Report from the Chancellor's Advisory Committee for Life Sciences (CACLS): State of Buildings, Physical Plant, Core Facilities and Research Administration that Support Life Sciences.

Spring Report 2022

1. INTRODUCTION

The Chancellor's Advisory Committee on Life Sciences (CACLS) raised concerns over the state of the life sciences buildings, physical plant, facilities, and administrative support at UC Berkeley. The concerns originated from Committee members' own experiences and complaints made to them by colleagues on campus, as well as repeated comments noted by external review committees during departmental reviews. In discussing the position, opportunities and challenges of the life sciences on campus, the Committee was concerned that these ongoing issues with infrastructure and administrative support were now in danger of fundamentally undermining the excellence of UC Berkeley, as well as compromising the health and safety of life sciences researchers on campus. The Committee decided to query faculty to get a better sense of their experience regarding these issues.

Our findings from the survey point to deep frustration and great concern experienced by many faculty members. While the Committee would like to focus its efforts on exploring exciting new horizons in the life sciences and multidisciplinary collaborations across departments and schools, the Committee felt it was imperative to devote the Fall 2021 and Spring 2022 semesters to documenting, curating and conveying to campus leadership the worrisome state of the life sciences infrastructure.

The survey was circulated to faculty via members of the committee and department chairs during the timeframe of mid-December 2021 through February 2022. Seventy-three surveys were returned, a much higher response rate than was originally expected. Respondents were asked to comment on the following:

(1) Please briefly describe equipment/facilities in your lab(s) that are insufficiently staffed/resourced or in disrepair such that they present safety hazards and/or limit you and your research group's ability to do world-class research in a timely manner. Please limit your response to your top 3 critical examples.
(2) Please briefly describe equipment/facilities in your core facilities that are insufficiently staffed/resourced or in disrepair such that they present safety hazards and/or limit you and your research group's ability to do world-class research in a timely manner. Please limit your response to your top 3 critical examples.
(3) Please briefly describe administrative challenges and barriers you experience that prevent you and your research group's ability to do world-class research in a timely manner. This could be related to HR/hiring, procurement, grant management, ability to

spend grants in a timely manner, EH&S, etc. Please limit your response to your top 3 critical examples.

(4) Have you tried to make capital improvements to your space or a facility? If so, please comment briefly on the cost and your experience.

The original survey did not ask for respondents to identify their building. This was added shortly after the survey was first distributed; thus, 21 of the 73 responses do not identify a building. However, in some cases, the respondents identified the building in their answers. Where not, we list these responses as “other” in the summaries below. Thus, buildings listed in the summaries are not comprehensive but are illustrative of faculty concerns. A more comprehensive survey conducted by the campus would be needed to capture the full extent of the problems. Faculty respondents identified the following buildings that they work in. We have provided the year that each building was completed, and when renovations and seismic upgrades were made where information was available.

Barker Hall (1964)
Berkeley Way West (2018)
Haas Pavilion (1933, renovated 1997-1999)
Hilgard Hall (1917)
Hearst Memorial Mining Building (1907, renovated and seismically upgraded 1998-2003)
Innovative Genomics Institute Building (2012)
Koshland Hall (1990)
Lewis Hall (1948)
Latimer Hall (1963)
Hildebrand Hall (1966, seismically upgraded early 2000s)
Tan Kah Kee Hall (1996)
Li Ka Shing Center (2011)
Minor Hall (1941)
Morgan Hall (1953)
Mulford Hall (1948)
Northwest Animal Facility (NAF)
Oxford Tract (1964)
Stanley Hall (2007)
Vaux Center, Blodgett Forest
Valley Life Sciences Building (1930, and renovated in 1993)
Weill Hall (1988)
Wellman Hall (1912)

2. FEEDBACK ON BUILDINGS AND PHYSICAL PLANT

Respondents raised several concerns regarding the state of buildings and the physical plant that ranged from aging infrastructure to potentially dangerous conditions. Below we list the primary issues of concern along with examples of comments made by faculty who completed the survey and committee members. We note, in parentheses, the buildings called out in the

surveys or by Committee members. We realize that this is unlikely to be a comprehensive list of building issues and recommend a thorough assessment of buildings where life sciences research is conducted.

A. FLOORS, CEILINGS, FLOODING, AND LEAKS: Faculty commented on broken tiles, leaks, flooding, sewage, and dirty floors in several buildings (Koshland, Hilgard, Li Ka Shing, Mulford, Stanley, VLSB, Weill, Wellman). There were concerns that this poses a health risk. Respondents were also frustrated and concerned about the associated costs to research equipment and quality.

> "We have flooding issues at least monthly in our rooms in both Mulford and Wellman. The Mulford flooding is often sewage from the bathroom on the floor above and creates a dangerous and disgusting situation for students and staff. The flooding in Wellman is more fairly described as steady dripping and, I am told, is a result of old duct systems constantly shedding water. The result is that we have large trash cans set up throughout our lab to capture dripping water."

> "Floors in our building are not sealed, which has caused numerous leaks from rooms above due to liquid spills or freezer defrosting, leading to equipment damage."

> "There is a water leak in the ceiling over the radioactive bench in B307: the ceiling is still open. We don't know if the leak is fixed but the ceiling is not repaired over this critical sample prep area. Safety, dust and cleanliness are definitely a concern."

> "We have had repeated ceiling leaks into various rooms of my lab, at times dripping onto sensitive equipment such as our 2-photon pulsed lasers, which cost >$100,000 each. The leaks have come from equipment on the second floor including a faulty autoclave and freezers that have been unattended while defrosting. But the fundamental problem is the lack of a proper sealing system in the ceiling for preventing water intrusion from one floor to the next, apparently a structural problem in the building."

> "Each time it rains, water pours through the ceiling in 905 Latimer onto the existing pieces of equipment and the floor is soaking wet. This problem is obviously a safety hazard to the researchers walking in the room. It is an electrical hazard for the water to be dripping through the light fixtures. There is no help provided by the University/College in cleaning the mess and is left up to the researchers. Even worse, there is no evidence that the problem is on the radar to be fixed."

B. HEATING, COOLING, AND VENTILATION: Respondents from many of the life sciences buildings cited the ventilation and climate control as poor (Barker, Hilgard, Koshland, Minor, Morgan, Stanley, VLSB, Weill, Wellman, Hilgard, others). Faculty cited extreme heat and cold, leaks, poor filtration, and particulates and contaminants coming through vents. Faculty raised health and safety concerns and commented on negative impacts on research.

> "General environmental control, too hot, too cold (depending on the season), too dirty (particulates and contaminates in the air, no filters). Reagents and equipment go bad far earlier than they would if temperature was more normal and stable. Contaminants and pests are coming in constantly. I change/buy my own building vent air filters twice a year and swap them, but it has only a modest impact."

> "The physical building itself creates a series of problems, including massive temperature changes, big enough to affect equipment and to prevent workers' tolerance for being in the lab, and leaks that have soaked and destroyed ceiling panels that have fallen on equipment as a result."

> "Heating and cooling systems in the building do not operate properly; some areas of the lab are regularly and uninhabitably freezing, and others do not dissipate heat sufficiently, causing freezers holding important samples to break regularly."

> "The air handling and temperature control in our lab (and others on the 1st floor) is a major problem."

> "In addition, there are large temperature fluctuations in the lab, such that rooms are too warm in the mornings and too cold in the late afternoon/evening. Adjusting our thermostats seems to make no difference. Maintaining constant temperature is critical for biochemical and physiological experiments, and under the circumstances, this is difficult."

> "Building hvac not been sufficient on hot or cold days for a comfortable work environment."

C. COLD ROOMS AND FREEZERS: Cold rooms and freezer space failures were a serious safety concern among life sciences faculty (Barker, Hilgard, Koshland, Oxford Tract, Li Ka Shing, VLSB, Weill). Again, faculty were concerned with the biosafety risks as well as the negative (and in some cases catastrophic) impact cold room failure had on research. We learned from campus cogen plant manager, Norris Herrington, that the campus can provide power independently of PG&E, but it needs to be coordinated in order to make an uninterruptible transition. If the campus suddenly loses power, the power cannot be restored until PG&E power returns because the cogen plant is not black start capable (i.e., cannot start up without utility power). With increased likelihoods of power failures, the campus needs to invest in obtaining this capability to support a fully operational campus during emergency power outages.

> "The 4th floor cold room fails to maintain a constant temperature of around 4 degrees several times a month, and has never maintained a low enough humidity to keep mold from growing. The temperature problems have cost our lab tens of thousands of dollars (to replace destroyed columns and enzymes). Even worse, every time the alarm sounds

(signaling that the temp is not at 4 degrees), there is a literal fire drill in which we rush to move samples and supplies out of the room into a refrigerator somewhere in the building. Everyone involved must stop their experiments and run to the cold room. And if this problem were not bad enough, because the room has not been kept at low temperature, there is now a serious mold problem. This problem is a major disruption to our research and the absence of a working cold room is unacceptable. The mold issue is a health hazard. I was promised a working cold room when I moved to UC Berkeley. The state of the cold room is limiting our ability to do world class research. It needs to be fixed immediately. “

“Cold rooms also regularly lose temperature control.”

“The coldrooms (4˚C environmental rooms) fail to maintain temperature all too often and need to be replaced with more modern and reliable refrigeration systems”

“The biggest challenge we have faced in the building, however, is that the walk-in fridges and freezers are continually failing. This is a huge problem for maintenance of bacterial stocks and project storage. It has also led to repeated loss of critical reagents.”

“I have ceased depending on shared cold rooms because they so frequently fail. I am unaware of any other shared facilities, which in itself limits our research productivity."

D. AUTOCLAVES: Most of the life sciences faculty commented on problems with autoclaves. An autoclave is used in medical and laboratory settings to sterilize lab equipment and waste. Autoclave sterilization works by using heat to kill microorganisms such as bacteria and spores. The heat is delivered by pressurized steam. It appears that most autoclaves on campus are malfunctioning, either by leaking hot steam, drainage problems that can cause floods, or not being able to get to pressure.

“Access to properly maintained autoclaves, high-quality water sources, and glassware washing facilities have limited our research productivity over the past few years.”

"Most of the autoclaves in Koshland Hall are broken, and those that are working are old (ca. 1989) and malfunction frequently. This problem has slowed down the progress of every non-computational researcher in the PMB department. Furthermore, it creates both a safety hazard and equity issue, and could deter future faculty hires. (Safety hazard: hot steam blows out if the door is not securely sealed. Equity issue: only physically strong people can open and close the door; many researchers cannot.) This problem has existed for many years, and frankly it is unconscionable that the situation has persisted this long. The entire department is impacted negatively by this problem."

"The Autoclaves in Koshland Hall are ABYSMAL"

"(The autoclave) is key for any microbiology work. We have to use autoclaves in other buildings and that is super dangerous; (imagine moving carts with super hot liquids in them) our autoclaves have been out of order for almost 2 years!! "

“Autoclave, walk-in freezers, water fountains (are all in disrepair)"

“1. The 5th floor autoclave doesn't depressurize completely prior to ending a cycle. The 4th floor autoclave is extremely slow (a 30min cycle takes 1.5hr to depressurize).
2. Cold rooms in the building constantly fail, which requires personnel time moving research supplies and samples among rooms and also puts samples at risk of spoiling.
3. Thermostats don't work well (our room is purportedly temperature-regulated yet it fluctuates between 70 and 85 F)."

“Autoclaves in Lewis/Latimer/Hildebrand/Tan Halls are always down and intermittent compressed air jeopardizes mass spec instruments.”

“The autoclave and their drain issues are in nearly all core rooms in Weill Hall.”

E. FUME, CHEMICAL, AND BIOSAFETY HOODS: Loud or insufficient hoods were found in some buildings where faculty felt that noise posed a safety risk and access to appropriate hoods limits research opportunities (Hilgard, HMMB, Weill).

“There are no BSL2 biosafety hoods with combined chemical ventilation available in my lab or readily available as a shared facility to researchers on campus. These facilities are essential for researchers who wish to carry out sterile dual-hazard research (i.e., microbiological hazard with chemical hazard, such as human cells with certain toxic chemotherapeutics). These hoods were installed as standard in my previous institution (a cancer research facility). Though the hoods are relatively inexpensive, the quote to have these installed in my laboratory with the necessary ventilation amendments was over $200,000, an alternative option may be to find space for a shared facility to build this capability on campus.”

“We have a constant battle with EHS inspectors who require that the exhaust fan in our fume hood is set on high to ensure sufficient air flow. But doing this creates a lot of noise, loud enough to make normal conversations difficult. I have often wondered whether constant exposure to this noise puts our hearing at risk.”

F. CLEANING, RODENTS AND PESTS, BENCHTOPS, SINKS, HARDWARE, WINDOW FRAMES, LIGHTING: Rodent/pest infestations were listed in three buildings (Barker, Hilgard, Wellman). Rusted hardware, rotting wood, mold, inoperable sinks and plumbing, and worn-out benchtops increasing risk of chemical permeation and leaks were also noted (Hilgard, Koshland).

> “The physical plant in Hilgard is decaying. Anything metal in the labs is rusted and corroded (sinks, water and gas valves and ports, hood fittings), bench tops are rotting, moldy, and falling apart, the floor is buckled and broken in locations, and rotting/molding underneath (we regularly have floods on each floor of the building), the ceiling is rotting and falling in some rooms, lights don't work in some rooms, and black dust emits from the vents.The bathrooms are atrocious and leaky.”
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> “Benchtops are old and worn in places, risking permeation by chemicals.”
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> “Yes, I used my support from HHMI to renovate the lab I currently occupy, include replacing the (old, inadequate) fluorescent lights, carpeting, painting, and furnishing my own office, refurbishing the benches and desks, and renovating core space to house our microscope systems. All of it was inordinately expensive, complicated, and time-consuming, and this was several years ago; I think these issues have only gotten worse since then. There are also serious disparities between the conditions and resources in different research buildings, which is demoralizing and counter to the democratic spirit of the University and Department.”
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> “Safety, dust and cleanliness are definitely a concern.”
>
> “it takes a long time to get light fixtures and temperature adjusted in the building. It is hard to work in the dark or freezing cold.”
>
> “Contaminants and pests are coming in constantly.”
>
> “...pests in lab (rodents and insects)”

G. OTHER ISSUES: There were a number of additional issues raised by respondents that present concerns for life sciences research and the health and safety of those inhabiting life science buildings. Inoperable and insufficient security was a concern in two buildings (Hilgard, Wellman). Faculty discussed thefts and concern for safety. Faculty were concerned that fire sprinklers were missing or inoperable in at least one building (Hilgard). Outdated or inoperable shared equipment was a problem among some faculty, negatively impacting research quality and productivity (Barker, NAF, VLSB, Koshland, BWW, Li Ka Shing). Some of these concerns are highlighted below in the Facilities Section. Insufficient power and emergency power was a concern of faculty, who cited negative impacts on research (Li Ka Shing, Stanley, VLSB, Weill, Hilgard, Mulford, Wellman). Concern over no mechanisms and slow wait times for repairs and maintenance was expressed by faculty as well (VLSB, Li Ka Shing, MCB, Neurobiology, Chemistry, Blodgett, others).

3. CACLS RECOMMENDATIONS FOR BUILDINGS AND PHYSICAL PLANT

We consider these survey results to be preliminary data for campus and that a much more thorough "boots on the ground" assessment of buildings should be conducted to identify which buildings and systems need immediate attention. That said, CACLS suggests the following set of short, medium and long term recommendations.

1) Health and safety concerns require immediate attention. This includes fixing or replacing autoclaves, chemical and biosafety hoods, cold rooms and freezers, ceiling, floor, and pipe leaks, roofs and windows (to avoid flooding), and noise, temperature, and building air filtration and ventilation systems.
2) Over the intermediate term, we recommend that attention be given to repairing and updating the physical plant, including replacing floor and ceiling tiles with modern, lab-safe materials, repairing and replacing windows, fixtures, sinks, and benches that exhibit signs of deterioration (note that some of these may require more immediate action if they impact health and safety).
3) Over the longer term, the campus should consider prioritizing remodeling or replacement of facilities and buildings that pose the greatest problems to the comfort, health, and safety of personnel and to the research enterprise. We recognize that recommendations for intermediate and long-term fixes require considerable more investment by the University and thus encourage active planning now to prepare and prioritize projects to address these issues as soon as possible.
4) Lastly, we understand that many older buildings on campus were not built to handle the expanding research infrastructure we are trying to put into them (e.g., computational infrastructure, electrical load, HVAC, etc.). We suggest that VCRO in partnership with Campus Facilities and Building devise solutions that allow for expanded infrastructure that buildings can handle and pursue strategic improvements that could support multiple upgrades.

4. CORE FACILITIES

A detailed report and recommendations were offered in the CACLS Spring 2021 Report, which touched upon the need for our campus to consider different financial models for sustaining core facilities including the retention of talented core facility staff. With the current survey, we wanted to get a better sense of where improvements and upgrades in building infrastructure and equipment were needed, including availability of staff expertise. With that in mind, survey respondents were asked to address question #2 above (see page 1) regarding the current state of core facilities they rely on.

A. MASS SPECTROSCOPY: This is an analytic tool used by biologists and chemists to identify the molecules present in a compound or in complex biological samples. These measurements can often be used to calculate the exact molecular weight of sample components, to identify unknown compounds, to quantify known compounds, and to determine structure and chemical

properties of molecules. In biological experiments, mass spectrometry is used to identify proteins and measure their concentrations in cells, to determine binding partners and new components of cellular signaling pathways, and/or to pinpoint targets for therapeutic compounds.

There are several labs on campus where this is the primary method of analysis and thus they have machines in their own labs. However, most faculty rely on the two proteomics and mass spectrometry facilities on campus run by QB3, which are located in the basement of Stanley Hall. The instruments are expensive (greater than $500,000) and require a lot of time and expertise to maintain.

Several respondents noted that the QB3 facilities are no longer state-of-the-art, which is due to both limitations on the type of available instruments and the number and expertise of the staff. Major equipment purchases are usually tied to an incoming recruitment and not geared towards the needs of the campus as a whole. Some comments are excerpted below. Long-term support for a cutting-edge mass spectrometry facility is essential for our success in scientific discoveries and in recruitment.

> "Campus bioscience researchers lack access to top-of-the-line, state-of-the-art facilities with appropriate expertise and sufficient support staff who can provide reliably and expeditiously mass spectrometry analysis of all types of biomolecules."
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> "The Proteomics/Mass Spec facility is in need of new, up-to-date, mass spectrometers. Some are greater than 10 years old."
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> "The UCB campus does not have a triple quad LC-mass spectrometer in a core facility *(note – this is the current state of the art)*. While the QB3 mass spec facility has several instruments that serve the needs of many researchers on campus, the absence of a triple quad LC-mass spectrometer is a problem for my group and others.
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> "No service for sample preparation. Since we are not doing this every day and when we have to do it, the sample is usually very precious. Everything should work in the first attempt, which is not the case if we first have to buy all reagents and process the samples for the first time. Often we got useless results or just the response that the signal was too low. Thus, we turned to the Whitehead institute, where they processed the sample and were able to do several runs with the same amount of sample and provided us with publication grade data/results "
>
> "Mass spec facility for HRMS (high resolution mass spec) is too expensive"
>
> "Mass spectrometry is prohibitively expensive, and many experiments are not available to us."

> "The mass spectrometry equipment in the QB3 mass spectrometry facility is no longer state of the art. More sensitive instruments are available and would improve data for many labs. General analytical instrumentation for biochemical measurements and sample preparation in a facility would be highly advantageous, e.g., CD or fluorescence measurements for melting curves."

B. GENOMICS: An organism's genomic DNA sequence carries the information a cell needs to assemble all of its molecular machinery to generate a wide array of RNA and protein molecules. Hence, DNA sequence information is important to scientists investigating the functions of genes. Next-generation sequencing (NGS), represents a recent and now standard revolution in genome sequencing. For example, using NGS, an entire human genome can be sequenced within a few hours while previous methods required a decade.

QB3 oversees a core genomic facility that has hardware for sequencing and robotics for high-throughput library preparation. These two facilities (the Functional Genomics Lab – FGL and the Genome Sequencing Lab – GSL) are utilized by a growing number of campus labs. These facilities are spread out across three locations on campus – with the major instruments located in Stanley, some facilities to prepare library samples in Weill Hall and a computational core group that helps to analyze the data located in Stanley Hall. Unfortunately, the current facilities are unable to keep up with demand, and several researchers are forced to use other off-campus for-profit companies, typically at a much higher rate. As noted by several respondents:

> " Given that Next-Generation Sequencing (NGS) methods (RNA-seq, ChIP-seq, etc. etc.), especially at the single-cell level, are now *de rigueur* in modern biological sciences, the number of instruments for NGS and the support staff to maintain them and run them is woefully inadequate to meet even current, never mind future, demand."

> " Next-gen sequencing core queue was so long that we used an outside vendor."

> "The sequencing facility needs more personnel and equipment. We need to be able to do high throughput sequencing in a timelier fashion and with higher throughput."

C. FLOW CYTOMETRY: Flow cytometry (also referred to by the acronym FACS) is a technique to quantify, characterize and purify single cells. This technology is broadly applicable across many areas of biology and is used by >70 labs on campus across MCB, PMB, Chemistry, Bioengineering, IB, and Public Health. As with genomic technologies, the complexity and cost of the instruments requires expert staff, and the technology is not generally available in individual labs. The only flow cytometry facility on campus is run by the Cancer Research Lab with two locations - one in LKS and one in Weill Hall. Recent retirements created an issue in which demand greatly exceeded staff capacity (see comments). This issue has recently been addressed by the hiring of additional staff, but this has severely strained the budget of the CRL, and **continued long-term support of the facility is essential.** Excerpts below:

"Flow cytometry and flow cytometry-assisted sorting are both insufficiently supported on campus; in-house experts who can provide daily equipment maintenance, multicolour panel design and run sorting experiments would be hugely beneficial. This core-facility service was standard in my previous institution."

"New staff are needed to manage the flow cytometry/FACS facility in LSA. The staff who managed it previously were wonderful, but they retired at the end of 2021. This facility has been important for my research. The instruments are well maintained and the facility should continue to be staffed."

"The FACS core is badly understaffed. It is very difficult for us to get enough sorting time. This is a major limitation in our experiments."

"FACS sorting is increasingly problematic. The main core facility seems grossly understaffed, and too few trainees are authorized to run experiments"

"Flow cytometry facility has been understaffed for many months leading to machine failure and delays in training new lab personnel. Flow cytometer and sorters are heavily overbooked, forcing us to delay key experiments or to miss key time points."

D. BIOINFORMATICS: Although we have a facility to generate next-generation sequencing data, we lack a functioning facility to help analyze these data[1]a and disseminate the results. The amount and complexity of sequencing data is increasing dramatically, and it is not feasible for non-experts to reliably analyze these data except in the simplest use cases. Almost all our peer institutions have solved this problem by establishing robust bioinformatics facilities, but UC Berkeley lacks such a facility. Therefore, campus faculty have had to resort to *ad hoc* collaborations with bioinformaticians, but these bioinformatics collaborators are in high demand and are often not interested in taking on 'service' type functions. To keep pace with advances in genomic technologies, UC Berkeley needs to dramatically improve bioinformatics support.

E. DATA STORAGE/COMPUTING:
The Committee senses that data storage and computing are much larger issues than the feedback in this report conveys. Had we explicitly asked about it, we believe we would have received much more critical feedback.

[1] Comment from faculty member: "We had a next generation sequencing facility, the CGRL, which now primarily functions as a Condo service within Savio. Staff who actively helped researchers and taught classes were hired away by industry a few years ago, and space was taken by EBI. The staff also organized workshops, but there has not been one since 2018 to my knowledge. The facility is now nominally run through QB3 but not distinct from genomics core as a whole and not offering most previous services. The facility was well used when active, and the university could invest in improving it, possibly in tandem with data sciences initiatives. Current website: https://qb3.berkeley.edu/facility/genomics/computational-genomics-resources/"

> "not sure that this is really a 'core facility', but the data backup/cloud storage at Berkeley is inadequate. They have cut down our Box storage, we have limited server storage, and they provide no alternatives. "
>
> "VLSB: My greatest need is improved campus computing resources. Presently, we are asked to spend many thousands of dollars to purchase our own nodes on the campus cluster if we wish to run computationally challenging analyses, and - as is often the case - the available systems have run time limits that prevent me from effectively utilizing the cluster. It amazes me that this campus cannot provide computational resources for such basic activities as vertebrate genome assembly without asking for a $25,000 investment from a faculty member."

F. ANIMAL CARE AND FACILITIES: We note that lack of animal care space was a top priority in the CACLS Spring 2021 Report as presented to the Chancellor, EVCP and VCR. In response, former VCR Randy Katz asked the co-leads of UC Berkeley's CARSA (Committee on Animal Research Space Assignments) to form an *ad hoc* Task Force to provide, as soon as possible, "an assessment of current and potential future space usage, and options that the campus could invest in to further maximize current and future availability and utilization, and/or pursue new space. Task Force recommendations will be used by incoming VCR Yelick to engage with CoSED deans and senior campus leadership, capital strategies and others to guide and prioritize future investments." At the time of writing, we understand this assessment and action plan to be in the final stages, with a release in June 2022. Nonetheless, because animal research is critical for many biologists on campus, concerns about it emerged in our current survey responses.

While some researchers feel well supported and appreciative of the current vet staff and OLAC staff, others noted that some of the facilities are nearly in crisis because of staffing problems and lack of space. The Mouse Facility (6th floor Weill Hall) has had off and on staffing problems, leading to problems in obtaining genetically engineered mouse strains, and they lack space for more new researchers to build up their animal colonies. It was also noted by a few researchers that UC Berkeley lacks core facilities for mouse behavior and metabolism, which is now a common feature of competitive institutions. At present, the lack of animal space is a major constraint on the ability to recruit new scientists to UC Berkeley.

> "I think they simply need more resources, especially personnel, like another vet and technicians. Space is tight, and more technical and vet help there would use the other limited resources more efficiently. Compared with other Institutions, like the Buck or the Stanford/Palo Alto VA, CAL OLAC has a very low vet-tech to researcher ratio."

Northwest Animal Facility ABSL3 facility:
Biosafety level 3 (BSL3) facilities are required for the safe handling of high-risk infectious agents including SARS-CoV2 and *Mycobacterium tuberculosis*. The pandemic illustrated the importance of campus BSL3 facilities, but also highlighted that the existing animal BSL3 facilities in the Northwest Animal Facility (NAF) are on the verge of failure. The "Barrington"

control system became obsolete in 2006 when the company went out of business, the software is no longer supported by the latest operating system of Windows, and there is no reliable supply of compatible field I/O devices and controllers in the market. The electrical system is inadequate and overtaxed and the water piping is past the end of its useful life. Without millions of dollars of renovations necessary to address the deferred maintenance, there is the very real possibility of a system failure that would render the facility inoperable for years, which would have a serious impact on the pandemic responsiveness of the campus and the research programs of faculty using the facility.

G. BERKELEY PRECLINICAL IMAGING CORE FACILITY (BPIC): UC Berkeley has a state-of-the-art murine whole animal imaging facility in the LKS animal facility. This is the only facility at UC Berkeley or at the Oakland Children's Hospital UCSF where researchers can test diagnostic assays and novel treatments on animal models of diseases. UC Berkeley researchers routinely use this unique core facility for NIH-funded research on diseases like cancer, cardiovascular disease, stroke, Alzheimer's disease, Parkinson's disease, GI bleeding, pulmonary embolism, and stem cell therapies. This includes (1) a 7.0T Bruker MRI, (2) both X-ray and X-ray CT Scanners, (3) Bioluminescence Scanners, and (4) Ultrasound Scanners from Visualsonics. Dr. Michael Wendland runs the BPIC, and the Core Facility is directed by Prof. Steven Conolly with NIH, Stem Cell Center and other funding mechanisms. Continuing support from the VCR could fund the (very modest) ongoing operations budget, including personnel budget, cryogens and base-level hardware support.

H. ADDITIONAL COMMENTS:

Koshland/Oxford Tract Facility:
Additional comments from faculty are bundled together below:

> "Basic shared lab equipment such as gel imagers and water distillation equipment are very old and often non-functional. Autoclaves are frequently not operational despite regular costly repairs. Plant growth facilities in Koshland and at the Oxford Tract are often in disrepair, and fees for use of the latter have increased amply in a short time, meaning I plan research studies as ambitious as I have at other institutions much less frequently."
>
> "Proper temperature control in Greenhouse; in fact it is difficult to perform the research relating to million-dollar grants. These facilities need to be upgraded so we can perform the world-class research that a department of our stature must have.

Weill Hall:

> "No building air supply to air tables meant to stabilize sensitive core microscopy equipment. A building work order was initiated in 2018 and has not yet been completed despite repeated follow up with building facilities staff. This results in blurry image

acquisition and potential damage to optical components. Rooms containing sensitive core equipment have water leaking from the ceiling."

"1) Core space is inadequate for the number of labs and has mostly not been renovated since the building was completed. Renovations are typically funded by individual labs, which is inappropriate and very limiting. 2) Emergency power sources are inadequate to protect all critical equipment. 3) Coldrooms are also old, corroded, and have had frequent failures that take days or weeks to repair."

"Another glaring absence on campus is the lack of a medicinal chemistry facility, or the possibility to advance small molecule screens performed in UCB's drug discovery center with some chemistry afterwards. This greatly reduces the impact that we can generate with drug screens here at Berkeley."

HMMB:

"Campus does not have a GMP (Good Manufacturing Process)-like facility for manufacture of cell and gene therapies. This type of shared facility would enable researchers to collaborate on clinical trials with newly designed therapeutics."

Morgan Hall:

"There is no facility for analysis of metabolites or metabolomics. Many biology faculty on campus would be interested in such a facility and most universities have some versions of this."

Stanley Hall – Biomolecular nanofabrication Center (BNC):

"Could use some modernized processing & metrology tools; BNC facility has very old equipment that could use replacement. Paul Lum does a great job of working with the resources he has."

Blodgett Forest Research Station:

"1. The buildings at Blodgett Forest Research Station, a UCB-run facility, suffer greatly from deferred maintenance. While millions of dollars of external revenue from Blodgett Forest have been taxed by the University, it receives zero support from the central campus. Some buildings are unsafe and currently not usable. Blodgett Forest is known as a world-class facility, but this reputation is in decline because of this problem.

2. Hazard trees at Blodgett Forest develop constantly from storm damage and from natural tree senescence. Despite tree service crews being active on campus, they do not support any arborist work at Blodgett Forest.

3. For road maintenance, Blodgett Forest relies on a 1976 road grader that was salvaged from the US military and is unreliable. It also relies on an excavator with over 2000 service hours that is not Tier 4 compliant in terms of emissions. It is therefore limited to minimal use. This excavator is used to reduce fire hazard, in a location where

fire hazard is growing exponentially. All of the buildings are in danger of being destroyed by the next wildfire without adequate fuels management. For fire suppression, it relies on a 1976 International fire truck that was salvaged from a volunteer fire department. All of this equipment should be replaced if the station is to function in the future. "

NMR time:

"We have recently updated instrumentation to provide better access to high-level experiments, but we remain in need of available time for routine measurements. This need is significant, but not one that resonates with agencies for funding, so additional mechanisms are needed to address this issue".

Wood Shop (College of Chemistry):

"The Wood Shop facility is integral to the success of research in the College of Chemistry. However, it seems that the Wood Shop could be managed more efficiently, as there is frequent miscommunication on work to be done, and the cost for work seems to be very expensive."

1. The shortage of animal space has reached crisis level.
2. Autoclaves in our building are constantly breaking"

It seems a catastrophic failure of building systems is imminent.

The hallways and stairwells are also in bad shape, and equipment rooms are not cleaned regularly."

5. CACLS RECOMMENDATIONS FOR CORE FACILITIES

The Committee didn't feel it was appropriate to provide a list of which core facilities should be given priority over others. Core Facility budgets (which include staff salaries and service contracts) continue to increase, while campus financial support for core facilities remains static or, in some cases, has decreased. This is not sustainable for the long run. Because core facilities are common goods for the campus, we recommend campus perform a holistic assessment of core facilities financial models – an effort that should tie in the larger conversation of campus finance reform.

There is room for greater coordination on several levels to better prepare core facility leadership for extramural funding opportunities for core facility equipment purchases and upgrades. In this context, we recommend:

- Greater coordination among Life Sciences Deans around priorities in core facility maintenance and upgrades.
- Greater coordination among the core facility director community and Berkeley Research Development Office (BRDO) around funding opportunities, especially limited submissions.

- Leveraging campus' contract with Lewis Burke Associates (LBA) to understand the infrastructure bill and forthcoming opportunities so that we may be better prepared to apply for them.
- Involvement of Foundation & Corporate Relations and UDAR in identifying funding opportunities for core facilities.

6. RESEARCH ADMINISTRATIVE SUPPORT

A. HUMAN RESOURCES

Sixty-eight percent of respondents commented about problems and dissatisfaction with HR practices. For instance, numerous faculty noted that posting and hiring positions takes an excessively long time and requires an inordinate amount of faculty and lab staff effort, and they commented that their time would be much better spent on intellectual or educational activities. The inability to move quickly or even reasonably fast in the hiring process has led to numerous instances of 1) losing the targeted recruit and thus impeding hiring the best and 2) not enabling overlap for training purposes, etc. This problem can also lead to the University losing grant funding and having to return funds to sponsors because appointments are not processed efficiently. Faculty also commented on the difficult and lengthy process to effect a pay raise or reclassification, and many recounted dismaying incidents where students or employees had ceased receiving paychecks or been cut off from health insurance due to glitches in the system that required a long time and enormous effort to resolve. Similarly, numerous major problems were recounted regarding visas for postdocs or students. Many faculty expressed that particular HR personnel were capable and trying to do a good job but that the complexity and byzantine nature of the system, together with overworked and underpaid staff, led to sub-optimal performance and a very high turnover rate, thus compounding the problems. As the HR staff are stretched far too thin, much of the workload has been moved onto faculty.

Comments from the survey:

> "Accomplishing most tasks - such as hiring a lab technician - feels like a video game puzzle quest in which I must collect the right objects without knowing what to look for, assemble them into the correct order, and present them to the correct wizard/gatekeeper. While each person in my Regional Services teams is friendly, capable, and responsive, they are somehow not enabled by the system to actually make things happen. Imagine how much faster my science could progress if, for instance, I could call my HR analyst and mention that I wanted to hire a lab tech but had never done this before, and instead of a cryptic reply, full of Berkeley-specific jargon, that sent me into an adversarial process of guessing the correct phrasing for a job description that would be classified correctly as the job I had in mind... imagine that they said "Ok, I'll get back to you for more details on your needs" and after they followed up with a few brief conversations, they posted a job ad and sent along a set of candidates for review. This problem is pervasive across all the categories you mention, though the individuals are very helpful and the web resources are also quite improved at this point. I've honestly been spending my grants too slowly because of this."

“HR delays have become intolerable. It can take half of a semester to hire an undergraduate student working in a lab. When I recently asked to reappoint a postdoc researcher (a foreign national here on a visa) for another 2 years, HR reappointed him for just 1 year, because they "didn't have the time" to process the 2-year appointment. Besides the delays, HR mistakes are very common, both for postdocs and for graduate students who are moving on and off fellowships. These are intensely worrying to our students and postdocs, who worry that they will not get paid, or lose their visa status if appointments are not made correctly and on time. The delay in simply issuing a Cal ID card to a new employee, so that they can take required training classes and gain building access, is dramatically too long.”

‘HR/hiring was so slow that last year, I lost over $20K in funding when a grant ran out before I could hire students to spend the money.”

“HR processes are hopeless. It took me 7 months to hire a lab manager, resulting in missing planned overlap and training between personnel. I have been talking with HR about hiring a postdoc for two years to make sure everything is in line and find out when she is ready to start that there is a major problem that means she can't be hired.”

“There are recurring issues with graduate students not being paid on time because their appointments are not processed in a timely manner, which is a very serious situation as graduate students often live paycheck to paycheck and it seems simply unacceptable to have a situation when they have to worry about whether they'll get a check next month.”

“HR hiring is very slow, non-responsive, and sometimes totally inept. I have had technicians' appointments not extended for months beyond the end date despite giving ample notice. Nor did HR communicate with me. My tech went months without pay and I found out from him.”

“Until recently, HR has been an absolute dumpster fire. I'm at the point where I have virtually given up on having international visitors (postdocs or sabbaticals) to my lab because the HR and visa issues are so daunting.”

“HR is completely broken on this campus and it severely impedes research. Hiring a new postdoc or research technician can take many months (up to a year in some cases). We have lost many good people because we are not able to move quickly.”

“Having worked at UC Berkeley before and after the transition to shared services, I concur with many others in considering that move an abject failure. I spend roughly an hour each week working through HR complications and at least that amount of time addressing purchasing problems.”

B. PRE- AND POST-AWARD SUPPORT

A great majority of respondents commented on issues regarding pre- and post-award administrative support, leading to much extra work for faculty in preparing grants, attempting to

track spending, etc. that could be better spent on research or teaching. Issues raised included the constantly changing staff, delays and/or poor grants management that led to loss/return of research funds, difficulty tracking spending, mischarging of items and especially payroll to incorrect research funds discovered by faculty or laboratory personnel that is very difficult to correct. A huge variability in ability and astuteness among RAs was noted. Long-term relationships between faculty and RAs are ideal; even when RAs are stably employed, the assignments to faculty are constantly and unnecessarily changing. Both pre-award and post-award departments are understaffed, and RAs are overworked, stressed, and underpaid, again leading to sub-optimal performance and high turnover. Prior to centralization, faculty used to work with the same pre-award staff for years and established a close and very functional relation; this is no longer the case, with negative consequences. Critically, a number of faculty commented that they simply choose not to apply for grants and turn down funding opportunities because of the difficulty and frustration of the grant submission process without adequate support. Importantly, this extends to training programs and DEI and educational initiatives, which are not pursued because of the lack of administrative support.

Comments from the survey:

> “I spend a lot of time doing administrative tasks such as grant applications, grant administration – tasks that could theoretically be done (at least in part) by administrative staff. If faculty/researchers had more administrative support, we could spend more time on research and other intellectual activities.”

> “1) Pre-award RAs vary in astuteness and institutional savvy, and I have been chosen not to pursue multiple grant opportunities small and very large because the RA I was assigned could not either understand the questions being asked of them or identify someone who could get them operable answers in a timely manner. That is, any potential reward was not worth the frustration involved to obtain it, and in addition to stemming my ambition in applying for grants, it particularly decreases the likelihood I choose to apply for funding to support REU/graduate training programs, DEI or educational initiatives, etc, not only because they are less essential to my group's work but also because they are more bureaucratically complicated to implement. 2) Research funds are often mischarged in some way, especially when involving payroll and often including problems that would never happen at other institutions I have been at with more timely and more effective systems for reconciliation. Consequently, it often requires a lot of my or my lab's time to identify and correct errors, and this can lead to major issues at fund closure or delay hiring.”

> “1) Grant support, particularly for the pre-award phase (assistance with preparation and submission of applications) is far below that of peer institutions, which is a deterrent to applying; 2) post-award support (e.g., submission of progress reports, budgeting, and accounting) could also be much more helpful and streamlined.”

> “Grant management is good when there is a good RA (my current RA is excellent). But there are some very bad RAs and this has been a major problem for me. I have wasted or

lost well over $100K and lost weeks of productive research time because of grant mismanagement."

"Constantly changing and not very knowledgeable pre-award personnel, even when all forms and budgets are prepared for them, still make mistakes (before the centralized system was implemented, used to work with the same pre-award staff for years and established a close and very functional relation)."

"There is a significant delay between spending and the billing of agencies and this creates a lot of issues for PIs who receive multiple calls from Funding Agencies stating: "You are not spending your money, we will not fund you again!" when that is not true."

"Grant management is a huge problem. My fund manager often can't explain charges on my grants, or the timing of charges, and mistakes have been made in charging things to incorrect accounts."

"The research administrators should respond in a timely manner and stay on top of their portfolios. Not sure if this is due to the overload of work. Need more experienced staff who are knowledgeable with the policies and guidelines of the agencies/University.
Contracts and Grants Accounting – staff is not knowledgeable and do not stay on top of their work, causing issues with the funds. They are not collaborative with others and insist they are correct in how things are done and in the way they interpret policies."

"I have two excellent grant managers (pre and post) but they seem to be far more overworked than ever before, and I live in constant fear of losing them as I have lost so many in the past."

C. PROCUREMENT

The experience of many faculty and their research groups is that the process of purchasing reagents and supplies for laboratory research through the BearBuy and Central Campus (for >$5K) systems is incredibly inefficient and frustrating, to the point that it seriously hampers the ability to conduct laboratory-based research at UC Berkeley. An excessive number of individuals are required to approve every single order, and orders invariably get stuck somewhere along the line, leading to tremendous delays in performing experiments. Frequently, orders are simply never placed, but it is very difficult and time-consuming to find out the status of each order and push each person along. Many faculty need to hire additional staff just to try to struggle with the system to obtain supplies and equipment for ongoing research. Further, delays in ordering lead to grants being closed by the time the order is actually placed, and as a result, funds are returned to the sponsor and when the item arrives and is billed, there are no funds left to cover the purchase, which causes enormous problems. Respondents expressed that forms are constantly changing and carts are returned for minor reasons that could be addressed directly, thus prolonging the process even more. Further, adding new vendors is slow and difficult.

“Impossibly inefficient procurement system (Bearbuy); orders get stuck endlessly in the system when someone along the chain forgets to move the order forward; on one occasion, we waited many (11!) months for a freezer purchase only to find out the order was never placed! I need to hire several people just to follow up on orders, and grad students and postdocs waste a lot of time chasing orders for reagents and having to postpone important experiments -- a huge waste of time and $ and very frustrating.”

“The procurement process is extremely slow for consumable items over $5000, and especially slow for high-value items and specialized equipment. This dramatically affects the pace of research and our ability to design and execute experiments.”

“Procurement of supplies and equipment is unnecessarily complicated.”

“Procurement is haphazard. Sometimes orders go through promptly and sometimes they sit in the cart for weeks. There is no communication to let us know if there is a problem or someone just forgot.”

“Purchasing is excruciatingly slow sometimes and without explanation. Because we can't assume that something will be ordered, it creates extra work for my staff because they must constantly check on the status of orders.”

“BearBuy has flummoxed us on occasion. For example, due to an incorrect link to a vendor's website, despite our linking to the correct item, we received and were required to pay for the wrong DNA extraction kit.”

7. RECOMMENDATIONS FROM CACLS RESEARCH ADMINISTRATIVE SUPPORT:

We believe the following are all immediate actions that the University could take.

1) Focus more resources on Human Resources, pre-award and post-award administrative support, as current personnel are impossibly overworked. Importantly, offer reasonable salaries so that personnel are not constantly turning over as they find better-paying positions in other Departments, Universities, or companies. Enable more rapid processes for giving meritorious raises and dealing with retention cases.

2) Enable more long-term relations between faculty and pre-award and post-award RAs; this leads to much better and less stressful interactions and higher quality output.

3) Streamline the procurement system; require many fewer people to approve each order. Establish a straightforward manner for following up on the status and provide key contact information to resolve problems. Make P-cards more widely available to labs and increase the limit of purchases; this would help tremendously with urgent purchases.

8. CAPITAL PROJECTS

Multiple faculty raised the same fundamental problems with renovations and capital projects both in terms of prohibitive costs and delays. These comments were so consistent that they point to systemic problems with the current processes that need to be addressed.

Comments from the survey:

> “The Capital Projects process for lab renovations for new faculty is fundamentally broken, and Capital Projects is not willing to consider how to fix it. As a Division Head in MCB, I have overseen 2 lab renovations since the Capital Projects process was established, and both were dramatically late, to the detriment of our new faculty.”
>
> “As for cost, the price tripled when Capital Projects took over. There needs to be a slimmed-down process at less cost.”
>
> “The renovation process is prohibitively expensive and slow. To cosmetically update an old lab (no walls moved, no major changes in layout) costs hundreds of thousands of dollars. I don't know whose fault this is - probably multiple people/institutions can be blamed (Capital Projects for sure) - but it will soon make it impossible to offer recruits space that they find acceptable, unless campus or depts come up with MUCH more money for renovations.”
>
> “The costs are astronomically high, relative to the costs of equal jobs off campus.”
>
> “I found that the project manager, and sometimes the contractors, were unresponsive and generally did not seem to care very much about "customer satisfaction".”
>
> “The costs are so much higher than a comparable job handled outside of the University that it can be prohibitive. If tasks need to be outsourced (i.e., to companies specializing in flooring, painting, plumbing, or other trades), the experience is comically difficult and expensive.”
>
> “I have spent >$250,000K total on practical space improvements in 6 years without anything particularly nice to show for it - these were all really functional upgrades done conservatively because most were paid from my start-up before I had grants”
>
> “I moved my lab to Berkeley in September and the wait time for help with infrastructure issues (painting, ethernet, lab reconfiguration) is absolutely atrocious. Example 1: We waited four months for ethernet to be installed in the lab. Example 2: We have waited four months, and are still waiting, for a microscope to get mounted in the ceiling. Example 3: We are waiting two months for someone to paint one of our lab spaces.”

"The administrative process for lab renovations overseen by Capital Projects is unworkable. Small projects tripled in price when Capital Projects took over from the Bioscience team, and the delays have caused MAJOR problems for our new hires. It now takes 16 months for a simple renovation (moving no walls). The problem is that candidates sign their offer letter in July, and in order to be competitive we HAVE to provide them with a renovated lab by the following July (1 year time frame). But the Capital Projects process simply doesn't allow this. The last 2 hires in MCB Neurobiology delayed their arrival on campus by 6-12 months, and their labs still weren't finished until they had been here 4-6 months. We cannot be competitive in hiring the top faculty candidates if we do not have a record of on-time lab completion. The process must take <1 year, or no top candidate will agree to come. I brought this up with Marc Fisher and Capital Projects staff, and they said nothing could be done. We need creative thinking to fix this problem."

"The improvements cost far more and took longer than estimated; despite that, the engineering and installation was still done incorrectly such that major repair costs were incurred downstream, and multiple experiments were ruined or delayed as a consequence."

"Simple changes like painting the walls, changing my office floors (from carpet to wood) and reconfiguring some benches. The cost has been extremely high (~3-5 times what an outside contractor would cost), and the wait times have been insane. Berkeley critically needs more support in this area internally, or else, needs to allow outside contractors. The status quo is not working."

"All of it was inordinately expensive, complicated, and time-consuming, and this was several years ago; I think these issues have only gotten worse since then."

"The costs to make improvements are outrageous."

"I found communication with our local building manager to be excellent, but with the lead project manager to be a serious challenge."

"I have tried to use capital improvements and it was the worst experience of my time as a new PI. Costs were astronomical and I repeatedly faced barriers and politics. I felt like I was being taken advantage of."

9. RECOMMENDATIONS FROM CACLS REGARDING CAPITAL PROJECTS

CACLS recommends that the University explore and implement a new model for capital projects that will *significantly reduce cost and time required* to complete renovation projects. We believe the system is broken and needs to be fixed urgently.

10. FEEDBACK FROM DEPARTMENTAL REVIEWS

Problems with the physical plants and administrative concerns have also been clear from departmental reviews, many of which were conducted 10+ years ago, and not only do these problems persist but, due to years of neglect, they have been exacerbated. Below, we share examples from previous departmental reviews where issues around the state-of-facilities and administrative challenges were highlighted. Note that this is not a comprehensive list, but illustrative of comments made by reviewers.

Comments on infrastructure:
From Plant & Microbial Biology (PMB) review 2012-2014*:*
"the current overall situation with respect to buildings, equipment and infrastructure at Plant & Microbial Biology (PMB) is challenging, and requires immediate attention and investments." and *"its built-in infrastructure such as autoclaves and elevators are in poor shape."*

"*Despite its strength, the Department faces major challenges, including faculty recruitment, retirement, and retention as well as subpar research and teaching space."* and *"serious problem of functional research space available to the Department*."

From Molecular & Cell Biology (MCB) review 2011-2012:
"Building infrastructure is essential for building research."

From Integrative Biology (IB) review 2013-2015: the key concern is *"Space and infrastructure"*

Comments on Administrative Support:
For MCB*: "The lack of adequate administrative support has not improved in the past decade. Instead, a bad situation has been further exacerbated"*

For Chemistry (from 2010-2012 review): "*The current situation of squeezing more and more from staff members while effectively decreasing their compensation cannot continue without serious adverse consequences on the operation of the Department."*

For IB: "*has adversely affected students, postdocs and faculty as there are no longer staff who understand the specialized needs of IB labs"*

For PMB: *"The administrative staff serving PMB are skilled, loyal, enthusiastic, and exhausted."*

For ESPM (from 2011-2012 review): *"The administrative support for such a large department is woefully inadequate and has adversely affected all members of the department community. This is considered by many in ESPM as a crisis situation that is likely to contribute to an exodus of faculty and staff."*

11. SUMMARY/CONCLUSIONS:

In summary, the Chancellor's Advisory Committee for Life Sciences has conducted a survey of life sciences faculty across the UC Berkeley campus. Responses to the survey point out serious issues with the structural safety of buildings and laboratory spaces as well as lack of functionality of basic elements of life sciences laboratory equipment and infrastructure such as autoclaves, cold rooms, freezers, and hoods (biosafety, chemical and fume). We recommend that the health and safety issues be addressed immediately (within the next academic year) with an intermediate to longer term plan to update, remodel or replace facilities and buildings, prioritizing those that pose the greatest problems to the comfort, health, and safety of personnel and to the research enterprise.

Additionally, faculty feedback indicated a host of issues around core facilities and lack of campus support for much-needed upgrades and staffing. We strongly recommend that campus leadership view core facilities as research common good and work with campus Life Sciences Deans to develop a feasible financial model that would benefit all core facilities.

Faculty continue to experience major problems in research administration across the board, mostly acutely in human resources, pre-and post-award support, and procurement. We urge the University to invest more resources in supporting in these "bread and butter" services, including hiring or promoting more personnel and paying competitive salaries and finding ways to streamline processes so that, for example, each hire or purchase does not require so many steps and individuals to be involved, and where multiple people are required, hand-offs are smooth and efficient.

Lastly, faculty have given clear feedback that capital projects as currently designed and operating are not working for faculty and are "fundamentally broken", as mentioned by a survey respondent. We strongly urge campus leadership to explore in a timely manner new paradigms for capital projects in consultation with faculty.

Going forward, CACLS offers its guidance and partnership in helping campus leadership resolve these considerable challenges to the physical and administrative infrastructure that pose a great threat to the future of life sciences at UC Berkeley.

Committee Membership

CACLS Current Membership
Fall 2021-Spring 2022

Co-chairs:
Mike Boots, Integrative Biology
Eva Harris, Infectious Diseases and Vaccinology, School of Public Health
Whendee Silver, ESPM/ES Ecosystem Ecology

Ben Blackman, Plant & Microbial Biology
Stephanie Carlson, Environmental Science, Policy, and Management
Chris Chang, Chemistry
Steve Connoly, BioEngineering & EECS
Marla Feller, Molecular & Cell Biology & Neurobiology
Seth Finnegan, Integrative Biology
Louise Glass, Plant & Microbial Biology and Biosciences, Berkeley Lab
Karsten Gronert, Vision Science, School of Optometry
Grace O'Connell, Mechanical Engineering
Susan Marqusee, Molecular & Cell Biology and QB3
Anders Naar, Nutritional Science & Toxicology
Rasmus Nielsen, Integrative Biology
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