

Final Report of the UCLA Task Force on Research Infrastructure

Convened January 15, 2018; final report submitted (date TBD)

Chair: Leif Havton

See Appendix 1 for a copy of the task force charge letter, Appendix 2 for a list of task force members, Appendix 3 for a list of the task force's preliminary recommendations released February 5, 2019, and Appendix 4 for the interim report submitted May 13, 2019.

Executive Summary

Vice Chancellor for Research and Creative Activities Roger Wakimoto charged the Task Force on Research Infrastructure to develop a long-range plan and vision for UCLA's research infrastructure. While the task force was able to identify the elements necessary to facilitate long-range infrastructure planning, the group quickly realized that, as a temporary committee, it does not have the capacity, time, nor power to finalize, socialize, and implement these guidelines, policies, and procedures. Rather, following almost two years of regular meetings, analysis of relevant campus documents, and interviews with campus stakeholders and representatives from peer institutions, the task force identified eight recommendations to guide the development of campus research infrastructure investments. Implementation of these eight recommendations will reinforce UCLA's commitment to research excellence, provide campuswide oversight for campus infrastructure investments, add clarity and transparency to the funding and decision-making processes, and generate guidelines and tools for campus stakeholders and administrators. The first five recommendations focus on research infrastructure broadly defined to include the physical, technical, and human components of research support; the final three focus solely on UCLA's physical infrastructure. In addition to the eight recommendations, the full report discusses the current state of UCLA's research infrastructure, the future of research across disciplines, current funding mechanisms for research infrastructure, and the campus' budget situation.

Recommendations:

1. **Establish a standing Research Infrastructure Committee** to advocate for research infrastructure; work with administration to write and implement relevant guidelines, policies, and procedures; regularly review proposals for campus research infrastructure upgrades; help the campus define and allocate responsibilities for research infrastructure initiatives; and make infrastructure-related recommendations to other relevant campus organizations.
2. **Develop a campuswide, long-term plan for research infrastructure** that considers the campus holistically, respects the diversity of research across campus, integrates the strategic research plans of the academic units and the Library, forecasts the requirements of the ever-changing research enterprise, factors in both major capital expenses and operational expenditures, and defines broadly applicable approaches for campus investments.
3. **Develop and publicize campus guidelines for the prioritization of research infrastructure upgrades** to introduce a much-needed level of transparency about the funding and decision-making process.

4. **Develop new funding strategies for research infrastructure** not traditionally supported by facilities and administration (F&A) reimbursements.
5. **Explore opportunities for increasing F&A cost recovery** in order to reimburse a greater proportion of our actual research infrastructure costs. At the same time, maintain the current policy that allows for exceptions for non-federal and non-industry sponsors who will not provide full F&A.
6. **Develop mechanisms and procedures for upgrading research infrastructure** while managing costs and effectively using F&A reimbursements and new funds earmarked for building maintenance.
7. **Develop and publicize campus guidelines for space allocation** with an emphasis on basic governing principles (e.g., transparency and consistency) and ensuring equity across schools, divisions, and departments irrespective of extramural funding streams and indirect cost recovery.
8. **Promote use of available campus space allocation planning tools** to easily and accurately analyze current space allocations and usage, and make those data and tools available to deans and campus leaders so that they may make informed decisions about the physical infrastructure under their control.

Report Appendices:

1. Charge letter for the Task Force on Research Infrastructure
2. Full Task Force on Research Infrastructure roster
3. Preliminary task force recommendations released February 5, 2019
4. Interim Report of the UCLA Task Force on Research Infrastructure
5. List of select UCLA reports reviewed by the task force
6. DRAFT of a UCLA Research Data Position Paper
7. DRAFT of Campus Guidelines for the Prioritization of Research Infrastructure Upgrades
8. Analysis of strategies to increase reimbursement of F&A costs from extramurally sponsored contracts and grants
9. DRAFT of Research Space Allocation Guidelines for UCLA
10. Information on the Facilities space-planning tool

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Introduction

Vice Chancellor for Research and Creative Activities Roger Wakimoto charged the Task Force on Research Infrastructure to develop a long-range plan and vision for UCLA's research infrastructure. Critical drivers for this effort include the need for the campus to shift to a systematic and strategic approach to research infrastructure development and maintenance from one that is ad hoc and opportunistic, and the need to address the research infrastructure requirements of units with limited extramural funding and facilities and administrative (F&A) cost reimbursement. As initially conceptualized, the task force was focused on the physical aspects of research infrastructure such as space allocation, maintenance, and improvements. In the course of meetings and discussions, however, the task force shifted to a broader definition of 'research infrastructure' that also addresses the technical and human aspects of research support. The technical component includes, but is not limited to, research computing resources, digital networking infrastructure, and data storage systems. The human piece references the necessary staff hired and trained to support research activities. The physical comprises offices, labs, studios, scientific equipment, fabrication facilities, and multidisciplinary, presentation and performance spaces. Throughout this document, 'research' is meant as an inclusive term that encompasses systematic investigation, knowledge production, and the associated creative and scholarly activities of the entire UCLA campus community.

The following discusses the current state of UCLA's research infrastructure, the future of research across disciplines, current funding mechanisms for research infrastructure, and the campus' budget situation. The report concludes with eight recommendations from the task force for coordinating, streamlining, and funding campus research infrastructure. Implementation of these eight recommendations will reinforce UCLA's commitment to research excellence, provide campuswide oversight for campus infrastructure investments, add clarity and transparency to the funding and decision-making processes, and generate guidelines and tools for campus stakeholders and administrators.

Research Infrastructure at UCLA

UCLA consistently ranks as a top university in both national and international polls, named by *U.S. News & World Report* as the top public university for three years in a row. But behind the accolades, UCLA as a campus is facing a research infrastructure crisis.¹ Building construction and maintenance efforts have privileged schools and divisions with broadest access to extramural funding and generous donors, to the detriment of common spaces and units with limited access to external funding. Space is at a premium,

¹ Past internal reports have documented the gaps in research infrastructure at UCLA and offered recommendations for improvements with limited success. See Appendix 5 for selected list of campus documents reviewed by the task force.

yet there are no clear campus guidelines for space allocations. Historic funding decisions based on the principle of subsidiarity have hobbled the development of campuswide research technology infrastructure that would provide faculty access to sophisticated computing resources that are beyond the support capabilities and/or facilities of departmental or divisional IT units. There are no campuswide solutions for data storage, preservation, and archiving; no campuswide licenses for productivity, collaboration, and management tools outside of UC- or UCLA-negotiated agreements with Google, Microsoft, and Box. And there are no campuswide resources for faculty working with restricted, sensitive, or encumbered data. Further, there is no central repository of information on core or shared research facilities, which can make it difficult for investigators to locate the resources they need. These facilities operate under widely varying financial plans, and many struggle with the perhaps unreasonable expectation that they be self-supporting. For example, much of our expensive scientific equipment is also very costly to maintain and must be staffed with Ph.D.-level personnel to ensure consistent operability and to train users. The availability of such research support personnel varies across the campus divisions, with fee-for-service facilities sometimes able to fill the gaps, but only for cases where the faculty user base has significant research funding and/or where there is a healthy extra-campus clientele. A critical need exists to catalog core research facilities, assess their adequacy in the context of faculty needs and strategic research plans, reduce redundancies, and construct reasonable financial models for their long-term sustainability. The committee recognizes that building the institutional will to assess, fund, and develop research infrastructure in a strategic manner may be a major challenge as the endorsement of campuswide solutions may conflict with long-standing organizational hierarchies and culture. Moreover, the diversity of research activities and needs, and the decentralized nature and size of UCLA may make it difficult to engage in coordinated information gathering and planning.

The benefits of overcoming these barriers are significant. UCLA can become a transformative institution, but doing so will require research infrastructure investments, prioritization, policies, and procedures that will support and enable our entire campus community, uphold our already high standards of academic and research excellence, and embody a vision for leadership in research infrastructure support across all disciplines. UCLA deserves world-class research infrastructure that empowers faculty and encourages them to push beyond the boundaries of their own disciplines in order to work collaboratively on solutions to the great challenges of our time. To achieve this vision, the campus needs ongoing investment in research facilities that will catalyze disciplinary and interdisciplinary collaboration and knowledge production; state-of-the-art labs, offices, classrooms, libraries, and communal work spaces; integrated and pervasive networking, computing, and data storage resources; institutional repositories and archival solutions; and the staff required to support those resources efficiently and effectively. Developing research infrastructure that supports innovative scholarship and teaching is an investment that will facilitate faculty recruitment, increase retention rates, and improve researcher efficiency. This will be particularly important to cultivate the intellectual leadership of tomorrow in terms junior faculty that may have less access to extramural funding. It will also enhance public engagement with the creative and scholarly output of the university through improved opportunities from dissemination via everything from online repositories to venues, such as auditoriums, libraries, and galleries in which research is simultaneously conducted, shared, and recorded. Moreover, this infrastructure will add value to the student experience by providing them the opportunity to learn contemporary research and data practices, thereby distinguishing UCLA as an institution that provides opportunities for participation in cutting-edge research and making students more competitive for careers in industry and academia. The ongoing planning, development, and maintenance of this

infrastructure must be coordinated at the campus level, be transparent in terms of decision-making and funding, and result in a seamless – and frictionless – experience for researchers. Failure to address these challenges could result in recruitment and retention losses that will negatively impact our future research enterprise.

The Future of Research

There is no question that decisions about research infrastructure must be informed by both the diversity of research activities at UCLA and the changing nature of research and pedagogy in institutions of higher learning. Throughout its discussions, the task force worked to frame the diverse forms of research cultures within the university, reinforcing the need to consider multiple metrics and strategies that may be required to develop a comprehensive view of research and the infrastructure needed to support faculty across campus.

While research activity at UCLA is commonly located by and referred to as North Campus and South Campus, this geographic distinction can obfuscate commonalities, and discourage the productive collaborations that will foster the re-imagining the 21st century university and research itself. The task force meetings accentuated the commonality of research infrastructure needs across the campus, which becomes especially apparent when those needs are separated from the past availability of funds to address them. Of course, there are important discipline-specific needs, and so the following sections consider both the changes and forces that are common across campus, as well as elements that are specific to individual schools and disciplines.

Common issues

The task force defined a number of key issues related to the future of research and pedagogy that are common across the campus. While it will be necessary to survey a broader range of faculty and campus leaders for a comprehensive analysis and consideration of the factors that will affect future planning decisions, the short list below suggests the scope of these issues:

1. Research is becoming increasingly collaborative, affecting faculty needs for dynamic and open-ended research infrastructure. UCLA must develop physical spaces that foster formal and informal interactions as well as technological and human infrastructure that supports team-based activities and large-scale partnerships. These partnerships stretch across the university and beyond its walls, nationally and internationally.
2. Many of the most profound, pressing research problems of the day are global in scale and do not stay within traditional “disciplines” or “academic divisions.” The challenges of computation and big data, climate change and biodiversity loss, megacities and urban futures, health and illness, and economic development, for example, are as much cultural, social, ethical, and design challenges as they are scientific, engineering, and policy challenges. Research is increasingly inter- and multidisciplinary, and, as such, requires new infrastructures of interaction and collaboration across all sectors of the campus.
3. UCLA’s engagement with Los Angeles – as both an important global megacity and its “neighborhood” – is a critical part of research infrastructure. To this end, the campus will need to develop new ways to support collaborative research, including collaborative spaces, embedded research staff, and other “humane infrastructures” to engage with the city and its

communities as partners, collaborators, and stakeholders. Engaging with Los Angeles includes everything from the physical, built city and its geological, cultural, social, and economic foundations to the diverse peoples, communities, languages, and multispecies living in the city. Grand challenges exist that span disciplines, in areas from sustainability to education, poverty and homelessness, and the future of Los Angeles' cultural industries.

4. An increasing amount of research directly engages the community and involves or takes place in the wider Los Angeles area. Schools, divisions, and departments across campus work conduct research in cooperation with local government agencies, businesses, nonprofits, or cultural or social organizations. A campuswide strategy for research infrastructure should assess opportunities to support these activities, including physical presence in terms of creative and research spaces throughout the city.
5. These and other changes in research and pedagogy suggest an opportunity to repurpose spaces on campus to better advance UCLA's public mission and its capacity to create and preserve knowledge. At the same time, core resources are not always synonymous with on-campus facilities. Portable cyberinfrastructure that can be moved from venue to venue or field site to field site as needed can represent a significant and valuable core investment, especially when considering the staff needed to develop/maintain it.
6. The shift to computationally driven research with dynamic outputs – from scientific visualization to real-time media production – has increased the need for on-premise, cloud-based, and exascale computing solutions and computational spaces that are freely available to all faculty and researchers.
7. Data support needs are campuswide and cross-disciplinary, and include the technical and human resources to access, clean, manipulate, analyze, visualize, store, and publish data.
 - a. Increasingly complex, sensitive, expensive and often hard-to-access data become the new standard for scientific inquiry in a growing number of fields. Data are the new “electricity,” the lifeblood of real-time systems for visualization, control, and interaction.
 - b. Infrastructure must support acquisition, storage, documentation, and access to static datasets, as well as storage and access of data streams generated across campus from scientific instrumentation, digital media laboratories, and other facilities. Additionally, infrastructure should be provided to support the iterative development and archiving of the data itself, the code used to access that data, and the appropriate reuse of data by other researchers.
 - c. There is an increased need for digital preservation and curation activities that consider current and future digital media formats. Research across campus is increasingly generating multimedia as both primary data and documentation, with limited infrastructure available to support collaboration, online/versioned storage and editing, publishing, analysis, audience analytics, and archival of both the final products and intermediate versions/datasets. Considerations for cyberinfrastructure should take this into account.

- d. For all systems and data types, there are rapidly increasing needs for research privacy and security, and continuously evolving approaches for guaranteeing safe access to sensitive data for research purposes. It is incumbent on the campus to employ state-of-the-art approaches to data security while ensuring effective and efficient access, and find the proper balance between common standards and solutions tailored to specific data and research needs. Coordination among local and campuswide IT units could improve the provision of related tools and training to researchers.
8. The UCLA Library plays a critical role in the institution for preserving the heritage of humanity (a critical feature of our public mission), and making that heritage globally accessible.
 - a. Working with Library collections and resources, UCLA faculty create new knowledge, and develop analytical and interpretive tools for understanding and applying the knowledge of culture, society, and human life to our contemporary world and developing solutions to problems for the sake of a more just, democratic, and inclusive future.
 - b. While specific needs vary from discipline to discipline, there is a need across campus for networked research spaces that facilitate both access to Library collections and the analysis of collections in various digitally inflected modalities. Expansion and coordination of existing collaborative research spaces would create opportunities for shared experimental studios and labs, small-group study rooms, flexible teaching and presentation spaces, and maker spaces that feature technologies such as 3D printing and scanning, welding, and laser cutters. We recognize that these spaces are often housed in the Library, but will need to be present in multiple sites on campus.
 - c. Books, journals, archives, and special collections (in every conceivable medium) remain an indispensable part of research infrastructure and must be part of an ongoing strategic investment by the campus to ensure long-term access to and preservation of these critical materials.
9. Faculty activity must often address short-term sponsor objectives within the arc of a longer-term research project. Infrastructure to stabilize and promote excellence in long-term research agendas should be considered, especially in areas of strategic importance to the campus.
10. There is a need for additional research support personnel including method- or discipline-specific subject experts, and increased opportunities to include students in the research process (e.g., GSR funding availability for exploratory/cross-disciplinary work).

North Campus

The following are key issues that specifically affect research infrastructure planning for the schools, divisions, and disciplines associated with UCLA's North Campus:

1. A common thread among many North Campus units is a growing reliance on increasingly large and complex data sources that require physical and human infrastructure to maintain without availability of dedicated extramural funding mechanisms. As a result, funding sources for

research infrastructure are often ad hoc and temporary, such as faculty startup packages or short-term grants or research collaborations.

2. North Campus is also home to some units on campus that have experienced rapid growth over the last decades in terms of students and hence number of faculty, but that have not seen a corresponding expansion of physical space. This has led to a dearth of space for research, since a large fraction of available space is used for faculty offices and for teaching. Hence, space availability places an immediate constraint on the expansion of data-intensive research activities at a moment of increasing opportunities in especially collaborative data science research.
3. Given the important relationship of North Campus research with public audiences and communities, research infrastructure planning must consider its facilities to be hubs for both faculty research and public engagement. To stay current and competitive, it is imperative that the university maintain and update existing facilities, while also planning new research infrastructure for public programming and community engagement that mirrors within the contemporary media and civic landscape the previous century's strategic investments into libraries, archives, theaters, studios, gardens, and galleries.
4. Many units do valuable collaborative research with small organizations, community groups, and others with limited resources. While the general trend of sponsored research, sales-and-service, and contract activity is towards comprehensive agreements and cost recovery through F&A reimbursements, developing simplified mechanisms for conducting collaborative work with grassroots organizations and others of limited means would provide an important part of facilitating the university's public mission and its engagement with Los Angeles. UCLA must continue to allow exceptions to standard F&A policies when grant funding is limited to very small amounts, or when nonprofit sponsor policies limit F&A reimbursements.
5. Libraries, archives, studios, galleries, exhibition halls, and theaters, which are often thought of as spaces for teaching and public programming, support a variety of faculty research activities and aggregate technology and personnel resources of various units. Recognition and support of these facilities is critical to maintain competitive capabilities, and to leverage their value for involving the campus community (and beyond) in research. The intrinsic value of the arts and humanities to the campus and community should motivate support.
6. The creative output of faculty and students in the arts and humanities, as well as other fields, for which the creators often hold the copyright per university policy, is a rich and important part of the intellectual property pool within the university's sphere. These creative outputs should be given more attention in consideration of research infrastructure – there may be innovative opportunities for mutually beneficial translational/entrepreneurial activities.

South Campus

The following are key issues that will specifically affect research infrastructure planning for UCLA's South Campus disciplines:

1. Biomedical research is rapidly transitioning from a very strong emphasis on wet-lab research to an equally strong emphasis on computational work, yet the vast majority of our research space

is designed for wet-lab research. The campus must either convert wet-lab space to computational space, which would be a short-sighted solution, or identify/build new space for computational research.

2. The number of emeriti is increasing dramatically, yet there is a major deficiency of offices for these faculty. Many of them maintain offices near their prior wet-lab spaces, resulting in a deficiency in offices for the early career faculty and new hires that now occupy the lab spaces.
3. The David Geffen School of Medicine at UCLA's clinical departments are expanding rapidly with clinical educators who perform clinical work and assist with teaching, but do not run research laboratories. Providing offices for the vast majority of these faculty is a major challenge for recruitment and retention.

Current Funding Mechanisms for Research Infrastructure

The current research infrastructure landscape is a product of historic funding decisions and approaches. There is currently no strategy for holistically addressing campus research infrastructure needs, nor clarity as to how investments are aligned with the university's strategic priorities.

In terms of the technical and human elements of research infrastructure, funding and research support decisions have been historically pushed down to the schools and divisions. Under this budget model, it is the expectation that the local units allocate funding for research/instructional support personnel and technology infrastructure as best suits the needs of their faculty. Partly due to a lack of funds to support research-related IT needs, local IT units have typically focused on teaching-related IT needs. As a result, research support across campus varies considerably from division to division, department to department. Moreover, this approach has limited funding for the development of campuswide research infrastructure such as data storage systems, institutional data repositories, and research support staff. For researchers, identifying resources and support is a challenge. At question is what research support is available to them through their divisional IT units, their departmental IT units, and UCLA's central organizations, and what they must develop within their own labs and research teams. Campus investment in technology has largely been focused on enterprise computing – the business systems of the institution – managed by IT Services, a unit under Administrative Vice Chancellor Michael Beck. The Research Technology Group (RTG) within the Office of Information Technology under Vice Provost Jim Davis and affiliated with the Institute for Digital Research and Education is one of the few centrally funded research support units. The RTG manages the Hoffman2 shared computing cluster as well as a smaller, general-campus cluster available to all researchers; consults with faculty and researchers on digitally enabled research and scholarship; and provides expertise on research computing tools and methods through workshops, training courses, and online materials. The Library also provides core-funded, campuswide research support with its stated goal to be “an essential hub for multidisciplinary collections, services, and expertise.”² Subject-area librarians, and consultants from the Data Science Center, Digital Library Program, and Scholarly Communications unit routinely work with researchers on

² UCLA Library *Strategic Plan 2016-19*. <https://www.library.ucla.edu/about/administration-organization/strategic-plan-2015/goals#Goal%201>

questions related to copyright, data, and publishing. (The Library and research IT, it should be noted, are included in the calculations for the F&A reimbursements discussed below.)

Capital investments for the physical elements of research infrastructure – largely new construction and building maintenance – is mainly funded by a complex mix of state funding, donor contributions, and F&A reimbursements. Individual schools, divisions, and departments are asked to fund improvements within their own areas. As a result, research infrastructure across campus is uneven, with some units enjoying new facilities while others wrestle with the problems of deferred maintenance (DM).

Capital Renewal

Capital renewal is an integral component of UCLA's revised 2018-2028 *Capital Financial Plan*. There is a need to renew systems in more than 50 buildings that are between 25 and 80 years old. UCLA has estimated over \$1.5 billion in DM needs, and this figure is anticipated to increase once the university's Integrated Campus Asset Management Program (ICAMP) has systematically evaluated all buildings on campus. Renewal scope involves the replacement of obsolete building systems, utility infrastructure and life safety systems, and modernization initiatives to improve functionality and space utilization. Departments frequently initiate studies or request capital improvement projects in research facilities with their own funding. These department expenditures are often disallowed from the F&A rate calculation by federal rate negotiators. Centralizing these expenditures would ensure that they are included in the rate calculation.

In 2015 — for the first time since 1989 — the state provided the campus with \$4.5 million of one-time funds to meet critical DM needs. In 2016, 2017, and 2018, the state provided DM funding of \$7 million, \$3.8 million, and \$13.5 million respectively. In FY 2019-20, UCLA is slated to receive \$30.3 million of DM funding, a relatively considerable amount, but not nearly enough to address our current DM needs. In fact, based on the size of UCLA's physical plant, it is estimated that \$20 million of annual DM funding would be required just to arrest the growth of the campus' DM backlog. (A full list of deferred maintenance priorities is included in the campus' annual capital financial plan submission.) Historically, if the state does not provide funding, then outstanding DM needs will remain largely unmet unless absorbed by the campus. In such cases, the un-funded and unmet DM needs are only addressed if the campus finds other resources to cover those expenses such as tapping otherwise uncommitted funds or through a development campaign. It is also possible to roll unfunded DM priorities into future renovation projects, but this strategy unfairly burdens the cost of remodels by the addition of code and ADA upgrades. For example, the costs of many of UCLA's seismic retrofit projects escalated because the seismic work triggered the need to bring the building up to current code. The same situation will be triggered by a lab remodel.

Facilities & Administration Funds

F&A reimbursements are the most prominent resource discussed to finance research infrastructure. F&A rates are determined based on prior year expenditures on facilities projects and administrative services. Since F&A revenues are reimbursements for prior expenditures, their use is not restricted. Because F&A is reimbursed most consistently by federal and for-profit grants and contracts, it typically benefits the areas with heavy federal research more than the areas without this emphasis. Therefore, the South Campus will typically generate more F&A reimbursements than the North Campus.

The federal government negotiates F&A rates with universities to reimburse them for the facilities and administration costs of the infrastructure that supports all grants and contracts. These costs cannot be directly associated with individual studies. The F&A rates are negotiated following the submission of an F&A rate proposal prepared by the university. The resulting rates can be in effect for three to five years based on the terms of the negotiated agreement with the government. Establishing fair rates that capture these costs appropriately is critical for the ongoing maintenance of research physical and administrative infrastructure.

In reviewing the university's rate proposal, the government can disallow certain components of the calculated rate. For instance, our last negotiated rate was calculated based on Fiscal Year 2014 financial information. UCLA calculated a rate of 62.0%. The government made adjustments of 10.86%, reducing the calculated rate to 51.09%. Through negotiations, UCLA and the government agreed to a rate of 55% escalating to 56%. If UCLA is to recover more of the physical infrastructure costs associated with research activities, we will need to strategize and plan to address the areas where the government typically disallows costs during negotiation and improve our ability to negotiate a rate which better represents our costs.

UCLA's Budget Situation

The formation of the task force in early 2018 was driven, in part, by a recognition that UCLA should increase its efforts to ensure a sustainable financial support of research activities across the campus. This coincided with the beginning of a broader effort to proactively update UCLA's budget model to better address new budget circumstances, declining state support, and flat tuition rates. The goal of this new budget model is to ensure the availability of funds for strategic investment in campus priorities, including research.

UCLA's current budget model and challenges

UCLA's current budget model is an incremental model that has been in place for many years. Under this type of model, funds from different sources (e.g., state funds, tuition, non-resident supplemental tuition, F&A reimbursements from contracts and grants) are pooled centrally and distributed to units based on historical allocations (with adjustments made annually for changes in expenses and selected strategic investments). This model worked well for UCLA in the past, during an era of growing funding due to increasing enrollment, tuition, and nonresident supplemental tuition. Disadvantages of this type of budget model, however, are that it is less transparent than activity-linked models and provides poor incentives for revenue growth and cost management. Furthermore, several factors point to a lower revenue growth rate in the future, due to the limited physical capacity to increase on-campus enrollment, caps/limited ability to raise tuition and fees or add nonresident undergraduates, and declining state support. The combination of flat revenue and an incremental model would result in very little funding at the "center" for the chancellor and executive vice chancellor/provost (EVC/P) to direct towards priorities such as investing in research infrastructure not traditionally reimbursed through the F&A rate.

Budget model review process

The challenging outlook for UCLA's revenue growth prompted an effort over the course of 2018 and 2019 to evaluate and redesign our budget model. As part of this process, numerous internal

stakeholders and experts at peer institutions were consulted to design a budget model that would work for UCLA. The University of Michigan was chosen as an institution to engage more deeply because of its high academic quality and positive trends, its reputation as a leader in budgeting, and because its budget model is a hybrid of centralized/provost-directed and activity-based funding allocation that seemed to have high potential to suit UCLA's unique culture. For example, the U-M model incentivizes revenue growth and management of cost, and deans and directors have wide latitude to make strategic decisions appropriate to their units. At the same time, the provost has a significant central fund to invest in strategic priorities and to bridge units through budget challenges. Specific to research infrastructure, while deans control the resources in their units and have primary responsibility for investments, the provost provides central support with a pool of ~\$60M annual to fund essential campus deferred maintenance as well as research infrastructure through an internal grant proposal process. In an interview with a sub-committee of the Task Force on Research Infrastructure, the school's Vice President for Research S. Jack Hu praised the model as transparent and encouraging of innovation and creativity.

Elements of new budget model and impact on funding for Research Infrastructure

Similar to the U-M model, the forthcoming UCLA budget model is being designed as a hybrid system of activity-linked, incremental, and centralized/initiative-based budgeting. The proposed model will attribute revenues related to tuition, student fees and F&A reimbursements to each school based on a set of defined rules (e.g., enrolled student credit hours, teaching student credit hours). Additionally, each school will receive a supplemental appropriation from the EVC/P initially set at an amount to equal the school funding baseline — or existing level of funding — to protect against funding “shocks” and smooth the transition to a new model. The EVC/P has several sources of allocable revenue — state appropriations, tax assessments on core and non-core funds, investment income, and the net proceeds of a proposed \$100M savings and reallocation program.

In our current and future context, the campus anticipates that this system will perform better than the legacy model in four areas:

1. Alignment of resources with activity cost drivers;
2. Creation of incentives and support for units to be entrepreneurial where there is opportunity and providing strong central support for where there is less opportunity;
3. Restoration and establishment of a stronger central investment fund for the EVC/P to make strategic investments in academic and research programs; and
4. Replacement of the costly internal recharge program that creates poor incentives for campus units to utilize centrally provided services.

Specifically related to research activities, the model establishes simplicity and transparency into UCLA budgeting, including an increased flow of unrestricted funds in ratio to F&A reimbursements realized back to schools to enable more locally funded investment in research infrastructure. A key element of the model is that it will create a larger central pool for strategic investments, such as cross-campus research initiatives, and promotes an entrepreneurial approach to teaching and research. A larger central investment fund would be a way to establish recurring annual funds for financing research

infrastructure upgrades not traditionally supported by F&A reimbursements. A shortcoming of the new model is that it does not incentivize interdisciplinary research across units. U-M understood this challenge and launched the Mcubed program to promote multidisciplinary collaborations.³

This fall, the proposed new budget model will be reviewed in detail by key campus stakeholders (deans, the senate, our EVC/P and chancellor). Based on feedback, the Office of Academic Planning and Budget (APB) will determine whether there is campus readiness to adopt the new model concurrent with the launch of the new budgeting application that is part of Ascend. The target date is January 2021, which would mean that fiscal year 2021/2022 would run under the new model.

Task Force Recommendations

Following almost two years of regular meetings, analysis of relevant campus documents, and interviews with campus stakeholders and representatives from peer institutions, the task force has developed eight recommendations to guide the development of campus research infrastructure investments.

Implementation of these eight recommendations will reinforce UCLA's commitment to research excellence, provide campuswide oversight for campus infrastructure investments, add clarity and transparency to the funding and decision-making processes, and generate guidelines and tools for campus stakeholders and administrators. The first five recommendations focus on research infrastructure broadly defined; the final three focus on UCLA's physical infrastructure.

Recommendation 1. Establish a Standing Research Infrastructure Committee

The first recommendation is to establish a formal standing Research Infrastructure Committee composed of representatives from across campus. The purpose of this committee would be to advocate for research infrastructure; work with administration to write and implement relevant guidelines, policies, and procedures; regularly review proposals for campus research infrastructure upgrades; help the campus define and allocate responsibilities for research infrastructure initiatives; and make recommendations related to research infrastructure to the Campus Space Committee, the IT Governance and Oversight Committee (Go-IT), and other relevant campus organizations.

In terms of composition, this standing committee and its chair should be appointed by the vice chancellor for research and creative activities in consultation with the EVC/P. The committee should include, at a minimum, four faculty members that represent the diverse range of campus disciplines, and four non-faculty members from campus organizations with responsibilities related to research infrastructure such as the Library, Administration, APB, Capital Programs, Facilities Management, Office of Information Technology, and the Office of Environment, Health & Safety. The standing committee should be authorized to reach out to other campus faculty and personnel for consultations as needed. The standing committee is expected to meet every one to two months, and report to the vice chancellor for research and creative activities and the EVC/P.

While the current task force was able to identify the elements necessary to facilitate long-range infrastructure planning, it does not have the capacity, time, nor power to finalize, socialize, and

³ Mcubed. University of Michigan. <https://mcubed.umich.edu/> last accessed Oct. 24, 2019. The third funding cycle of the program opened in October 2018, and thus far 249 interdisciplinary awards have been granted.

implement these guidelines, policies, and procedures. The proposed standing committee under the sponsorship of the EVC/P should absorb that work, and develop, socialize, and implement the remaining recommendations outlined in this report, with particular emphasis on the development of a long-term research infrastructure plan that considers capital as well as operational expenditures.

Recommendation 2. Develop a Campuswide, Long-term Plan for Research Infrastructure

The second recommendation is that UCLA develop a campuswide, long-term plan specifically focused on research infrastructure. While there are many strategic plans across UCLA, there is no one plan that cohesively addresses research infrastructure.⁴ A campuswide, long-term plan should consider the campus holistically, respect the diversity of research across campus, integrate the strategic research plans of the academic units and the Library, forecast the requirements of the ever-changing research enterprise, factor in both major capital expenses and operational expenditures, and define broadly applicable approaches for campus investments. In doing so, development of the plan must assess the existing research infrastructure, and work with the relevant academic units to project research needs forward. The campuswide plan should identify both situations where centralized campuswide solutions to research needs are most appropriate, efficient, and cost effective, and situations where the subsidiarity principle of supporting local units is best suited to fill research infrastructure needs. The campuswide plan should also assess potential for synergies and collaboration among academic units and the Library in all areas of research infrastructure. The plan must also consider the full range of funding sources available for the research infrastructure enhancements necessary to support the university's mission, values, and expectations for research excellence.

Finally, this campuswide plan should address all of the elements necessary to support research across UCLA, including physical space, technology such as computing, networking, software, data storage, and equipment, as well as the necessary staff to support these elements and staff-intensive research activities more generally. The importance of data in UCLA's long-term planning cannot be overstated, and it is imperative that our research infrastructure expansion accommodates all facets of the data lifecycle. Data are increasingly central to the research enterprise, and faculty must be provided tools and infrastructure that facilitates the collection, manipulation, analysis, visualization, storage, curation, publication, preservation, and re-use of research data. Beyond enabling faculty innovation, the campus is required to comply with regulations related to sensitive, restricted, or otherwise encumbered data, and requirements for public access to research conducted with federal funds. Reports of non-compliance from the U.S. Government Accountability Office and similar will only increase pressure on universities to take responsibility for their research data and ensure compliance and public access.⁵ Finally, it is critical that UCLA develop a research data policy that clearly defines its expectations for faculty, and, working with the Library, establishes procedures for appropriate archiving, curating, and preservation of institutional data.⁶ (See Appendix 6 for a draft of a research data position paper developed in 2016 for the *Research Data Support Recommendations* report.)

⁴ See Appendix 5 for a select list of campus planning documents reviewed by the task force.

⁵ See "Federal research: additional actions needed to improve public access to research results," released November 2019. <https://www.gao.gov/products/GAO-20-81>

⁶ A draft UC policy on "Access to and Management of Research Data and Tangible Research Materials" is being circulated for comments at the time of this writing. This document is similar to an interim report developed for use

Recommendation 3. Develop and Publicize Campus Guidelines for the Prioritization of Research Infrastructure Upgrades

The third recommendation is to develop campuswide guidelines for the prioritization of campus research infrastructure needs and investments. The campus does not currently have such a document, and having an established set of guidelines would introduce a much-needed level of transparency about the decision-making process. This prioritization document should include a specific vision statement around research infrastructure that motivates the guidelines and budget allocations. The task force developed a draft document that includes considerations in four categories: regulatory, financial/philanthropic, academic, and operational/efficiency. (See Appendix 7 for the complete text of that document.)

Recommendation 4. Develop New Funding Strategies for Research Infrastructure

The fourth recommendation is to develop new strategies for financing research infrastructure upgrades not traditionally supported by F&A reimbursements (e.g., cyberinfrastructure, core facilities, buildings and infrastructure used by schools or divisions with limited access to extramural grant opportunities). This task is coincident with an ongoing redesign of the campus' budget model, and members of the formal Research Infrastructure Committee should work with APB to ensure that the design of the campus budgeting process identifies the highest priority and greatest need areas for central investments in research infrastructure. One possible model for discussion is an internal grant process managed by our OVCR that is connected to and runs in parallel with the campus budget process. Campus investment of the newly created "pool of funding" should follow the prioritization guidelines developed in fulfillment of Recommendation 3, keeping in mind that it is critical for the campus to:

1. Invest in all of the elements necessary to support research at UCLA — the human, the physical, and the technical.
2. Articulate the levels of responsibility for research infrastructure funding and implementation (i.e., responsibilities between centralized services and investments handled at the local level).
3. Invest in new, experimental enterprises (high risk, high return) that require prototype funding — these can be research and curricular.
4. Incentivize and encourage interdisciplinary research across divisional lines.
5. Invest in multi-user facilities that can support said interdisciplinary research, and cover high-cost equipment, space, and expertise needs while serving multiple research groups in a cost-effective, space-effective manner.
6. Invest in areas of campus that are central to our mission but do not generate F&A reimbursements (i.e., theaters, the Library, studio spaces, core facilities).
7. Increase graduate student research funding across campus.

at UCLA (http://ora.research.ucla.edu/RPC/Documents/Interim_UCLA_Guidance.pdf). Neither speaks to the broader questions of research data support and institutional responsibilities for research infrastructure related to data.

Recommendation 5. Explore Opportunities for Increasing Facilities and Administration Cost Recovery

The fifth recommendation is to explore opportunities to increase UCLA's negotiated F&A rate in order to reimburse a greater proportion of our actual research infrastructure costs. Our current negotiated rate is 6% below our actual calculated F&A costs. Maximizing our negotiated rate would enable greater reinvestment in research infrastructure, which is to the benefit of all faculty. UCLA needs to be clear that an increase in FA cost recovery helps "all boats rise" and enables the campus to invest strategically in research infrastructure. At the same time, UCLA needs to be transparent about how those funds are being used so that faculty understand the benefits of an increased FA rate.

To achieve this, we need to address the issues that enable the federal government to disallow costs from our rate proposal and reduce our negotiated rate. Strategies to accomplish this objective include maximally populating the most expensive research spaces with well-funded researchers to ensure these costly building spaces are fully included in the facility costs pool, and developing a mechanism to move school and department expenditures for research infrastructure to central ledgers so that they are included in the rate calculation. (See Appendix 8 for an in-depth discussion of this topic.) The identification of new facilities costs to enable even a modest rate increase would also boost reimbursements that could be reinvested in research infrastructure. These costs could include, but are not limited to, expenses related to buildings (e.g., operations and maintenance, enhancements, construction, debt) and equipment (including information technology equipment and systems).

At the same time, the campus should distribute information to researchers and administrators that enables them to easily explain to sponsors that limit or prohibit F&A funding the importance of F&A costs to the success of funded projects and the UCLA research enterprise. Any success in convincing such sponsors that reimbursing even a portion of the campus F&A costs can make a difference to the long-term sustainability of the campus research program and will benefit the research infrastructure. To offset possible negative consequences of an increased rate and a campaign to encourage sponsors to reimburse F&A costs,⁷ the campus should examine options for providing incentive funding to organizations that maximize F&A reimbursements, and continue policies that enable approval of requests for exceptions to full F&A recovery for non-federal and non-industry sponsors.⁸ Current policy enables approval of exceptions when in the best interest of the campus – such as new areas of research that are of strategic importance – or nonprofit sponsor policies prohibit full F&A reimbursement.

⁷ An increased rate could, for example, discourage faculty from engaging with research projects that require extramural funding on the basis that the amount remaining after the F&A reimbursements would be insufficient for their research goals or not worth the time required to develop the proposal. This situation would primarily affect North Campus researchers that typically only have access to small award opportunities. This disciplinary disparity is exemplified by a base comparison of the primary federal funding agencies: the National Science Foundation's FY 2019 budget was \$8.1 billion, the National Institutes of Health invest nearly \$39.2 billion annually in medical research, while the National Endowment for the Humanities has only awarded \$5.6 billion in grants since its creation over 54 years ago. (See www.nsf.gov/about, www.nih.gov/about-nih/what-we-do/budget, www.neh.gov/grants.)

⁸ UCLA follows the UC policy that governs indirect cost exceptions. (See <https://www.ucop.edu/research-policy-analysis-coordination/resources-tools/contract-and-grant-manual/chapter8/chapter-8-500.html>.)

Recommendation 6. Develop Mechanisms and Procedures for Upgrading Research Infrastructure

The sixth recommendation for the formal Research Infrastructure Committee is to work with campus leadership to develop mechanisms and procedures for upgrading research infrastructure while managing costs and effectively using F&A reimbursements and new funds earmarked for building maintenance (e.g., ensure infrastructure expenditures are recorded through central organizations to ensure they are allowable in the F&A rate proposal). The task force identified six specific action items:

1. Leverage the availability of potential state funding, and identify any research infrastructure upgrades that overlap with eligible capital renewal priorities so that the planned upgrades can be coordinated to take advantage of state monies.
2. Consider research infrastructure projects for inclusion and funding as proposed deferred maintenance priority lists are developed for FY 2020-21 and beyond.
3. Request that Facilities identify all potential capital activity through the Capital Programs Project Initiation portal. If capital activity is anticipated in a research facility, Capital Programs planning staff should work with local leadership to determine project scope and monitor on-going project activity. Capital Programs should develop a similar protocol for its capital projects.
4. Establish a fund swap procedure with APB to ensure that designated expenditures for construction related to proposed projects are eligible for inclusion in the F&A rate proposal.
5. Establish a procedure to review fund sources related to research facilities prior to final project capitalization.
6. Establish more clearly what “equity” would mean across schools, divisions, and departments.

Recommendation 7. Develop and Publicize Campus Guidelines for Space Allocation

The seventh recommendation for the formal Research Infrastructure Committee is to develop campuswide space allocation and research infrastructure guidelines with an emphasis on basic governing principles (e.g., transparency and consistency) and ensuring equity across schools, divisions, and departments irrespective of extramural funding streams and indirect cost recovery. These guidelines should also review historic campus space allocations, and make recommendations for regularly updating those allocations to reflect the changing needs of the community, the changing nature of research and pedagogy, and a campuswide perspective on research infrastructure. The guidelines should also ensure that offer letters for incoming faculty clearly state – to the extent possible – the conditions under which research space is allocated. The committee should also develop guidelines for deans and chairs on topics including, but not limited to, how to address research infrastructure needs in their units, formal documentation of research space in offer/retention letters, understanding how donor funds can be used for construction/upgrades, health & safety considerations, and deployment options for emeritus faculty. The task force developed a draft set of space allocation guidelines to inform the final effort. (See Appendix 9 for the full text of that document.)

Recommendation 8. Promote Use of Available Campus Space Allocation Planning Tools

The eighth and final recommendation is for the formal Research Infrastructure Committee to identify, and where valuable, federate the data and tools required to easily and accurately analyze current space allocations and usage, and make those data and tools available to deans and campus leaders so that they may make informed decisions about the physical infrastructure under their control. (See Appendix 10 for information on the existing space-planning tool used by UCLA Facilities Maintenance and available to the campus.) Guidelines for deans and chairs should also be developed to ensure use of this web-based tool at an administrative level for coordinating, assigning, tracking, and maintaining the physical space allocated to each campus unit.

APPENDIX 1 :: Charge Letter

Task Force on Research Infrastructure

January 15, 2018

UCLA faculty, students, and staff require facilities or infrastructure to conduct original research and foster innovation. Discoveries and increased understanding using state-of-the-art infrastructure can help solve some of the most pressing social and economic challenges the country faces and allow a university campus to be an attractive choice for some of the world's greatest talent to perform their research. Indeed, universities will often make critical investments in infrastructure in order to effectively recruit and retain staff. For the purposes of this discussion, examples of research infrastructure include scientific equipment, laboratory and analysis systems, studios, and computing systems and networks. In order to remain at the forefront of research, infrastructure also requires careful maintenance and upgrade plans (referred to as life cycle management) to prevent obsolescence.

It has become apparent, based on discussions across UCLA, that most of the maintenance and upgrades plans for research infrastructure are undertaken in an opportunistic manner rather than following a master plan with an institutional-wide perspective. The current process can lead to short term solutions but will be suboptimal and not cost-effective in the long term. Moreover, infrastructure that require upgrades may be deferred if it does not fall under situations that require immediate attention (e.g., safety, recruitment/retention).

This memo outlines the establishment of a Task Force on Research Infrastructure that will examine infrastructure across the campus and provide recommendations that will allow UCLA to remain a premier research institute.

The charge is to develop a long-range plan and vision for research infrastructure that considers but is not limited to the following issues:

- An institutional-wide perspective on research infrastructure rather than a regional/local-scale perspective
- Consider infrastructure that supports research performed in North Campus as well as the life/physical sciences, health, and engineering disciplines on the South Campus
- Move to a more systematic approach to supporting research infrastructure rather than an opportunistic approach
- Articulate a set of guidelines for prioritizing research upgrades across the campus
- Safety and health considerations
- Depreciations costs and life-cycle management plans including deferred maintenance
- Responsibilities of the deans versus the university in supporting and maintaining infrastructure
- Optimizing upgrades of research infrastructure during the recruitment/retention process while maintaining an institutional-wide perspective

- Optimizing research upgrades in buildings that are overseen by multiple units (e.g., Boyer Hall is often cited as a suboptimal upgrade owing to occupants from three different schools).
- The extent to which lab designs can be constrained to a smaller subset of floor, furniture, and supporting equipment plans to limit the degrees of freedoms in order to reduce construction and set-up time
- The merits of open versus closed lab space
- Facilities and Administration (F&A) cost considerations

The discussions/recommendations should also be constrained to upgrades to existing structures and not consider new construction.

APPENDIX 2 :: Full Task Force on Research Infrastructure Roster

Task Force Members:

Allison Baird-James (Associate Vice Chancellor/Controller, Corporate Financial Services)
Jeff Burke (Associate Dean, Technology & Innovation, School of Theater, Film, and Television)
Ferd Coroniti (Associate Dean, Physical Sciences)
Colin Dimock (Assistant Vice Chancellor, EH&S)
Jeff Goodwin (Executive Director & Campus Veterinarian, Division of Laboratory Animal
Medicine/DLAM)
Leif Havton (Neurology, Chair of COR)
Luisa Iruela-Arispe (Director of MBI)
Victoria Marks (Associate Dean, Academic Affairs, School of the Arts & Architecture)
Hal Monbouquette (Associate Dean, Samueli School of Engineering and Applied Science)
Steve Smale (Medical School, Vice Dean for Research)
Kelly Schmader (Assistant Vice Chancellor for Facilities Management)
Marcia Smith (Associate Vice Chancellor Office of Research Administration)
Virginia Steel (University Librarian)
Till von Wachter (Economics, Associate Dean for Research, Social Science Division)

Additional Members:

Jeff Roth (Associate Vice Chancellor, Academic Planning and Budget)
Sue Santon (Associate Vice Chancellor, Capital Planning & Finance, Capital Programs)
Lisa M. Snyder (OIT's Director of Campus Research Initiatives and Acting Director of the OIT\IDRE
Research Technology Group)
Roger Wakimoto (Vice Chancellor for Research and Creative Activities)
Lydia Coleman (Director of Strategic Initiatives, Academic Planning and Budget)
Peter Hendrickson (Associate Vice Chancellor, Design & Construction, Capital Programs)
Todd Presner (Associate Dean, Humanities; Advisor, Office of Research and Creative Activities)

APPENDIX 3 :: Preliminary recommendations released February 5, 2019

A year into meetings, interviews, and discussions, the Task Force on Research Infrastructure produced a list of twenty possible action items for the campus. In discussions of these action items at the February 2019 task force meeting, two additional points were proposed for consideration by the group. The first additional recommendation is to establish a Research Infrastructure Committee that reviews proposals for upgrades on a regular basis and makes recommendations to the Campus Space Committee. The second is to take action to ensure that offer letters for incoming faculty clearly state – to the extent possible – the conditions under which research space is being allocated. A prioritization exercises winnowed the list of twenty down to seven action items for inclusion in the final report. Below is that original list of recommendations/action items.

- 1. Analyze the changing nature of research and pedagogy, including trends in collaboration, communication, and interdisciplinary work that will affect research infrastructure in the coming decades.**
 - a. Review the range of research activity across UCLA and the changing nature of research and pedagogy to better understand the forces that will shape UCLA physical and cyberinfrastructure in the decades to come.
 - b. Analyze UCLA's role in the context of the greater Los Angeles area to understand the challenges and opportunities for space, community partnerships, and research infrastructure outside the campus boundaries.
 - c. Explore options for shared space, cyberinfrastructure, and instrumentation to encourage collaboration, communication, and interdisciplinary work. This discussion should include consideration of existing interdisciplinary Centers and Institutes and buildings that currently house Departments from multiple Schools and Divisions, and research needs analogous to shared instrumentation that exist outside the sciences.
 - d. Review approaches for categorizing, managing, and maintaining spaces with mixed uses. This should include consideration of renovations that reduce interior room divisions and promotes shared or easily reconfigured space, and the role of collaborative, common, and informal spaces in research.
- 2. Promote transparency regarding funding for research infrastructure improvements and the use of Facilities and Administrative funds (F&A).**
 - a. Document how Facilities and Administrative (F&A) funds and other sources of infrastructure funding that may be identified as a result of the infrastructure planning effort are distributed and spent at the campus and Departmental levels, with particular emphasis on debt service, building construction, renovation, and maintenance expenditures.

- b. Explore opportunities to increase UCLA's F&A rate. To offset possible negative consequences of the increased rate, examine options for the application and return of F&A rates in consideration of grant size and impact on campus infrastructure.
 - c. Develop mechanisms and procedures for upgrading research infrastructure while managing costs and effectively using F&A funds earmarked for building maintenance (e.g., funneling expenses for improvements through Facilities Maintenance or similar central unit to better capture indirect costs).
 - d. Create a policy or provide clear recommendations for how F&A from extramural funding and Sales & Service activities under the recently revised Policy 340 should be applied to mixed-use spaces that also serve as research infrastructure.
 - e. Design and implement a campaign to educate the campus community about how the different F&A rates are negotiated and set, and reinforce the positive aspects of this critical campus funding stream.
- 3. Create incentives and additional funding mechanisms for research infrastructure, and identify tools to help Schools, Divisions, and Departments assess current research infrastructure and plan for the future.**
- a. Implement incentives that encourage the development of collaborative and shared spaces.
 - b. Develop new strategies for financing research infrastructure upgrades not traditionally supported by F&A (e.g., cyberinfrastructure, core facilities, buildings and infrastructure used by Schools or Divisions with limited access to extramural grant opportunities).
 - c. Establish an endowment for the administrative, technical, human, and physical components of research infrastructure in order to improve efficiency and competitiveness in attracting external funds.
 - d. Identify, and where valuable, federate the data and tools required to easily and accurately analyze current space allocations and usage, and make those data and tools available to deans and campus leaders so that they may make informed decisions about the physical infrastructure under their control.
- 4. Implement campuswide, Divisional, and Departmental guidelines for space allocations and research infrastructure improvements.**
- a. Review historic campus space allocations, and make recommendations for updating those allocations to better reflect the changing needs of the community, the changing nature of research and pedagogy, and a campuswide perspective on research infrastructure. This should also include consideration of core and shared facilities, and how those are used and funded across campus.
 - b. Establish a direct relationship between both campus and academic unit strategic plans and research infrastructure allocations.

- c. Examine possible short-term uses of dormant space, and create administrative and funding mechanisms for cross-Departmental lease options.
- d. Develop campuswide space allocation and research infrastructure guidelines with an emphasis on basic governing principles (e.g., transparency and consistency) and ensuring equity across Schools, Divisions, and Departments irrespective of extramural funding streams and indirect cost recovery. These guidelines should address general space allocation issues such as conditions of occupancy, the constituency being served (e.g., students, faculty, public), procedures for assigning, managing and relinquishing space (e.g., signed agreements with faculty and researchers), and space privileges for emeritus faculty.
- e. Develop campuswide guidelines for the prioritization of campus research infrastructure upgrades and improvements following the necessary seismic upgrades that have long been a focus of campus infrastructure investment. These guidelines may consider strategic plans, safety and health considerations, and/or donor interests.
- f. Require that each School, Division, and Department create a space-planning usage policy that adapts the campuswide guidelines to fit their own mission, culture, and demonstrated needs.
- g. Design and implement a campaign to socialize the new campuswide research infrastructure and space allocation guidelines and priorities.

APPENDIX 4 :: Interim Report of the UCLA Task Force on Research Infrastructure

Convened January 15, 2018; interim report submitted May 13, 2019

Chair: Leif Havton

The Task Force on Research Infrastructure was charged with developing a long-range plan and vision for UCLA's research infrastructure.⁹ Critical drivers for this effort include the need for the campus to shift to a structured and strategic approach to research infrastructure development and maintenance from one that is ad hoc and opportunistic, and the need to address the research infrastructure requirements of units with limited extramural funding and indirect cost recovery. As part of this process, the task force has also begun to frame the diverse forms of research cultures within the university, reinforcing the need to consider multiple metrics and strategies that may be required to develop a comprehensive view of research and the infrastructure needed to support faculty across campus.

In the first phase of the committee's work, members were broken into three sub-committees.

1. **Interview Committee:** This sub-committee identified suitable deans to interview on topics related to research infrastructure, developed a set of questions for the interviews, and performed six campus interviews. The deans interviewed were Miguel Garcia-Garibay (Physical Sciences), Darnell Hunt (Social Sciences), Jayathi Murthy (Engineering), Brett Steele (Arts and Architecture), Victoria Sork (Life Sciences), and Linda Sarna (Nursing).
2. **Committee for Inter-Institutional Comparisons:** This sub-committee identified suitable peer institutions with a campus research complexity similar to UCLA, developed a set of questions for the interviews, and conducted three interviews. The first interview was with UCLA VCR Roger Wakimoto, and two subsequent phone interviews were with his equivalent at the University of Michigan, and the University of California, Berkeley.
3. **Committee to Assess Current Research Infrastructure at UCLA:** This sub-committee discussed the campus inventory of usable and non-usable research space, and compared the space allocated as 'research' space against recent extramural funding reports.

A year into these meetings, interviews, and discussions, the task force produced a list of twenty possible action items for the campus to undertake, organized under four broad tasks:

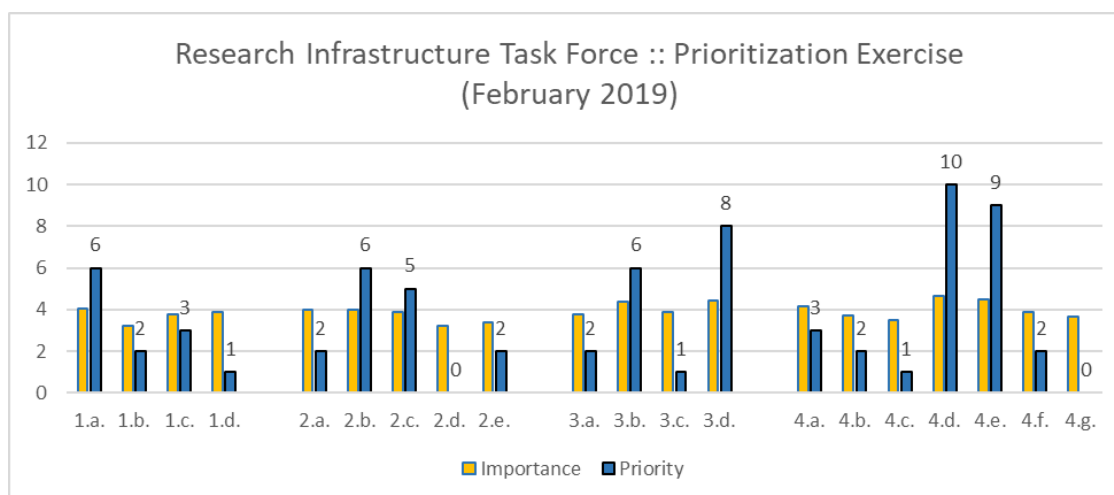
1. Analyze the changing nature of research and pedagogy, including trends in collaboration, communication, and interdisciplinary work that will affect research infrastructure in the coming decades.

⁹ Throughout, 'research' is meant as an inclusive term that encompasses systematic investigation, knowledge production, and the creative and scholarly activities of the entire campus. The term 'research infrastructure' is used broadly and includes the physical (e.g., space and equipment), technical, and human aspects of research support.

2. Promote transparency regarding funding for research infrastructure improvements and the use of Facilities and Administrative funds (F&A).
3. Create incentives and additional funding mechanisms for research infrastructure, and identify tools to help schools, divisions, and departments assess current research infrastructure and plan for the future.
4. Implement campuswide, divisional, and departmental guidelines for space allocations and research infrastructure improvements.

In discussions of the twenty draft recommendations at the February task force meeting, two additional points were proposed for consideration by the group. The first additional recommendation is to establish a Research Infrastructure Committee that reviews proposals for upgrades on a regular basis and makes recommendations to the Campus Space Committee. The second is to take action to ensure that offer letters for incoming faculty clearly state – to the extent possible – the conditions under which research space is being allocated.

Following the discussions, fourteen committee members returned a prioritization survey form ranking the original twenty possible actions (see Appendix 1 for the full list of possible actions). The chart below shows the committee member's rating of the relative importance of the items (the gold vertical bars) and the priorities (the blue bars). For the priorities, the committee members were asked to pick five action items. (Thirteen members picked five, one picked six.)



Actions from each of the four broad tasks were selected by the group, and the task force members were broken into seven new sub-committees with very specific assignments.¹⁰ Each of the following sub-committees has tasked with developing a short report on their given topic to be folded into the task force final report on a long-range plan and vision for UCLA's research infrastructure.

1. Research Infrastructure Guidelines

Members: Hal Monbouquette (Lead), Lisa M. Snyder, Ferd Coroniti, Mary Okino, Jeff Burke

¹⁰ See Appendix 2 for a full list of the members of the Task Force on Research Infrastructure.

Task: Develop campuswide space allocation and research infrastructure guidelines with an emphasis on basic governing principles (e.g., transparency and consistency) and ensuring equity across schools, divisions, and departments irrespective of extramural funding streams and indirect cost recovery. These guidelines should also review historic campus space allocations, and make recommendations for updating those allocations to better reflect the changing needs of the community, the changing nature of research and pedagogy, and a campuswide perspective on research infrastructure.

2. Campus Guidelines for the Prioritization of Research Infrastructure Upgrades

Members: Leif Havton (Lead), Lisa M. Snyder, Peter Hendrickson, Jeff Goodwin

Task: Develop campuswide guidelines for the prioritization of campus research infrastructure upgrades and improvements following the necessary seismic upgrades that have long been a focus of campus infrastructure investment.

3. Space Allocation Planning Tools

Members: Kelly Schmader (Lead), Colin Dimock

Task: Identify, and where valuable, federate the data and tools required to easily and accurately analyze current space allocations and usage, and make those data and tools available to deans and campus leaders so that they may make informed decisions about the physical infrastructure under their control.

4. The Future of Research and Pedagogy

Members: Victoria Marks, Steve Smale, Luisa Iruela-Arispe (Leads), Till von Wachter, Virginia Steele

Task: Review the range of research activity across UCLA and the changing nature of research and pedagogy to better understand the forces that will shape UCLA physical and cyberinfrastructure in the decades to come.

5. Facilities and Administration Rate Increase

Members: Allison Baird-James (Lead), Marcia Smith

Task: Explore opportunities to increase UCLA's F&A rate. To offset possible negative consequences of the increased rate, examine options for the application and return of F&A rates in consideration of grant size and impact on campus infrastructure.

6. Funding Strategies for Research Infrastructure

Members: Jeff Roth, Lydia Colman (Leads), Todd Presner

Task: Develop new strategies for financing research infrastructure upgrades not traditionally supported by F&A (e.g., cyberinfrastructure, core facilities, buildings and infrastructure used by Schools or Divisions with limited access to extramural grant opportunities).

7. Research Infrastructure Upgrade Procedures

Sue Santon (Lead), Colin Dimock

Task: Develop mechanisms and procedures for upgrading research infrastructure while managing costs and effectively using F&A funds earmarked for building maintenance (e.g., funneling expenses for improvements through Facilities Maintenance or similar central unit to better capture indirect costs).

APPENDIX 5 :: Select UCLA Reports Reviewed by the Task Force

Past unpublished internal reports have documented the gaps in research infrastructure at UCLA and offered recommendations for improvements with limited success. Examples include the 2001 report *UCLA – A Continuing Deterioration in the Research Environment* released by the Academic Senate Council on Research detailed the results of a survey on university support for faculty research. The 2013 North Campus Research Infrastructure Summit focused on the needs of the Humanities, Social Sciences, and Arts. The 2013-14 Research Informatics Strategic Planning (RISP) effort focused on data and sought to “identify current and future research directions to anticipate the types of data that researchers will be using and how it is collected, processed, accessed, analyzed, leveraged, and shared.” (Executive Summary, p 1) The 2017 *Research Data Support Recommendations* argued for expanded research support with an emphasis on the technical and human elements of research infrastructure. Finally, the 2018 *Research Data Services Summary Report* focused on Library-based support and services.

Discussion of campuswide research infrastructure is largely absent from existing planning documents. The UCLA *Strategic Plan 2019*¹¹ includes a focus on research innovation that calls for the campus to “support and foster innovative research by identifying and addressing obstacles, expanding the research base, and making UCLA research more accessible and visible to the public and policymakers” without addressing the infrastructure required to accomplish those goals.¹² The 2017 UCLA *Administration Strategic Plan*¹³ developed by the administrative vice chancellor’s organization extends through FY 2019-2020 and includes discussion of four units associated with research infrastructure: Campus Human Resources; Environment, Health & Safety; Facilities Management; and Information Technology Services. Research technology is further covered in the *UCLA IT Strategic Plan: 2009-2018* and the 2015 *Campus Cyberinfrastructure Plan* developed in response to NSF requirements of grant proposals related to campus cyberinfrastructure. UCLA’s physical infrastructure is featured in the UC’s *Capital Financial Plan* for 2018-2028,¹⁴ the 2003 *UCLA Long Range Development Plan* (and its 2017 amendment for additional student housing),¹⁵ and the 2009 *UCLA Physical Design Framework*.¹⁶ Finally, individual units have developed strategic plans that belie an insular view of research infrastructure, if it is discussed at all. Examples include UCLA Library *Strategic Plan for 2016-19*¹⁷ and *Anderson 2021* developed by the Anderson School of Management.¹⁸ The 2018 annual report of the David Geffen School of Medicine and UCLA Health similarly describes strategic goals for the unit and an ongoing strategic plan refresh.¹⁹

¹¹ www.ucla.edu/strategic-plan/

¹² <http://www.ucla.edu/strategic-plan/research-innovation>

¹³ <https://www.adminvc.ucla.edu/content/strategic-plan>

¹⁴ http://www.capitalprograms.ucla.edu/content/PDF/2018-28%20Capital%20Financial%20Plan_fp2018-28_revised.pdf

¹⁵ http://www.capitalprograms.ucla.edu/content/PDF/Final_UCLA_2002_LRDP.pdf

¹⁶ http://www.capitalprograms.ucla.edu/content/PDF/2009_UCLAPhysicalDesignFramework.pdf

¹⁷ <https://www.library.ucla.edu/about/administration-organization/strategic-plan-2016-19>

¹⁸ <https://www.anderson.ucla.edu/about/our-strategic-plan>

¹⁹ <https://medschool.ucla.edu/workfiles/Site-System/2018-Annual-Deans-Report-Final.pdf>

APPENDIX 6 :: DRAFT Research Data Position Paper

Version 1.2

Version history: version 1 was generated by Lisa M. Snyder in October 2016 and inspired by similar documents from other institutions, most notably the University of Edinburgh and the University of Oxford; version 1.1 was released following review and edits from Edson Smith; version 1.2 was released following review and edits from Todd Grappone and Jim Davis. The document was included as an appendix in the *Research Data Support Recommendations* submitted on May 5, 2017, to Vice Provost, Information Technology and Chief Academic Officer Jim Davis, Interim VCR Ann Karagozian, Chief Medical Officer for Clinical Research Arash Naeim, and University Librarian Ginny Steel.

Position Statement

UCLA is committed to preserving its important intellectual assets. As the tools and methods of scholarship change, so to must our response to curating and disseminating the important work of our esteemed faculty. The document seeks to acknowledge and address how the campus will identify, preserve, and disseminate our digital research output. While this document builds on existing system-wide and institutional rules and regulations, its goal is not to introduce new policy, but to provide a framework for a conversation about the expansion of our research infrastructure, and boundaries for curation, preservation, and archiving efforts. This position paper does not replace or negate any policies currently in place, but a likely follow up to this document is the development of a formal research data policy to replace the current interim guidelines.

Given that research data are the property of The Regents of the University of California with UCLA researchers assigned stewardship responsibilities, it behooves the institution to provide faculty with robust, efficient, and sustainable support mechanisms to ensure the longevity of their research data. The institutional motivation for this effort is three-fold: 1) to preserve the research of our campus community; 2) to meet funder mandates for preservation of and access to research data; and 3) to better support innovative research, scholarship, and teaching.

In this document, ‘research output,’ ‘research data,’ and ‘data’ are used interchangeably, and are broadly defined to include all digital products that are produced in the course of scholarly work. This includes a broad range of output ranging from, but not limited to, structured research data, generated digital assets, multimedia files, and new digital forms of knowledge production.

Recommended research data principles for UCLA:

1. In accordance with open access policies of the Academic Senate of the University of California and the UC Office of the President, UCLA is committed to ensuring that all “published research articles in the broadest sense of the term”²⁰ authored by any UC employee be made available to the public at no charge through open access repositories such as eScholarship.
2. Where possible, UCLA expects that this mandate be extended to include other forms of research outputs in accordance with the FAIR guiding principles that call for data to be findable,

²⁰ <http://osc.universityofcalifornia.edu/open-access-policy/policy-text/presidential/>

accessible, interoperable, and reusable.²¹ The characteristics of FAIR data are described by Wilkinson *et al* and include requirements for rich metadata and globally unique and persistent identifiers; retrieval with standardized communications protocols; use of “formal, accessible, shared, and broadly applicable language for knowledge representation”; and use of domain-relevant community standards.²²

3. Beyond open access, UCLA is also committed to:
 - a. Supporting researchers’ efforts to comply with funder mandates for data sharing, management, and preservation.
 - b. Assisting faculty in meeting disciplinary expectations for data use and reuse, data sharing, and data deposits into discipline-specific or subject-area repositories.
 - c. Developing new digital models for teaching and learning, and encouraging and supporting new forms of digital scholarship.
 - d. Treating research data as an institutional asset equivalent to more traditional intellectual property, and providing for its appropriate stewardship.
4. This commitment extends to developing and maintaining the human, physical, and technical infrastructure necessary to support exemplary data practices throughout the research lifecycle, recognizing that:
 - a. There is both need for and value in distributed, centralized, and layered approaches for infrastructure.
 - b. There is a pressing need for disciplinary and infrastructure expertise on campus.
 - c. Any infrastructure effort must include a robust staff and faculty training component, and long-term support mechanisms.
 - d. A critical step in this development is an update to our institutional IT plan so that it better reflects the complexity and reality of the current research environment and changes in available technology.
5. Critical to fulfillment of this commitment is the development of a data management, preservation, and curation unit that will:
 - a. Ensure that UCLA’s intellectual assets are appropriately curated and preserved.
 - b. Work with researchers to write data management plans, develop metadata and informational data for their research outputs, and coordinate data deposits to domain- and discipline-specific repositories.
 - c. Develop outreach efforts on data best practices for researchers across campus.

²¹ Wilkinson, M. D. *et al*. The FAIR Guiding Principles for scientific data management and stewardship. *Sci. Data* 3:160018 doi: 10.1038/sdata.2016.18 (2016).

²² Ibid.

6. The development and maintenance of infrastructure for storing and preserving UCLA's digital assets is also critical and should include, but is not limited to:
 - a. Enhanced research computing that facilitates streamlined researcher access to data, software, processing, and analytic and data visualization tools.
 - b. The development of tools, workflows, and processes to ensure the integration of data, research computing, and research generally into teaching and learning.
 - c. A research data repository that enables researchers to develop and access common data collections and aggregated resources.
 - d. An open access publication data repository for datasets and research outputs that support articles and publications.
 - e. An open access self-deposit repository for any research output related to scholarship and teaching at UCLA.
 - f. A deep archive for long-term storage and preservation of important institutional assets.
 - g. Repositories for unique data types (e.g., GIS data).²³
7. Given that the infrastructure to support digital research is now a fundamental requirement for scholars across disciplines and part of good research practice, UCLA is committed to providing data services and infrastructure to researchers at no cost or at a substantially subsidized rate.
8. Understanding that it is unreasonable – if not impossible – to preserve 100% of the research output of the campus, priority for curation and preservation should be given to the following:
 - a. Data/outputs related to externally funded research to ensure that it meets all funder and institutional mandates for access, preservation, and reproducibility.
 - b. Data that supports UCLA publications, including those that are deposited in other repositories (e.g., national or domain- and discipline-specific).
 - c. Materials that have a long-term value and high likelihood for impactful reuse.
 - d. Data/outputs that can serve UCLA faculty and students in the course of research, teaching, and learning.
 - e. Data that includes associated metadata and accompanying materials that ensures that it is discoverable, re-usable, and understandable, and that can be made available to the broader academic community through federated repositories and data aggregators.

²³ Technical build out should only follow a thorough analysis of UC offerings through the California Digital Library and preservation options available through The Digital Preservation Network. Interaction with external repositories and services is expected and should be integrated into any infrastructure build-out.

- f. Data/outputs that can augment domain- and discipline-specific repositories to advance knowledge different areas of specialization.
 - g. Data/outputs that can be aggregated to create collections of scholarly resources for future study, as well address emerging and future research trends.
 - h. Data/outputs that document exemplary or innovative research, whether digitally enabled or in more traditional forms.
 - i. Materials that document the breadth and innovation of UCLA research and faculty, and/or represent non-traditional and unique scholarship.
 - j. Data that would be prohibitively expensive to repurchase or recreate.
 - k. Data that are unique and will retain its value indefinitely.
 - l. Data that contributes to critical longitudinal studies.
 - m. Data that are in danger of being lost.
9. It is imperative to incentivize faculty to ‘do the right thing’ when it comes to research data. Critical to use of any institutional data services and support infrastructure is clearly articulating the benefits for faculty and researchers. Incentives include, but are not limited to:
- a. The availability of expertise and assistance for creating data management plans and meeting funding mandates for research data.
 - b. No cost – or well-defined low-cost models – for long-term access to and preservation of their research data.
 - c. Expanded access to their research which equates to greater opportunities for citation, and thus ‘higher impact’ for their work.
 - d. The ability to contribute to their community through FAIR data practices.
10. Guidelines and governance models for institutional research data need to be developed for all campus data resources. At minimum, the guidelines should address the collection and retention of research data outside of any contractual obligations, and consideration should be given to deposit agreements, terms of use, metadata, ethics, security, privacy, preservation, de-accession, forward migration, and takedown policies.²⁴

²⁴ Sample RDM policies: https://sites.google.com/a/sheffield.ac.uk/rdm_links/repo/policy

APPENDIX 7 :: DRAFT Campus Guidelines for the Prioritization of Research Infrastructure Upgrades

The standing Research Infrastructure Committee should discuss, edit, endorse, and distribute a final copy of this document developed by the task force.

Along with education and service, research is one of the three pillars of UCLA's core mission: "As one of the world's greatest research universities, we are committed to ensuring excellence across a wide range of disciplines, professions and arts while also encouraging investigation across disciplinary boundaries."²⁵ Implicit in that commitment is a responsibility to provide faculty with world-class research infrastructure defined broadly to include the physical (e.g., facilities and equipment), technical (e.g., networking, compute, and data storage), and human aspects of research support. Infrastructure demands, however, must be carefully considered by campus leadership and implemented within the boundaries of the available budget. Regardless of the funding source for research infrastructure development and maintenance, decisions about resource allocation are based on institutional priorities. Though non-exhaustive, some factors to be considered in the prioritization of campus research infrastructure enhancements and improvements are organized below into five broad categories:

1. Mission

- a. Campuswide strategic plans and priorities that advance UCLA's mission to create, disseminate, preserve, and apply knowledge for the betterment of our global society.
- b. High-impact and mission-oriented research and creative activities that fulfill UCLA's three institutional responsibilities: education, research, and service.
- c. Research and creative activities that reflect UCLA's focus on academic excellence, diversity, innovation, and a commitment to civic engagement.

2. Academic

- a. Productivity and innovation.
- b. Special initiatives (e.g., themed research or creative activities) identified as a priority to the campus or unit.
- c. Research and creative activities with a high likelihood of generating significant funding in the future.
- d. Interdisciplinary, multidisciplinary, inclusive, and/or collaborative research and creative activities.
- e. Research and creative activities that support the inclusion of students in faculty research and accommodate student research activities.
- f. Faculty and researchers at early stages and trajectories of their careers.

3. Financial / Philanthropic

- a. Donor support.

²⁵ <http://www.ucla.edu/about/mission-and-values>

- b. Research and creative activities supported by external funding that return facilities and administrative costs with allowances for disciplines that traditionally enjoy less grant support or have fewer extramural funding opportunities.

4. Operational / Efficiency

- a. Campuswide baseline research infrastructure requirements (e.g., core facilities, technology infrastructure).
- b. Strategic plans, priorities, and long-term programmatic needs identified at the school, divisional, or departmental levels.
- c. Shared spaces, storage, technology, equipment, and instrumentation.
- d. Flexible space and technology solutions that accommodate changes in unit size and utilization/enrollment patterns.

5. Regulatory

- a. Health, environmental, and life safety requirements and regulations.
- b. Evolving energy and sustainability best practices.

APPENDIX 8 :: Strategies to Increase Reimbursement of Facilities and Administration Costs from Extramurally Sponsored Contracts and Grants

The standing committee on research infrastructure should discuss, edit, endorse, and distribute a final copy of this document developed by the task force.

There are several strategies for maximizing the reimbursement of expenses incurred for development and maintenance of the campus research infrastructure. The Facilities and Administration (F&A) Rate Agreement negotiated with the federal government establishes the rates at which the university is allowed to recover F&A costs incurred in the performance of sponsored research. One strategy to increase the recovery of F&A costs is to maximize the negotiated rate by regularly proposing and negotiating new rates with the government. Another is to ensure the negotiated rate is recovered with each sponsored agreement (as permitted by the sponsoring agency). The reimbursements realized can be used in the most effective manner by implementing internal strategies – that are transparent and mission-aligned – for use of the funds. The following discusses these two strategies in detail.

1. Increasing the F&A Rate

UCLA should work to minimize the difference between the calculated F&A rate and the final negotiated rate to obtain the highest potential rate. For example, the rate calculated based on fiscal year 2014 was 62% versus the negotiated rate of 55%. Several factors contributed to the lessening of the negotiated rate. UCLA leadership should address these factors in a systematic manner to prevent recurrence in future cycles.

In addition, UCLA should submit their F&A rate proposal on a routine bases. In the past, UCLA relied on obtaining extensions to the rate and, while that reduced the work for the campus, it meant that UCLA did not have a rate increase for 14 years until the most recent cycle. When an opportunity for a rate increase exists, either due to a change in circumstances or due to resolving the factors noted above, UCLA should take advantage and file a new F&A rate proposal. Generally, UCLA should continue to submit an F&A rate proposal more often until the negotiated rate and the calculated rate are within three points of one another. Given negotiated F&A rates tend to increase over time as facility costs increase, failing to submit a proposal when an increase is warranted has a compounding effect over time.

F&A Rate Maximization

F&A rate maximization opportunities to be considered are primarily related to the Facilities (F) component of the rate. Facilities costs are identified at the building level, and then are allocated to the use of the building space in the rate calculation. Maximizing the rate in its simplest terms answers the question of “how can you maximize the costs to research space.” Several specific actions can be taken to accomplish this as follows:

- a) Meter research buildings and specific research floors of buildings in order to develop better mechanisms to track utility costs to the research buildings. Research space generally uses more

utility costs than similar-sized classrooms or offices. Specifically metering these spaces allows the institution to directly associate these costs with research.

- b) Develop approaches to space usage that ensure new research buildings and space are occupied by researchers with active research funding and not used for non-sponsored, external, and administrative purposes, or left unoccupied.
- c) Develop mechanisms and strategies to ensure funded researchers are the ones utilizing high-cost research space. Develop a standardized approach to measure research density across colleges, departments and PIs that may be used to reallocate high-cost research space. These space allocation strategies should manage space occupancy such as having laboratory space measured by external funding. The space management system should be updated annually, maintaining snapshots of historic data and capturing not just the space “owner,” but also the space occupants. An annual space survey process should be followed with departments identifying at a minimum the PI responsible for the space. In an effort to ensure quality data, utilizing the active employee database to provide searchable capability by employee name/ID reducing free text fields would be helpful.

F&A Rate Increases

F&A rate increases are often tied to new capital projects related to research facilities. These projects should be prepared and managed against an overall strategy and the potential impacts to the F&A rate contributions. Here are several ways that UCLA could maximize the F&A rate increases associated with new research facilities:

- a) Prepare a return on investment (ROI) analysis for all projects using their potential impact on F&A recovery. The ROI analysis should identify all available funding sources for the new and/or upgraded research buildings allowing UCLA to strategically align any external debt used since the government allows external interest to be claimed on the F&A rate proposal. Additionally, it should inform and create agreement on timing and occupancy in relationship to their impact on the F&A rate.
- b) Consider the timing of the construction and meeting the timeline of completion of occupancy as it will impact the F&A rate calculation and potential future negotiated rates. Nothing is more difficult for the university negotiator than to argue our future plans are solid and deserve acknowledgement in the rates then, in a future negotiation to state that the future plans were not realized and didn’t actually deserve acknowledgement in the rates. This makes it virtually impossible to successfully make the argument in the future.
- c) Consider the department, type of research, and how it would impact the space allocated on the F&A rate proposal. It is important to use this new, very expensive space for research, and not for administrative or instructional functions.
- d) Consider the impact vacant space will have on the F&A rate study as existing research is moved across campus to alternative space.

Enhancing operations and maintenance can improve our F&A rate. To ensure the university recovers operations and maintenance (O&M) costs benefiting contracts and grants, it is recommended that

Facilities be a centrally funded operation and develop service level agreements. Continuing to fund Facilities both centrally and in a distributed fashion results in an inconsistent approach that the government has used to decrease our F&A rate in negotiation. UCLA should also consider directly funding other O&M components such as EH&S. Finally, the campus should develop long-term strategies around funding O&M for research infrastructure. Done consistently and appropriately, the campus can spend the same money as now but have a much greater impact on our F&A rate.

2. Maximizing the effective F&A Rate

It is UC and UCLA policy to recover the full cost of research and other sponsored activities from extramural sponsors of research. UCLA should ensure our practices maximize the effective F&A rate collected from the government and other third parties. Ensuring all pay their fair share of our facilities and administrative costs provides UCLA with a strong base to meet the growing demands in both of these areas as our research grows in both volume and complexity. There are five key ways to maximize the effective F&A rate that UCLA collects:

- a) Currently, the F&A rate for clinical trials is 26%, which is at the lower end of clinical trial rates negotiated at peer institutions. Many similar institutions have clinical trial rates in the low 30's (e.g., UCSF – 33%, UCSD – 30%). During our next negotiation, a goal is to increase this rate to be closer to that of our peers.
- b) Some non-federal sponsors will not pay the full F&A rate negotiated with the government. For example, the American Heart Association and Gates Foundation have policies that limit recovery in their guidelines. In these cases, UCLA should attempt to negotiate to allow direct charging of additional expenditures that are not typically allowable by federal sponsors. This will enable UCLA to better cover the costs of these awards.

Exceptions to full recovery of F&A shall continue to be made in accordance with existing UC and UCLA policy.²⁶ Current policy allows for accepting reduced rates for non-federal, non-industry sponsored research based on sponsor policy. North campus, due to the preponderance of nonprofit funding sources that restrict or prohibit F&A, shall continue to benefit from the F&A exception process.

- c) Educate research community members about the rate calculation method and justification for using the federally negotiated rates, variations in the value and impact of F&A return across units, and to understand F&A as one tool within a comprehensive cost recovery and infrastructure funding strategy.
- d) We can also improve our effective collected rate by ensuring appropriate categorization of research expenses to avoid under-recovery of F&A costs.
- e) Finally, there is some confusion at UCLA regarding on campus versus off campus designations. A mutually agreed upon on- and off-campus building list should be developed with consistent

²⁶ UCLA follows the UC policy that governs indirect cost exceptions. (See <https://www.ucop.edu/research-policy-analysis-coordination/resources-tools/contract-and-grant-manual/chapter8/chapter-8-500.html>.)

treatment across the entire campus. Accurately applying the correct on/off-campus designation as it applies to the definitions set forth in the university's rate agreement will improve our effective F&A rate collected.

APPENDIX 9 :: DRAFT Research Space Allocation Guidelines

The standing Research Infrastructure Committee should discuss, edit, endorse, and distribute a final copy of this document developed by the task force.

1. For the purposes of this document, research space is defined as space other than faculty offices that is used at least in part for research purposes. “Research” as used here encompasses all creative activities undertaken at the graduate and professional level on campus including that taking place in studios and performance venues, for example.
2. As with all types of space on the UC campuses, research space belongs to the Regents and is a valuable resource. The chancellor ultimately is responsible for the allocation of research space to schools/colleges/units. The chancellor has re-delegated this authority on a day-to-day basis to the executive vice chancellor/provost. These guidelines are meant to serve as a companion to established UCLA policy regarding space in general (UCLA Policy 880).
3. Research space is allocated based on programmatic needs within the context of strategic planning at the departmental, academic unit and campus wide levels.
4. The EVC/P may delegate decision-making authority through the academic hierarchy. Decision-making authority may be delegated to chairs/directors for space that is assigned to their units to ensure that those with the most in-depth knowledge of the activities and needs of subsets of researchers determine appropriate allocations.
5. Schools/colleges/units shall develop metrics to assist in the evaluation of space utilization and periodically determine how the current allocation of research space meets their stated programmatic needs and priorities. Policies should be posted and made available to the UCLA community. The campus shall provide data in a manner that the various academic units and departments can use to manage space utilization.
6. Research space assignments are not permanent. Research space allocations must be dynamic to reflect the changing needs of the UCLA community and the changing nature of research as well as the strategic plans of the campus, schools, and departments. At the departmental level, research space utilization must be reviewed by departmental space committees on a yearly basis. Within academic units, research space utilization shall be evaluated according to each unit’s established metrics in the context of eight-year departmental reviews. Deans should review research space allocations to departments on at least a five year basis.
7. Research space that is vacant or deemed underutilized based on published metrics for the relevant academic unit should be reassigned or repurposed in accordance with strategic plans. This assessment shall occur regularly at all levels of the decision-making hierarchy, i.e., departments, divisions, schools, campus.

8. Consistent with the university's public mission, their own programmatic needs, and strategic plans, schools/colleges/units may choose to support research and creative activities that do not generate substantial indirect cost recovery. In such cases, mechanisms to fund deferred maintenance and upgrades shall be identified in collaboration between the school/college/unit and campus administration.
9. Optimal use of research space includes shared use of resources and facilities including multidisciplinary, collaborative and mixed-use space as well as core facilities. Newly constructed or renovated research space should be designed, where possible, to enable shared and flexible use for a variety of related research activities.
10. Research space allocations should balance programmatic needs with efficient use of existing facilities, where possible, to ensure that current facilities are fully utilized before pursuing major construction or renovations. However, due to the constraints of land on the campus proper, off-campus locations should be considered and developed. Research space renovations must follow school/college/unit approval processes to ensure that use meets the strategic needs of the unit.
11. Research space, equipment, and materials must adhere to all health and safety regulations and procedures. Research conducted both on-campus and off-campus facilities must support campus interests including strategic relationships. All research conducted in such facilities must adhere to university conflict of interest policies. Research space assignments must adhere to all university policies and procedures that prohibit discrimination. Occupants of space must adhere to all safety requirements.
12. Professor emeritus who wish to remain active in research should be provided adequate space to suit their legitimate needs. Highly active emeriti who are engaged at the level of regular faculty should be afforded the same access to appropriate space as regular faculty. In other cases, a more modest allocation of shared space may be adequate.

APPENDIX 10 :: Information on the Facilities Space-Planning Tool

The standing Research Infrastructure Committee should discuss, edit, endorse, and distribute a final copy of this document developed by the task force.

Brief Space History

The campus Space Inventory system was created in 1997 to comply with UCOP reporting requirements. Facilities Maintenance (FM) tried to use multiple existing programs but found that data corruption, difficulty in storing needed attributes and staffing requirements made this approach unfeasible. Thus, FM created a custom system that channeled the efforts of department and building coordinators as they reported their area's changes. This allowed a two-person staff to manage UCLA's 36 million square foot space inventory. (Many smaller campuses use several employees to achieve the same level of reporting.)

August 2019 Enhancements

In response to this task from the RITF and other requests/initiatives like it, FM recently enhanced the Space Inventory system to achieve the following Phase 1 goals:

1. Complete public interface replacement with a modern, responsive web programming environment.
2. Splitting of the editing logic into the client browser and creation of a separate database web service that is flexible and allows multiple platforms to consume and present space data.
3. Integration of a GIS-based, graphically oriented editing platform.

New Features:

1. Faster and more intuitive editing environment for users.
2. Responsive website that utilizes the available screen capacity and is more visually readable.
3. Loaned room visibility in "MySpace" and other parts of the system.
4. Welcome homepage that offers informational notes from Space Inventory to campus users.
5. Textual search with keyword and partial-word matching for locating buildings and property.
6. Interactive map search capabilities for building and property location.
7. Floorplan graphical auditing capabilities that enable FM staff to validate submitted measurements.
8. DGSOM integration of Principle Investigator (PI) assignment data sourced from UCPath.
9. Name search option for easy retrieval of PI information for assignment.

Future Goals

1. Phase 2 will be to re-write the staff administration interfaces and re-create all current reports with Cognos Reports (Crystal and Oracle report servers are at the end of their useful life).
 - a. Cognos includes capabilities that allow ad hoc reporting and personalized custom reports.
 - b. Cognos also allows FM to visualize summary data onto the campus interactive map.

2. Phase 3 will bring enhancements to the public website that adds new features, such as:
 - a. Dynamic attribute system (metadata) that can be attached at any level.
 - i. Examples: Chemical storage, HVAC attributes, rental/lease information, etc.
 - b. Departmental request workflow system for both approval and notification.
 - c. Public web services: Enabling departments to consume our web data services and potentially submit changes from their own systems.
 - d. Mobile optimizations
 - e. Space planning
 - f. Graphical map and floorplan reporting analytics

Making the Tool more Useful to Deans and Directors

Strategies to enable the integration of the new space-planning tool in ongoing research infrastructure discussions include:

1. Enhance the existing training (and refresher training) for department representatives.
2. Create specialized reports for administrators, deans, and directors
3. Create documentation that addresses the planning needs of campus leadership including, but not limited to, how to address research infrastructure needs in their units, formal documentation of research space in offer/retention letters, understanding how donor funds can be used for construction/upgrades, and health & safety considerations.
4. Socialize the updated Space Inventory to deans and directors, and offer one-hour training at their leisure.
5. Provide user-friendly ability for campus leadership to ask questions or submit help requests.