

Office of the President

TO MEMBERS OF THE FINANCE AND CAPITAL STRATEGIES COMMITTEE:

DISCUSSION ITEM

For Meeting of September 16, 2020

DATA HUB NEW ACADEMIC BUILDING, BERKELEY CAMPUS

EXECUTIVE SUMMARY

UC Berkeley proposes to construct a Data Hub New Academic Building (Data Hub) to be the future home for the new Division of Computing, Data Science and Society (CDSS). The project is proposed to be located at the previous Tolman Hall site at the northwest side of campus, and is programmed to be approximately 415,000 gross square feet (gsf) or 249,000 assignable square feet (asf). The Data Hub would be a critical component of Berkeley's teaching and research future, and the new CDSS is a cornerstone of Berkeley's strategic academic plan, providing innovative learning spaces as well as faculty growth and interdisciplinary ground-breaking research related to technological change, big data, ethical artificial intelligence, environmental sustainability, inequality, and health. This project is crucial to the operation of CDSS, as it would bring together the following disciplines in one facility to foster new fields and partnerships: Department of Electrical Engineering and Computer Sciences; Department of Statistics; Berkeley Institute for Data Science; School of Information; Data Science Education Program; Center for Computational Biology; and Data Science Commons. The Data Hub project aims to deepen existing faculty strengths in core data science disciplines and increase faculty in strategic focus areas to create new fields of discovery. The project would expand data science research and teaching for graduate students and learning and research opportunities for undergraduates in what is now Berkeley's fastest growing major, having grown almost 400 percent over the last four semesters.

The project is critical also because it is one in a sequence of seismic rehabilitation and replacement projects on campus to address seismic improvements. The project would house the Department of Statistics, currently occupying about 24,000 asf in Evans Hall, a ten-story structure with a Seismic Performance Rating (SPR) VI. The proposed Data Hub project would also house a large portion of the Department of Electrical Engineering and Computer Sciences that would come from Cory Hall, a large nine-story structure with a SPR V, as well as from Soda Hall, SPR V. The School of Information would move to the Data Hub from South Hall, a four-story structure with a SPR V (refer to Attachment 3).

The project would be funded through philanthropy. UC Berkeley plans to return to the Regents for approval of preliminary plans funding in November 2020. The campus anticipates seeking

Regents' approval for full budget, financing, and design following action pursuant to the California Environmental Quality Act in late 2021.

BACKGROUND

This project would provide a physical space to draw together key academic units whose intellectual agendas are tightly linked by data, computing, and artificial intelligence, and connected to a broad spectrum of participants and disciplines across the campus and beyond.

Consolidation

The Data Hub project would contain essential space for physical consolidation, locating departments and programs together, faculty growth, and student growth in the Department of Electrical Engineering and Computer Sciences, the Department of Statistics, the School of Information, the Berkeley Institute for Data Science, the Data Science Education Program, the Center for Computational Biology, and the Data Science Commons. Through the Data Hub project, Division of Computing, Data Science and Society (CDSS) would leverage the broad spectrum of disciplines across the campus to address issues related to the key focus areas in the Data Science Commons, such as climate and sustainability, public health, biomedicine, economics and business, responsible and ethical artificial intelligence, human welfare, humanities, arts and media, and fundamental sciences.

Future

This project is at the heart of an intellectual transformation that is reshaping and reconfiguring existing fields. The Data Hub draws together aspects of computing, data, and information that are propelling society forward, and from there reaches out to build an integrative community including other domains. It provides a home for Statistics, relocated from Evans Hall, and space for the School of Information, currently in South Hall. The project provides office and collaboration space for most Electrical Engineering and Computer Sciences (EECS) faculty and students, and laboratory space, improving on existing space allocations across several buildings to support this new integrative intellectual framework.

Collaboration Campus-wide

The Data Hub would be a center of intellectual community and an innovation hub for new research endeavors, potentially including space for new Artificial Intelligence (AI) institutes and machine learning to address climate change, for AI and biomedicine in partnership with UCSF, and for responsible AI. The Berkeley Institute for Data Science, now in Doe Library, would move in and be an incubator for campus-wide research, and the Data Science Commons would be a crossroads and portal for emerging academic programs. The Data Hub provides a home for Data Science student programs and related teaching, supplying classrooms and at least one large lecture hall, and associated learning spaces that draw in students from across campus. The building would be designed with flexible spaces, and be energy-efficient and operationally resilient.

PROJECT DRIVERS

The drivers for the proposed Data Hub include:

- **Addressing the campus's seismic improvements and providing surge space for future seismic remediation projects** – To facilitate the campus's seismic strategy, this program moves about 24,000 asf of the Department of Statistics out of Evans Hall¹ (Seismic Performance Rating IV) (a separate project recently approved by the Regents for preliminary plans funding), and allows for its demolition. By facilitating the move of EECS out of Soda Hall and Cory Hall, and consolidating their disparate space into well-designed spaces located together, the project helps free up Cory Hall for demolition and rebuilding. Optimally, this plan can minimize repeated moves by providing a first-mover opportunity to address those major departmental relocations.
- **Supporting the campus's Strategic Plan** – The proposed project is guided by UC Berkeley's Strategic Plan², with flexible spaces that accommodate current needs of the Strategic Plan, but are adaptable to future unknown conditions as pedagogies and programs change. Modern, flexible research space would facilitate collaborations to tackle the campus's Signature Initiatives, particularly around innovative solutions for society's great challenges including ethical AI, technical innovation, environmental sustainability, public health, and justice. The proposed project would be a hub for collaboration to accelerate discovery, inclusion, and engagement towards the Strategic Plan theme of innovation in teaching and research, and the Plan's goal of improving the academic experience for students, faculty, and staff.
- **Providing a home for the newly formed Division of CDSS** – The proposed project would establish an iconic and transformational home for the premier center for computing, data science, and their intersections with society that fosters synergies across academic disciplines and user groups, by creating a hub for interdisciplinary cooperation, with facilities that are flexible and adaptable to meet future needs.
- **Addressing priority program needs for enrollment levels** – Each year for Data Science, EECS, and Statistics, 15,000 students enroll in courses, 4,500 are declared majors, and 250 students are involved in academic enrichment programs. In addition, there are over 1,000 academic student employees involved in these disciplines. The new data science major is the fastest-growing major on campus.
- **Job Creation** – The project would create approximately 550 full-time-equivalent positions over the duration of its design and construction activity.

¹ Link to July 2020 Regents Item ([Academic Seismic Replacement \(Evans Hall Seismic Replacement\)](#))

² Link to plan: <https://strategicplan.berkeley.edu/publications/>

PROJECT DESCRIPTION

The proposed Data Hub project would be programmed for approximately 415,000 gsf (249,030 asf). It would include dry and damp research laboratories, offices, classrooms, event space, colloquia, study spaces, lecture halls, exhibit/data art spaces, a café, and collaboration space. The preliminary Data Hub programming model, which would be refined during programming and design, includes the following space types, which are further described in Attachment 4:

Table 1. Preliminary Project Space Program by Space Type

Space Type	ASF	% of ASF
Office	113,300	45 %
Meeting Rooms	36,880	15 %
Research Labs (damp labs)	24,280	10 %
Classroom and Teaching Labs (<i>Departmental and General Assignment</i>)	25,000	10 %
Study Space	14,660	6 %
General Use Facilities (café, lounge, assembly)	25,710	10 %
Building Support Space	9,200	4 %
TOTAL	249,030	100%

The building population is modeled to allow 20 percent growth. The programming model currently has 1,850 total occupants, which includes approximately 200 faculty, 230 postdoctoral scholars, 1,060 graduate students, 4,500 declared majors, 250 students involved in academic enrichment programs, and 360 staff. These students would visit the building to attend lectures, participate in seminars, go to office hours, and access student services, club meetings, and study areas. The space would be flexible and adaptable to enable response to events such as the coronavirus pandemic, and other global and local conditions such as wildfires that disrupt education. By designing for flexibility, the education and research operations can maintain continuity.

Project Program

The proposed project would provide space to accommodate the academic, research, and teaching programs for the new signature initiative in data science, comprising the disciplines listed in Table 2. The programs would relocate from their current buildings, and those spaces would be either seismically upgraded and reassigned, or demolished, through other subsequent capital projects.

Table 2. Disciplines and Current Locations

Group	Current Home
Department of Electrical Engineering and Computer Sciences	Soda Hall, Cory Hall, Sutardja Dai Hall
Berkeley Artificial Intelligence Research	Berkeley Way West (8 th Floor)
Department of Statistics	Evans Hall
Berkeley Institute for Data Science	Doe Library
School of Information	South Hall
Data Science Education Program	Evans Hall, Hearst Field Annex
Center for Computational Biology	Stanley Hall
Data Science Commons	Various Buildings

This project would unlock a sequence of seismic remediation projects, including Evans Hall (Department of Statistics and Data Science Education Program), South Hall (School of Information), Cory Hall (EECS), and Soda Hall (EECS), and significantly reduce the need for surge space. The moves would be sequenced to minimize the following: multiple moves; disruption of academic, research and teaching activities; and moving costs that can be significant for laboratory equipment.

Design

The **Guiding Principles** for the Data Hub design adopted by the project Steering Committee are:

- Welcoming to the whole UC Berkeley community
- A hub for computing and data science research, teaching, and learning on campus
- A home for all departments housed in the building
- An iconic gateway for the northwest side of campus
- A venue for academic discourse
- Equipped to host a diversity of research activities
- Have spaces that foster interdisciplinary research and serendipitous interactions
- Flexible, adaptable, and technologically future-proofed to accommodate unknown future focuses of computing and data science
- A model for resource sustainability, energy efficiency, and operational resilience
- Inspiring to external and industry partners to actively engage with CDSS

Project Site

The Data Hub would be located at the former Tolman Hall site on the northwest edge of the Campus Park, at Hearst Avenue (refer to Attachment 1, Project Location Map and Attachment 2, Project Location Aerial View). The site is approximately 141,000 square feet and slopes with the high point at the east and a grade differential from east to west of 35 feet. The location is bounded by Hearst Avenue to the north; and campus academic buildings to the west and south; and University House to the east. This prominent location serves as one of the major gateways to the north side of campus.

The Data Hub project is currently planned to consist of two separate or connected structures that are integrated with outdoor space and a gateway to the north-west side of campus (refer to Attachment 5, Project Conceptual Views for potential options).

Sustainable Practices

Consistent with campus sustainability objectives, the project would strive to meet Leadership in Energy and Environmental Design (LEED™) Gold, and at a minimum would be certified at LEED™ Silver. The project would comply with the University of California Sustainable Practices Policy. The building would be designed to meet UC Energy Use Intensity benchmarks and performance targets, including offering a path towards carbon neutral operations, in keeping with the ambitious climate action goals of the campus and the University. In addition, the project is planning to have operable windows, rainwater harvesting, photovoltaic panels, and electric battery storage capacity for improved operational resiliency.

Funding Plan

The project will be funded through philanthropy, which has begun with an anonymous \$252 million donation, the single largest gift in UC Berkeley's history.

Project Delivery

The campus currently anticipates that, subsequent to project approval, the project would be delivered utilizing the Construction Manager at Risk / Guaranteed Maximum Price Agreement.

Anticipated Project Schedule and Future Actions

The campus expects to seek Regents' approval of preliminary planning plans funding at their November 2020 meeting and Regents' approval of full budget, financing, and design following action pursuant to the California Environmental Quality Act in late 2021.

Key to Acronyms:

AI	Artificial Intelligence
ASF	Assignable-Square-Feet
CDSS	Computing, Data Science and Society
EECS	Electrical Engineering and Computer Sciences
GSF	Gross-Square-Feet
LEED™	Leadership in Energy and Environmental Design
SPR	Seismic Performance Rating

ATTACHMENTS:

Attachment 1:	Project Location Map
Attachment 2:	Project Location Aerial View
Attachment 3	Facilities Conditions
Attachment 4	Types of Spaces

PROJECT LOCATION MAP

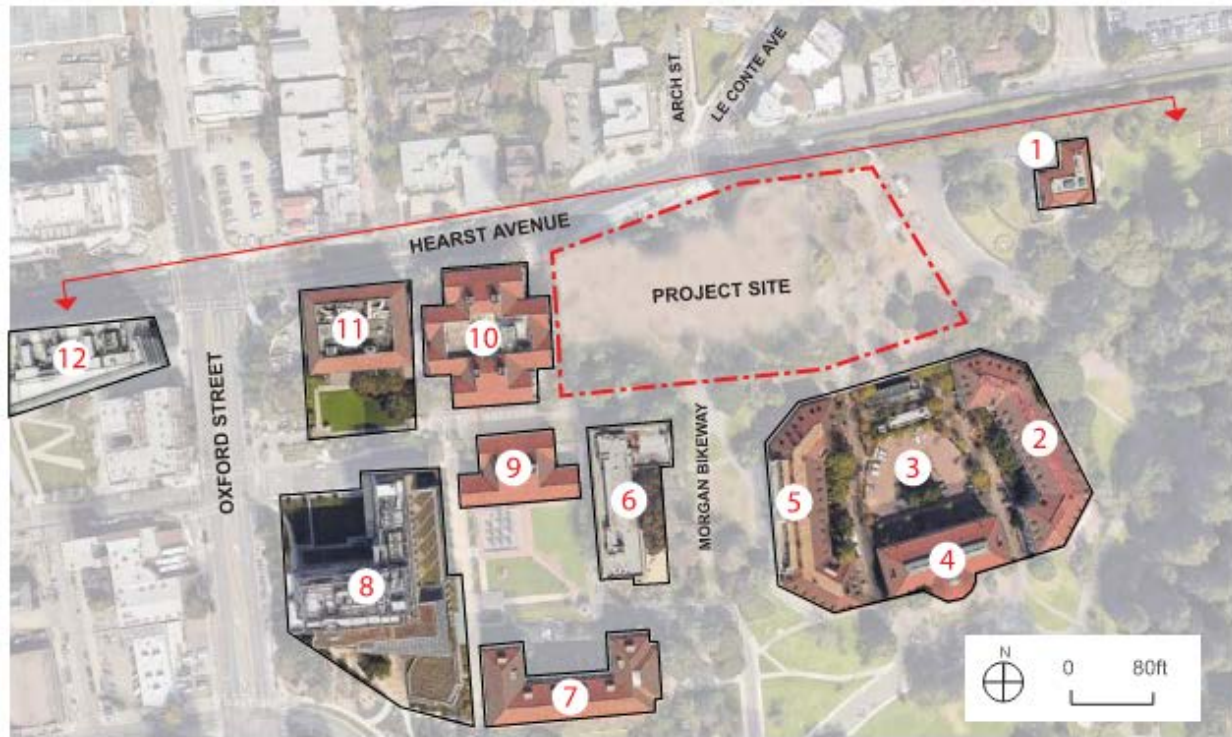


Figure 3: Vicinity Map



Figure 4: Hearst Avenue - Partial Street Elevation

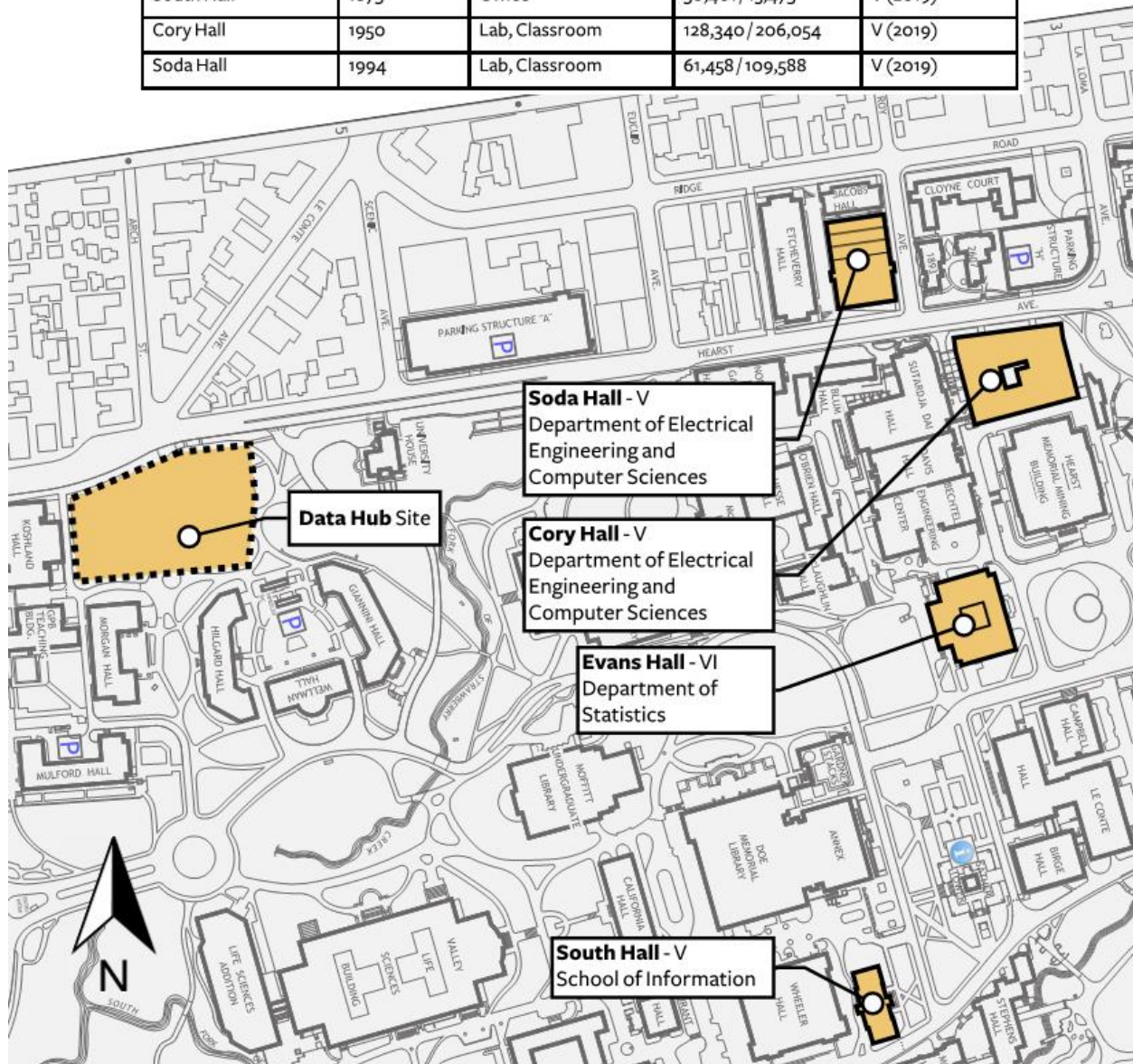
- | | | |
|----------------------|-----------------------|---------------------------------|
| 1. University House | 5. Hilgard Hall | 9. Genetics & Plant Biology |
| 2. Giannini Hall | 6. Morgan Hall | 10. Koshland Hall |
| 3. Wellman Courtyard | 7. Mulford Hall | 11. Barker Hall |
| 4. Wellman Hall | 8. Li Ka Shing Center | 12. Energy Biosciences Building |

PROJECT LOCATION AERIAL VIEW



ATTACHMENT 3

Building	Year Built	Primary Use	GSF / ASF	SPR (Year Assessed)
Evans Hall	1971	Office, Classroom	284,362 / 155,944	VI (2019)
South Hall	1873	Office	30,401 / 15,473	V (2019)
Cory Hall	1950	Lab, Classroom	128,340 / 206,054	V (2019)
Soda Hall	1994	Lab, Classroom	61,458 / 109,588	V (2019)



TYPES OF SPACE

It is anticipated that the Data Hub would include the following types of spaces:

- Spaces that facilitate teaching and learning through group discussions, discourse, and the fluid exchange of ideas.
- Classrooms with flexible furniture and technology for in-person and remote learning to increase flexibility and engagement.
- A flexible auditorium (400 seats) to accommodate group work and large classes.
- Group study rooms, graduate student instructor break out rooms, tutorial rooms, a testing facility, an open computer laboratory, an open study space, quiet rooms, and break out carrels.
- Workspaces that balance open areas and quiet zones, and research spaces that balance visibility and privacy of laboratories.
- Assigned offices for heads down work, and a mix of enclosed meeting spaces and open meeting areas to foster collaboration.
- Spaces that facilitate the highly collaborative work of faculty and graduate students in the development of fledgling CDSS pursuits.
- Shared resources that foster discovery such as human interaction, visualization, and robotics laboratories.
- Shared spaces for interdisciplinary collaborations and dedicated spaces for specific research groups.
- Open meeting spaces, project-based meeting rooms, and conference rooms of various sizes, as well as whiteboards and writable wall space.
- A cafe, adjacent corridor lounge spaces, an outdoor event space, and places to showcase data manifestations in order to promote discovery and discourse.
- Safe and secure interior and exterior spaces for all building occupants.