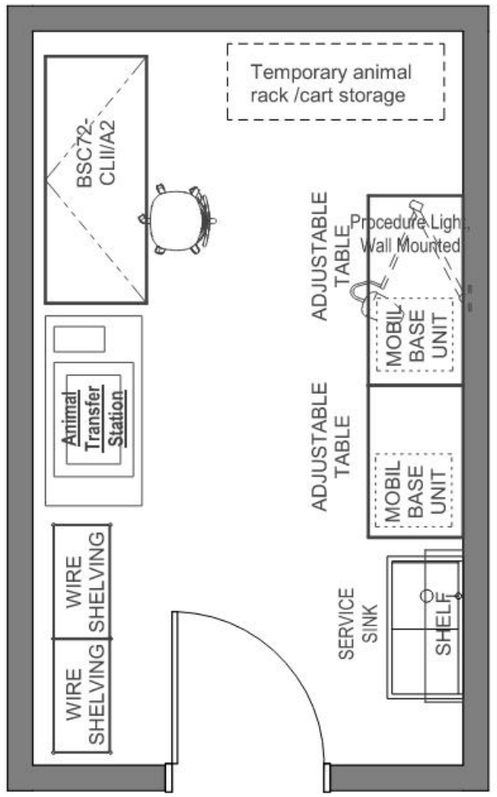
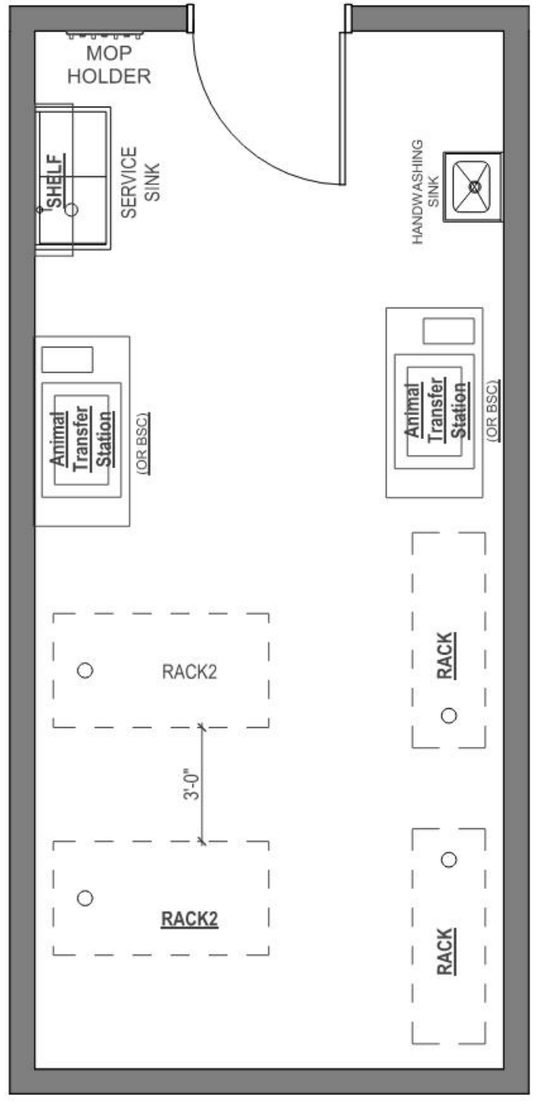
Sketch Number
LAB-06



MEDIUM RODENT HOLDING ROOM 510 NSF



PROCEDURE ROOM 220 NSF



SMALL RODENT HOLDING ROOM 330 NSF

Sheet Title
RODENT HOLDING ROOMS
Scale
1/4" = 1'-0"
Sketch Number
LAB-05

University of Kansas Medical Center Research Program | Cancer Center

Departmental Net Sq. Feet:	**62,064**	**Wet only**
Departmental Grossing Factor:	**1.00**	
Departmental Gross Sq. Feet:	**62,064**	

10/16/2023

		Research Labs	Headcount	**Quantity**	**NSF/Room**	**Total NSF**	**Comments**
		Wet Lab					
		Translational Lab				2,902	Wet space
		Biomarker Discovery Lab		1	1,682	1,682	Confirm Square Footage
		Liquid Biopsies	3			610	Technically that studies the biomarkers in the circulation. Pulls things out of the blood and measure them. Project that this will grow in the future. Equipment components that may come in and out for testing. Currently a 3 person operation. Adj needs are not required. Connection or near the biorepository.
		Bench Space		1	535	535	3 benches - **107LF** (This Steven Silver - will be in Susan's information). Could be incorporated into the precision medicine space - something to consider
		Workspace		3	25	75	1 desk space and remaining outside the lab. Design can follow suit with the remaining design of the wet lab spaces
	BASE PROGRAM	**Research Laboratories**	**266**			59,162	
32		**Principal Investigators**					Assume 2 Floors of Laboratories / 1,000 SF / PI
		Open Lab		32	1,000	32000	
		Equipment Room		16	450	7200	
		Fume Hood / Chemical Storage		4	300	1200	3-4 fume hood in this room (3 6'-0" fume hoods along with chemical storage, rack storage, ref. This is above and beyond the chem syn
		Tissue Cell Culture		32	150	4800	Size to accom. 2 BSC, incubators, ref.fzr for media, bench space, table top centrifuge
		Procedure / Microscopy / Flex		16	150	2400	cell culture, microscope, and water bath
		Glassware / Autoclave / LN2		1	250	250	One centralized autoclave room with two autoclaves in the room
		Autoclave Service Room		1	112	112	
		Receiving		2	100	200	Receiving, break down, testing and reviewing equipment. 1 per floor
		Cold Room		1	150	150	Shared resources, keep functional for working in the room. On every other floor. Cold work happening in here and not storage. Review cold box use vs cold
		Conference Space for each floor		1			Could be part of the shared collab area if it is and adj to the wet lab and lab office space. 20 people
		Storage		4	120	480	Current state has a storage hall, closets. Upper floors don't have the storage needs - consumables are stored in the lab on upper open shelves. Future state, add storage in a room and hallway to get storage out of the lab. Consumable storage. Hallway closets model is what is currently reflected in this program.
		Stock Room		1	150	150	How would this work operationally. One per floor
		Tech workspace		16			Having workstations in the lab (being able to convert wet to dry workplace in the lab) Keep most of the dry workplace outside of the lab with visibility into the lab
		Tank Closet		2	110	220	1 per floor for manifold
		Closed Office		32	100	4,800	Review SF based on space guidelines.
		Open Office/Support		192	25	4,800	Review SF based on space guidelines. 1 PI = 6 Tech
		Huddle Rooms		4	100	400	Review SF based on space guidelines. 2 per floor
		Dry Research					
	5.02.02	**Nutrition**	**5**			1,052	Population health in original program was noted as 24,200 and to shell without federal funding
		Exam Room		0	0	0	Share with population Health
		Phone Booth		1	56	56	2 person meeting (could be included in the shared areas)
		Office		2	100	200	
		Work Space		3	25	75	Touch down style space
		Equipment Storage		1	80	80	
		File Storage		4	3	12	Lateral file storage
		Medical Food Storage		1	425	425	Mostly shelf stable with humidity and temp control. Shelving and more shallow than deep. Room for ref. Some come in powder form. Countertop to weight and bag the powder (prep space). Handwashing sink.
		Changing Room		1	60	60	With locker inside the changing space
		Vitals Room		1	144	144	Ht/Wt/BMI. For researcher participants. Shared with population. Dex room with in the room. Size for treadmill or step bike in the future. Review SF of room to accommodate Dex alcove

DRY LAB BASE PROGRAM	**NSF Subtotal:**	**1,052**
	Grossing Factor:	**1.40**
	DGSF Subtotal:	**1,473**

WET LAB BASE PROGRAM	**NSF Subtotal:**	**62,064**
	Grossing Factor:	**0.00**
	DGSF Subtotal:	**0**

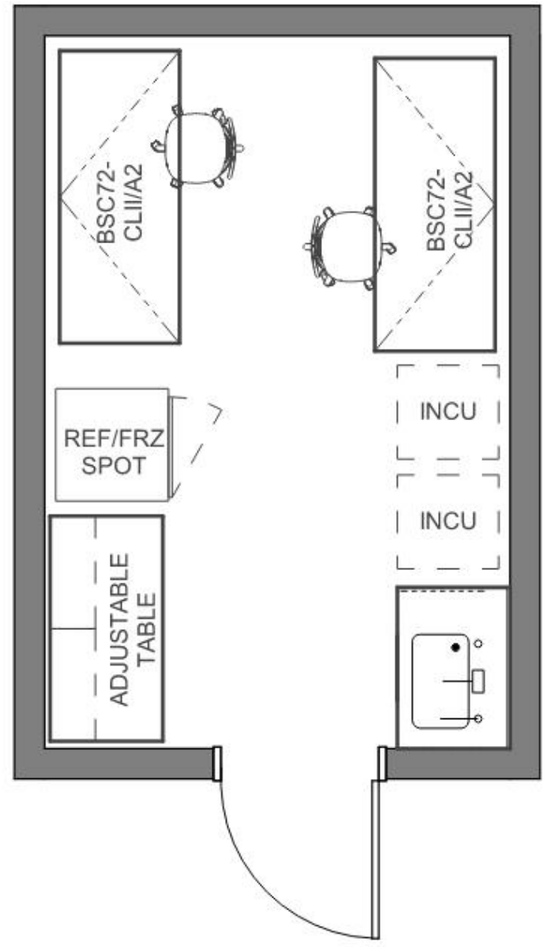
Research Labs

Current and emerging research trends have been part of the programming assessment to ensure the space program will meet the demands of today and tomorrow. Recruitment and the growth in cancer research also helped inform allocation of spaces, types of spaces, and potential amenities adjacent to bench-space.

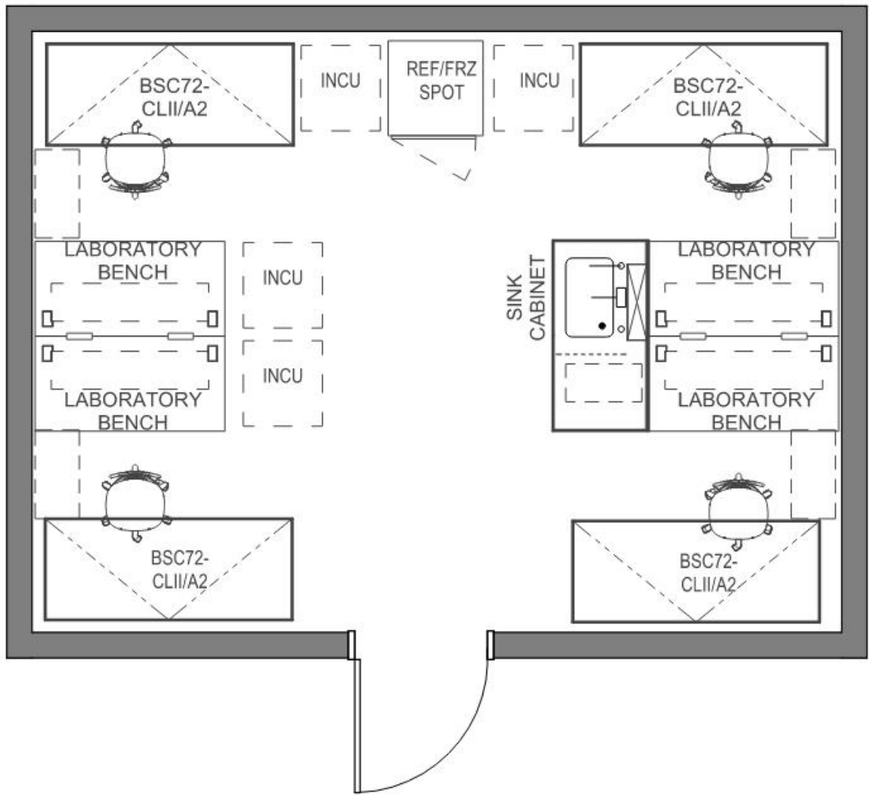
Wet Labs
Wet lab space and the associated support rooms are programmed to plan for greater utilization of space while linear feet of bench per private investigator is becoming the unit of measurement. This unit as an allocation strategy rooted in grant funding. The program has reflects better use of shared glass washing, storage, freezer and refrigeration, and cold rooms. Along with shared services within in the lab, flexible support rooms are programmed as part of the lab module to accommodate future research trends and the ever changing world of equipment.

Dry Research
Dry research space will live at the work station and as a result, the ratio of dry space to wet space is an important consideration. Physical adjacencies between the two ensures the culture of collaboration is designed into the building. Dry space will include not only the future program areas outlined in later sections (population health and biostatistics) but areas for nutrition and computational work.

SHARED FUME HOOD ROOM 300 NSF



SMALL TISSUE CULTURE ROOM 150 NSF



FLEX TISSUE CULTURE ROOM 300 NSF

SHARED FUME HOOD ROOM 300 NSF

GMP

The GMP space bridge the research and care, preparing products and ensuring they are safe and effective for clinical trials and/or various treatment therapies.

The GMP area will include the required flow to maintain the clean environment required for cell processing and viral vector spaces. Adjacent to the GMP will be support spaces for receiving and shipping as well as a QC lab space to support cell culture and preparation for use in clinic. The need for expensive infrastructure were considered during the bubble diagrams and stacking analysis phase of programming. Understanding the importance to other similar areas will ensure that staff, receiving, and other resources can be shared.

University of Kansas Medical Center Research Program | Cancer Center

Departmental Net Sq. Feet:	**8,744**
Departmental Grossing Factor:	**1.00**
Departmental Gross Sq. Feet:	**8,744**

	Space Name	NSF (Unit)	Quantity	NSF (Total)	Room Classification	Containment Level	Comments
GMP							
R&D Lab				**1,200**			
1.01	Research Lab	**1,200**	1	1200	**CNC**	BSL-2	R&D space, sampling testing
cGMP - ISO Clasified Areas				**4,200**			
Shared							
2.00	Main Gowning	**200**	1	200	**ISO 8 / Grade C**	BSL-2	PPE, Gowning
2.01	Master/Working Cell Bank Processing	**300**	1	300	**ISO 7 / Grade B**	BSL-2	Cell Separator (, BSC, Workspace. AutoMACs Neo or MultiMACS Cell24)
Cell Therapy / Viral Vector							
2.11	Cell Manuf. Processing	**300**	4	1200	**ISO 7 / Grade B**	BSL-2	(2) 6' BSC, (4) incubators, (2) microscopes, (1) centrifuge, workspace, shelf rack storage
2.13	PAL/MAL-IN	**100**	6	600	**ISO 7 / Grade B**	BSL-2	Personnel/Material Airlock (Incoming)
2.14	PAL/MAL-OUT	**100**	4	400	**ISO 8 / Grade C**	BSL-2	Personnel Airlock (Outgoing)
2.18	Classified Corridor	**600**	1	600	**ISO 7 / Grade B**	BSL-2	Central corridor with classified spaces at both sides of corridor (placeholder).
2.19	Classfied Secondary Corridor	**900**	1	900	**ISO 8 / Grade C**	BSL-2	Classified corridor to provide a unidirectional flow (placeholder).
cGMP - Non-Clasified Areas				**3,344**			
3.01	Locker/Change/Toilet Room	**600**	1	600	**CNC**		
3.02	Receiving	**100**	1	100	**CNC**		Staging & Workspace for incoming raw material
3.03	Shipping	**100**	1	100	**CNC**		
3.04	Raw Material Storage	**800**	1	800	**CNC**		Storage for Quarantined & Release Raw Material
3.05	Finished Product Storage	**300**	1	300	**CNC**	BSL-1	(4) LN2 Storage Freezer, Workspace. 2 control rate freezers
3.06	Gas Cylinder	**200**	1	200	**CNC**		More likely for CO2, N2, and LN2 cylinders
3.07	Janitorial	**100**	1	100	**CNC**		Dedicated for the cleaning solution preparation of the cGMP space.
3.08	Utility Room	**150**	1	150	**CNC**		Potentially for a USP Purified Water generator.
3.09	Hazardous Waste	**300**	1	300	**CNC**	BSL-2	
	Document Storage	**100**	1	100	**CNC**		
3.10	Offices	**100**	3	300	**CNC**		Offices for QC and QA Manager, and the GMP manager. Research coordinator, director
3.11	Workstations	**36**	4	144	**CNC**		
3.12	Conference Room	**300**	0	0	**CNC**		Used shared conference space. Regulators and trial monitors to use this space near by.
3.13	Break Room	**150**	1	150	**CNC**		Account for SF here and on the clinical side and the spaces could be combined to make one larger break to be shared.
QC Lab				**1,300**			***Provide QC Process in dedicated Open Lab space***
1.01	Main Lab	**500**	1	500	**CNC**	BSL-2	Assuming 2 - 12x25 feet modules
1.02	Cell Culture	**220**	2	440	**CNC**	BSL-2	(2) 6' BSC, (4) stacked incubators, worksurface
1.03	Confocal Microscope	**110**	1	110	**CNC**	BSL-2	(2) 6' BSC, (4) stacked incubators, worksurface
1.04	Equipment Room	**250**	1	250	**CNC**	BSL-2	Freezer, Refrigerator, LN2 Storage Freezer
			NSF Subtotal:	**8,744**			
			Grossing Factor:	**1.00**			
			DGSF Subtotal:	**8,744**			

Research Administration

This area of the building will not only co-locate research leadership but also clinical leadership. The synergies between research and care will start in this space.

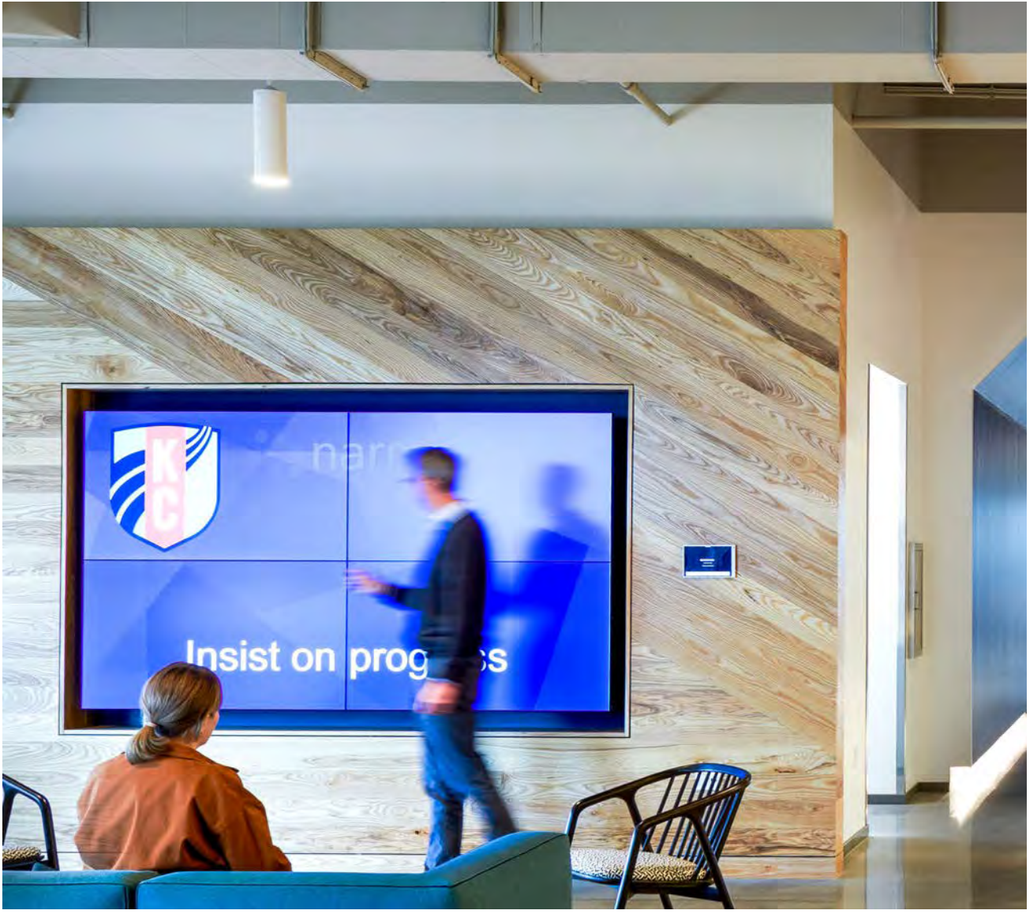
Research Specific Needs
The Research Administration Suite provides a workspace for more than 67 team members to focus, collaborate and work within the building. Executive offices, standard offices, workstations, phone rooms and touch-down stations provide individual workspace adjacent to a conference room for 10 and the boardroom for 24. Support spaces include reception, storage, pantry and print areas.

The program elements and space allocation is rooted in current and ongoing strategies to be more efficient with space based on hybrid employees. Those individuals working remote 2-4 days a week will be included in shared office space allocation. Assigned spaces, whether office or workstation, will be reserved for those working remote 1 day or less during a work week.

University of Kansas Medical Center Research Program | Cancer Center

Departmental Net Sq. Feet:	**6,688**
Departmental Grossing Factor:	**1.30**
Departmental Gross Sq. Feet:	**8,694**

		Headcount	Quantity	NSF/Room	Total NSF	Comments
Research Admin Suite		**67.00**				**35% growth included**
5.01.01	Admin Suite				6,688	
	Entry/Reception		1	200	200	There is currently no receptionist today. Seating for 5-6 with place for award, designation display
	IT Storage		1	120	120	Secure with work bench
	Touchdown		4	25	100	
	Workstation		34	36	1,224	
	Office		28	100	2,800	
	Exec Office		5	144	720	Big enough to have a table with 4-5 people
	Board Room		1	800	800	24 people, adj to admin
	Conference Space		1	220	220	10 people, internal
	Pantry Space		1	120	120	Utilize seating and larger break space to be utilzied at spaces already being planned within the building. Drinks, lunch storage, coffee. Back door connection to board room
	Storage		1	80	80	General storage for commuication materials, kits, etc
	Large poster printer		1	80	80	
	Printing/Copy area		1	80	80	Copy, print, prep area, office supply storage, mail
	Phone Booth		4	36	144	Room for zoom calls and focus work (single occupancy room)
5.03.01	Research Office					
	Closed Office		0	100	0	See research floors
	Open Office		0	36	0	See research floors
				NSF Subtotal:	**6,688**	
				Grossing Factor:	**1.30**	
				DGSF Subtotal:	**8,694**	



Conference, Collaboration + Amenities

Amenities
As a shared amenity for staff and employees, breakrooms will be provided on research floors with space to store and prepare lunches, along with access to coffee, vending and ice/water. Plenty of seating is provided to ensure these spaces are used by groups and individuals throughout the day. Ideally these spaces are connected to outdoor seating to provide access to fresh air, sun and views. To ensure employee wellness is supported throughout, employee lockers and showers are provided along with bicycle storage.

Conference Rooms and Collaborative Areas
A variety of meeting areas, both formal and informal, are included to be used throughout the building. Rooms for groups from 4-100 are provided, larger rooms provide the ability to subdivide and size rooms based on the group needs. AV including display screens, video conference capabilities and speakers/microphones will be provided based on room scale. Throughout the building, shared collaborative areas will be provided with a variety of furniture and tools to encourage a culture of sharing and integration. A small media recording room, classroom and computer lab are included to ensure staff has access to any required resource.

University of Kansas Medical Center Research Program | Cancer Center

Departmental Net Sq. Feet:	**9,600**
Departmental Grossing Factor:	**1.30**
Departmental Gross Sq. Feet:	**12,480**

	Quantity	NSF/Room	Total NSF	Comments
Conference, Collab,&Amenities				
Collaboration/Conference	1	28,450	28,450	Total GSF of all the collaboration spaces in the building. Size of the collabation space varies by floors.
Informal Huddle	2	120	240	Not enclosed and not reservable. Centralized around a major amenity hub (break, food)
Formal Huddle	4	120	480	4 people or less. Enclosed and reserve
Small Conference	3	375	1,125	Conference numbers to be pulled from feedback from the focus groups. 6-10 people people. Awaiting additional information for the wet lab conference room needs
Medium Conference	2	750	1,500	15-20 people
Large Conference	1	940	940	3 with 60 people (breakout from the auditorium), 24-36 people people. Awaiting additional information for the wet lab conference room needs
NCI Conference Space	1	2,000	2,000	U shaped layout with podium space. Big screen. With additional seating around the perimeter of the room. Site visitors don't want people behind them. Could be a room with a divider to create additional conference space
Extra Large Conference	1	1,300	1,300	1 conference room for 100 people (break out from the auditorium, this could be also the NCI room noted above), 40-60 people. Subdivide this room as well
Breakroom	3	450	1,350	Staff Lounge / Breakroom on Research office floors. Finalize number and locations based on the number of people. Currently used mainly for storing lunch. Vending, micro, ref/fzr, ice/water. Hold a lot of people with seating there and adjacent.
Additional Seating and good view				
Space within the break for an outside vendor to come in				
Phone Booth	3	25	75	Located throughout the building. A few located adjacent to a heavy conference room area. 1 person room
Employee Lockers/ Shower	2	120	240	Intended to be used for those that are biking to work. Work to include in the program
Bicycle Storage	1			Include bike storage (outdoor storage)
Outdoor Green Space				Could be connected to the coffee/break rooms on the research floors
Small media recording room	1	350	350	To be shared by multiple groups
		NSF Subtotal:	**9,600**	
		Grossing Factor:	**1.30**	
		DGSF Subtotal:	**12,480**	

Common Spaces

Common spaces of the Cancer Center include areas key to a successful experience for faculty, researchers, clinicians and patients. These include the building entries, security/ badging station, registration desk and main lobby with seating. Two small meeting rooms are included adjacent to the entry for interviews or vendor meetings. A small amount of space is held for a coffee/retail component.

Restrooms, both traditional and gender neutral, along with a wellness/mother's room are provided at each level. A changing restroom is included within each restroom.

Overall, the common spaces will be designed to enhance the patient experience and promote wellness for all the building occupants.

University of Kansas Medical Center Research Program | Cancer Center

Departmental Net Sq. Feet:	**8,197**
Departmental Grossing Factor:	**1.30**
Departmental Gross Sq. Feet:	**10,656**

		Headcount	Quantity	NSF/Room	Total NSF	Comments
01.01.01	**Common Spaces**					
	Entry Vestibule		1	100	100	Multi entries for research secure access and well and sick patients
	Quiet Wait Space		1	100	100	Sub wait for respite for patients waitings (clinical)
	Main Lobby		1	1,627	1,627	Welcoming Envrionment
	Security/Badging		1	400	400	
	Visitor Storage		1	60	60	
	Small Meeting Space		2	120	240	Interviews/Etc
	Seating, Public		1	250	250	various seating type for 20-25 seats?
	Check In/registration		1	60	60	Visitor Management, integrated with security?
	Toilet, Public		12	350	4,200	Changing restrooms in every restroom
	Toilet, Gender Neutral		2	100	200	Min. 1 on the Main lobby space
	EVS Closet		0	60	0	Recommend Min. 1 EVS closet per floor. Accounted for in building support
	Food service / cafe / dining					In clinical program
	Coffee shop?		1	480	480	Staff only access
	Grab and Go					Accounted for on the clinical side of the program (all building user access)
	Wellness Room (one per floor)		6	80	480	Lactation room (current standard, one per building). Ref, casework and sink. Lactation and wellness space.
				NSF Subtotal:	**8,197**	
				Grossing Factor:	**1.30**	
				DGSF Subtotal:	**10,656**	

Building Support

The current strategy to provide the required utilities to service the program elements will be a building that can stand independent from an external central utility plant.

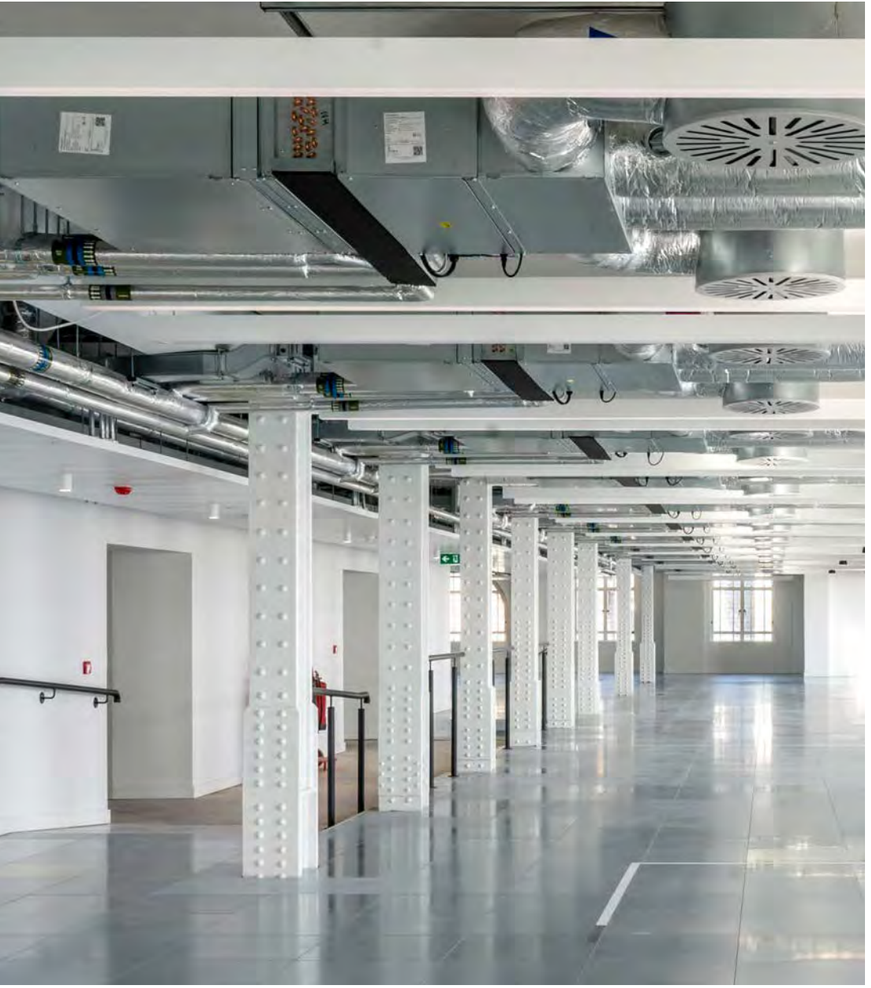
The program is detailed beyond a simple building grossing factor to account for vertical circulation paths within the building, separate dock and receiving areas to serve the vivarium and general lab spaces, and associate spaces that will allow facilities staff to maintain and support the building and its infrastructure.

Also included in the building support program is an interstitial space to allow service of the vivarium and GMP spaces. The intent of the interstitial space will allow for facilities staff to service and maintain these spaces without having to enter the extremely clean environments. Access to services such as, shut off valves, controls, and electrical access will make regular maintenance manageable and less disruptive to the staff and animals within these specialized spaces.

University of Kansas Medical Center Research Program | Cancer Center

Departmental Net Sq. Feet:	**87,226**
Departmental Grossing Factor:	**1.00**
Departmental Gross Sq. Feet:	**87,226**

	Quantity	NSF/Room	Total NSF	Comments
Building Support				
MEP (Mechanical, Electrical, Plumbing, and Equipment)	1	38,193	38,193	remote monitoring of systems
MEP (Central Plant - Boilers & Chillers)	1	8,275	8,275	Not required with External CUP
Shaft	1	2,548	2,548	
Restrooms, Gender Neutral	0	105	0	1 gender neutral restroom on each of the Research Office floors. Accounted for in public spaces
Restrooms, Public	0	446	0	Public Restrooms are on the Research Office floors and recommend to provide it on main lobby. Accounted for in public spaces
EVS Closet	8	90	720	
Facilities Shop	1	144	144	Off the main mechanical space
Stock Rooms	1	144	144	
Storage	3	150	450	
Interstitial space	1	20,000	20,000	
Elev.	32	120	3,840	4 elevators per floor (assume 8 floors at this time)
Frieght Elevator	24	180	4,320	2 per floor (assume 8floors at this time)
Vivarium Elevator	1	180	180	Assume 3 floors of vivarium
Stair	16	280	4,480	2 per floor (assume 8 floors at this time)
Open Staircase	4	301	1,204	open staircase is connecting research floors (4 floors)
Receiving	1	2,728	2,728	
		NSF Subtotal:	**87,226**	
		Grossing Factor:	**1.00**	
		DGSF Subtotal:	**87,226**	



Future Expansion

Built in strategies for growth is planned for three various functions: vivarium, wet research, and dry research. How the shell space is initial used will depend on the growth of these groups. Long term grow will be realized in space needs via phased additions to the building as well as complete new buildings.

Much of the discussion around future space centered around the growth of benchmarking facilities, such as, Huntsman Cancer Institute at the University of Utah, Simon Comprehensive Cancer Center at University of Indiana and Purdue, and James Cancer Hospital at The Ohio State University. These facilities experienced significant growth over a ten year period and as a result their planning included both shell and future expansion planning.

This program will only include shell space to accommodate minimal growth. Future phases to this building or future buildings will need to be consider to accommodate growth 5 years and beyond.

University of Kansas Medical Center Research Program | Cancer Center

Departmental Net Sq. Feet:	**7,000**
Departmental Grossing Factor:	**1.00**
Departmental Gross Sq. Feet:	**7,000**

10/16/2023

	Quantity	NSF/Room	Total NSF	Comments
Future Expansion				
Future Research Laboratories	1	0	0	
Future Research Office	1	0	0	
Future Vivarium	1	7,000	7,000	
		NSF Subtotal:	**7,000**	
		Grossing Factor:	**1.00**	
		DGSF Subtotal:	**7,000**	

Biostatistics (VISION PROGRAM)

The mission of the Department of Biostatistics & Data Science is to provide an infrastructure of biostatistical and informatics expertise to support and enhance the research, service, and educational needs of the University. The global objectives of the department are as follows:

- To provide a leadership role in biostatistical and informatics research initiatives across the medical center.
- To provide the biostatistics and informatics cores for major initiatives.
- To ensure that researchers have ready access to biostatistical and informatics resources and support.
- To provide the infrastructure and expertise for centralized and project specific database development, management and analysis.
- To consolidate resources pertaining to biostatistics and informatics.

Enhancing the Data

The team's work focuses on creating and maintaining a sustainable environment of quantitative scientists in biostatistics, informatics and data science that enhances and supports the education, research and service missions of the University of Kansas Medical Center. One of the building blocks of the department is its ability to provide support to research teams, which enhances collaborative research while providing a cost-effective and efficient method to support multiple researchers in similar domains. As research continues to evolve so will the scope and type of support the department provides in order to continually enhance the research initiatives of the institution. Because of this integrated work, it is important to ensure space within the vision program for Biostatistics.

University of Kansas Medical Center Research Program | Cancer Center							
	5.02.02	**Biostatistics**	**100**			9,190	Biostatistics in original program was noted as 25,360 and to shell without federal funding. Staff to grow about 10% minimum
		Touchdown Station		45	24	1,080	Hoteling/Unassigned - students won't grow. Capped at this. 1 remote worker station
		Reception/Intake		1	150	150	Reception and waiting space with 4 seats with a coffee stand
		Conference		2	375	750	Space that gets used on a regular basis. 10-15 people. Dedicated to biostatistics and not part of the building
		Mass Spec Workstations		4	36	144	Located near server area. Workstations separate from other workstations in the dry reserach area
		Computer Storage		1	144	144	Secure space. Near IT computer storage but doesn't have to be
		Workstation		22	36	792	
		Office		12	100	1,200	
		Library		1	150	150	Books, table with 6-8 chairs (wouldn't have to live here), journals.
		Data Visualization Room		1	200	200	Confirm - for showing the data. Run visualization, cluster analysis, simulation. Secure room. Could potentially open up to space if needed when used for other functions
		Server		1	500	500	Elevated floor. Badge plus bio reader for secure entry
		Senior Office		34	120	4,080	Current state: 30 faculty, 30 staff (10 would need office), 40 grad students that participate in research (workstations/touch down space?). Meet in the office, 90% of meetings are in their office

Population Health (VISION PROGRAM)

The Department of Population Health works closely with KU Cancer Center to improve cancer control in the state and region. Our faculty are improving cancer screening delivery and service uptake, particularly colorectal and breast cancer, in under-served rural and minority communities.

Removing barriers to cancer screening

- Using the latest computer technology, we initiated discussions between doctors and patients in rural and urban areas to encourage colon and breast cancer screening for Latino and American Indian women.
- We surveyed American Indian women in various locations to determine mammography participation, satisfaction and barriers to screening.
- Working with incarcerated women at risk for cervical cancer, we assess health care utilization patterns and literacy and seek to break down barriers to cancer screening and follow-up care.

Collaboration

Co-location of Population Health in the new KU Cancer Center is part of the vision program. The goal is to expose population faculty and researchers to wet bench and clinical research to further enhance partnerships that will allow the department to continue their multi-disciplinary approach to tackling health concerns, particularly those concerns that disproportionately affect rural, incarcerated, Native American, African American, and Latino communities.

University of Kansas Medical Center Research Program | Cancer Center							
	5.02.02	**Population Health**	**95**			10,414	Population health in original program was noted as 24,200 and to shell without federal funding. 45 faculty members, 50 staff members, part faculty (#?). Includes 15% growth
		Touchdown Station		0	24	0	Hoteling/Unassigned
		Intake/Waiting		1	144		
		Workstation		68	36	2,448	includes 35% growth over 10 years
		Storage		2	144	288	
		Call Center		1	168	168	Phone center (4)
		Zero pressure smoking room		1	120	120	HVAC to support the study function
		Phleb Station				0	Could be shared with clinical pharm. Close to this
		Blood Draw Station				0	Could be shared with clinical pharm. Close to this
		Exam Room		2	120	240	For research purpose. With Phleb chair. Share with Nutrition. Corridor space for walking assesments
		Consult Room		5	100	500	For research purpose. Consent space
		Computer Lab		1	350	350	Multi function, shared space for the building
		Classroom		1	350	350	Moveable chairs. Full AV and white boards
		Conference		2	350	700	
		Student Workroom		1	250	250	8 people in the space
		Office		58	100	5,800	includes 35% growth over 10 years
		Shared Office		6	100	600	

KU Cancer Center

Schedule

Project Schedule

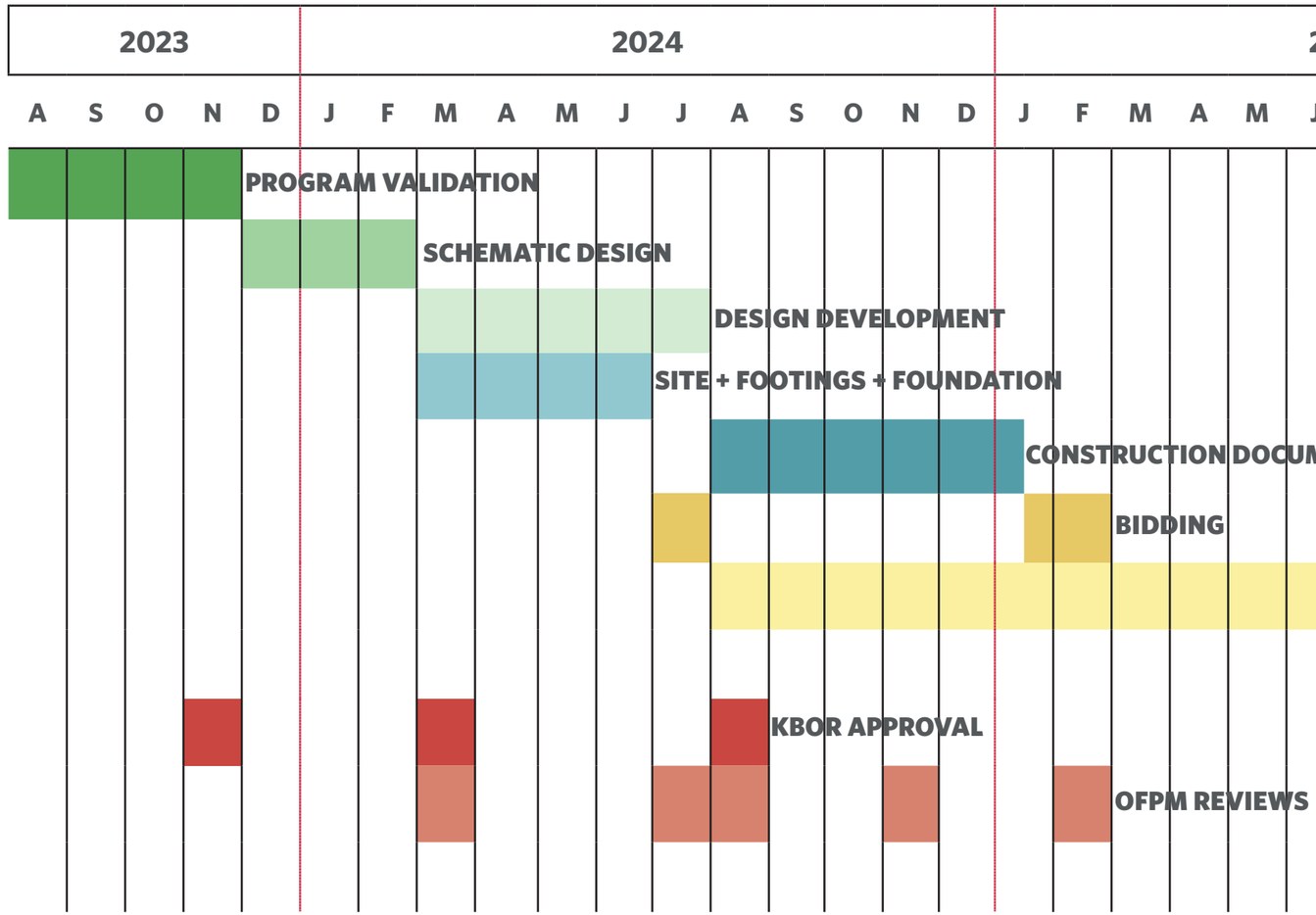
Working Towards Designation. Program validation for the KU Cancer Center began in August of 2023. The institution intends to seek Kansas Board of Regents approval in November of 2023. Site evaluation with their partner, the University of Kansas Health System is ongoing with an milestone for selection on December 1, 2023. The proposed schedule is built to allow for reasonable time to thoroughly complete each design phase while being mindful of the future NCI site survey to maintain the Cancer Center's comprehensive designation as well as grant funding that is currently in place to support the new facility.

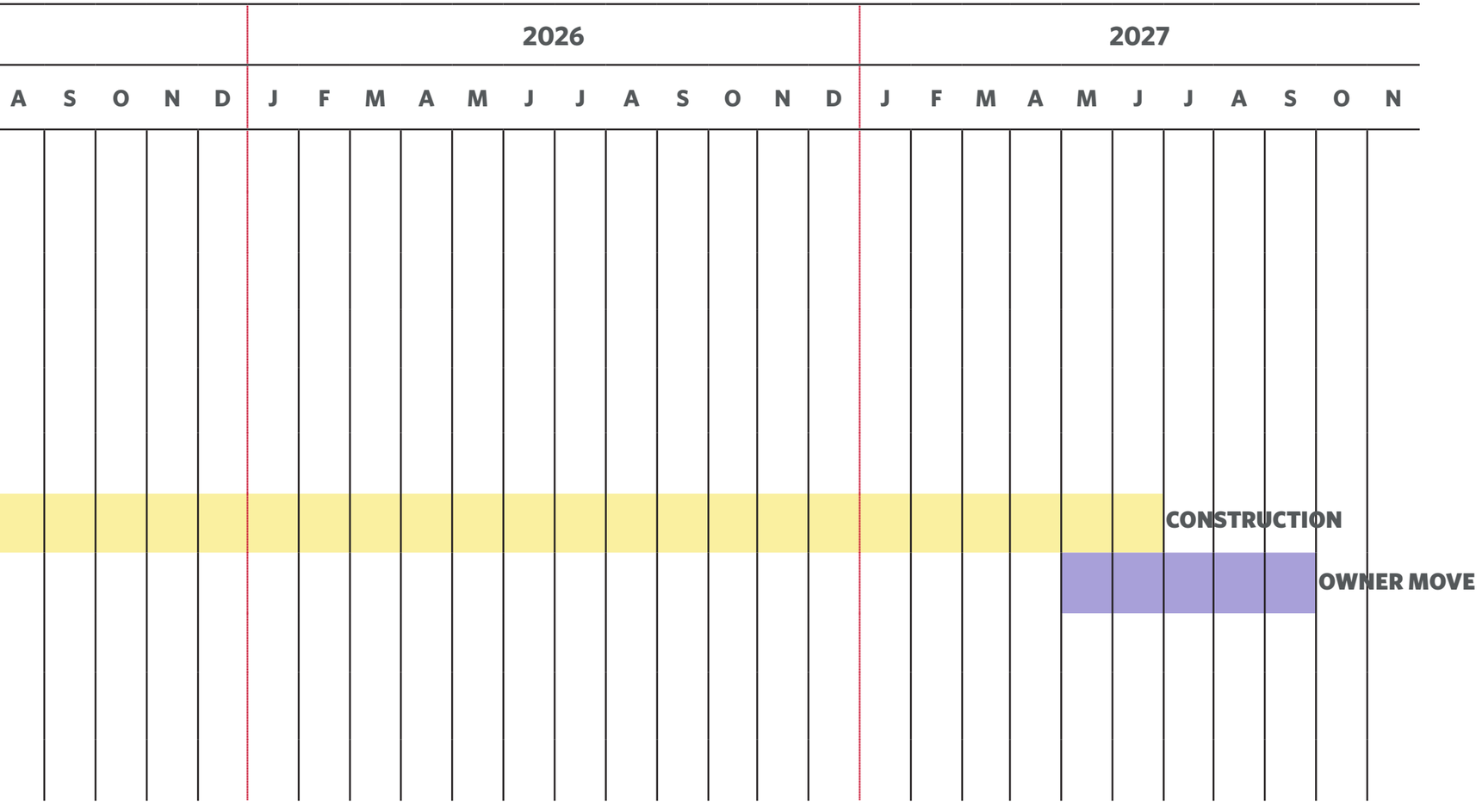
The institute is projecting Kansas Board of Regents approval for schematic design in March of 2024 and design development approval to follow in August of 2024.

The current schedule plans for two bid packages to be released. Site and Footings/Foundation Package to be issued shortly before the end of Design Development in July of 2024 and the Final Bid Package in January of 2025.

Construction is currently projected to be 36 months with owner move in beginning in the last 2 months of construction and lasting into September 2027.

Grant funding for the project requires move in complete by May 31, 2028 and NCI site survey to maintain comprehensive designation is anticipated sometime in quarter 2 of 2027 and will require the facility to be near substantial completion.




2026
2027
A S O N D J F M A M J J A S O N D J F M A M J J A S O N
CONSTRUCTION
OWNER MOVE

Project Cost

Project Budget

The construction cost summary below represents the cost of the project per project area and includes project escalation.

This assumes construction starting in fall of 2024 and substantial completion in fall of 2027.

University of Kansas Medical Center Program						
Program Area	**BASE PROGRAM**	**Grossing Factor**	**Unit Cost**	**Construction Cost**	**BP - DGSF**	**Notes**
Common Spaces	4,099	1.30	$459.00	$2,445,575	5,328	Split 50/50 for research and clinic
Vivarium	52,347	1.40	$583.00	$42,725,621	73,286	Programmed based on 23,400 cages in ten years (vivarium services in Hemenway to remain as is)**What does CC pay for - core MC facility**
Research Labs						Separate per wet and dry
Wet Lab Base Program	62,064	0.00	$425.00	$26,377,200	62,064	Base Program Scope (32PIs)
Dry Research	1,052	1.40	$261.00	$384,401	1,473	No allocation of dry/computational space in original program
GMP	4,372	0.00	$580.00	$2,535,760	4,372	Split 50/50 for research and clinic but reduce program
Research Admin Suite	6,688	1.40	$236.00	$2,209,715	9,363	
Conference, Collab,&Amenities	4,800	1.30	$326.00	$2,034,240	6,240	Split 50/50 for research and clinic
Building Support	43,613	0.00	$121.00	$5,277,173	43,613	inter lives here. Split 50/50 for research and clinic
Future Expansion	7,000	0.00	$73.00	$511,000	7,000	
Subtotals	**186,035**	**Interior**	$397.2	$84,500,685	212,739	
		Shell	$548.00	$105,620,890	192,739	Gross for exterior minus interstitial space.
Subtotal Building Only			$893.7	$190,121,575		
		Site Improvements	$35.00	$6,745,860		Split 50/50 for research and clinic
		Skywalk/Tie Ins	$3,513,194.00	$3,513,194		Split 50/50 for research and clinic
Total Project Construction Cost			$941.9	**$200,380,629**		
Program Clarifications:						
No auditorium, no biostatistics or population health program. Conference room counts reduced. Removed all shared resources from scope of work and removed biospecimen respository lab space.						
Reduce building to 8 stories and reduce elevators and building support accordingly. Reduce supports spaces in research admin. Reduce GMP from 8 to 6 spaces and associated support spaces accordingly. Reduce wet space to accommodate 32 PIs rather than 38 PIs						
Construction Clarifications:						
Interstital space are included, however not utilized in calculating the total project GSF stated in this document. Site and skywalks are pro-rated (assumes the project will have a share of this scope in its respective budget).						
Items not inclued: Cages, BSC, vivarium bedding systems, vivarium, ISO room equipmet, rack flushing, watch pouch and bedding processing systems, imaging equpiment, freezer/coolers, exam lights, procedure/surg lights, remote central monitoring, Owner FFE and soft costs (these are noted as a separate line item), BPU/Public Utility Infrastructure work, removal of Hoglund.						
Items included in construction cost:						
Lab casework, fume hoods, autoclave Sterilizers, cage/cart wash, vivarium lighting/watering system, generators.						

Owner Costs		Current assumption, 25% of construction cost		$50,095,157.23		Includes FFE, AV, survey, geo tech, and design fees
Projected Total Project Cost				**$250,475,786**		
Range			Minus 5% **$237,951,997**		Plus 5% **$262,999,575**	

Project Cost

Programming Summary as of 10/16/2023

Cancer Building - Programming Summary as of 10/16/23						
		GSF	GSF less Interstital	Cost	Cost/GSF	Apparent Changes from Last Week
Structure						
	Shell Before Finishes		192,739	$ 105,620,890	$ 548	
	Site Improvements		192,739	$ 6,745,860	$ 35	
	Skywalk/Tie Ins			$ 3,513,194		
Finishes						
	Common Spaces	5,328		$ 2,445,575	$ 459	Reduced from 8,448 GSF
	Vivarium	73,286		$ 42,725,621	$ 583	Left Vivarium full size, but no shell space for future
	Wet Labs	62,064		$ 26,377,200	$ 425	Reduced from 77,406 GSF so can accommodate 32 PI's vs 38 PI's
	Dry Research	1,473		$ 384,401	$ 261	same
	GMP	4,372		$ 2,535,760	$ 580	Reduced slightly due to biospeciman repository
	Admin Suite	9,363		$ 2,209,715	$ 236	Kept same size
	Conf, Collab & Amenities	6,240		$ 2,034,240	$ 326	Reduced significantly from 15,720 GSF
	Building Supt	43,613		$ 5,277,173	$ 121	
	Future Exp	7,000		$ 511,000	$ 73	Reduced from 59,302 GSF to 7,000 GSF
		212,739	**192,739**	**$ 200,380,629**	**$ 942**	
Cost Summary (Adding in Owner's Cost)						
	Pre-Owner's Cost			200,380,629	942	
	Owner's Cost @25%			50,095,157	235	FFE, AV, Survey, Geo Tech, Design
	Project Cost			**250,475,786**	**$ 1,177**	

Annual Operating Cost and Infrastructure Cost

Annual Operating Cost and Infrastructure Cost					
Gross Square Feet	212,739				
Annual Operating Costs					
Utilities	1,165,810	5.48	*Cost/SF in Base Year Dollars*		
Maint/Landscp/Enrgy Ctr/Dock	470,153	2.21	"		
Housekeeping	427,605	2.01	"		
Technology Support	214,866	1.01	"		
Other KUMC Support	176,573	0.83	"		
	2,455,008				
CapX and Facilities Infrastructure		**% of Constr Cost to Consider**		**Average Useful Life**	**% to Replace Each Year**
Equipment Cost	860,247	75%		15.0	6.7%
Technology Replacement	505,910	80%		5.5	18.2%
Facilities Infrastructure	3,339,075	75%		50.0	2.0%
	4,705,232				