

## CHAPTER 2 ACADEMIC UNITS

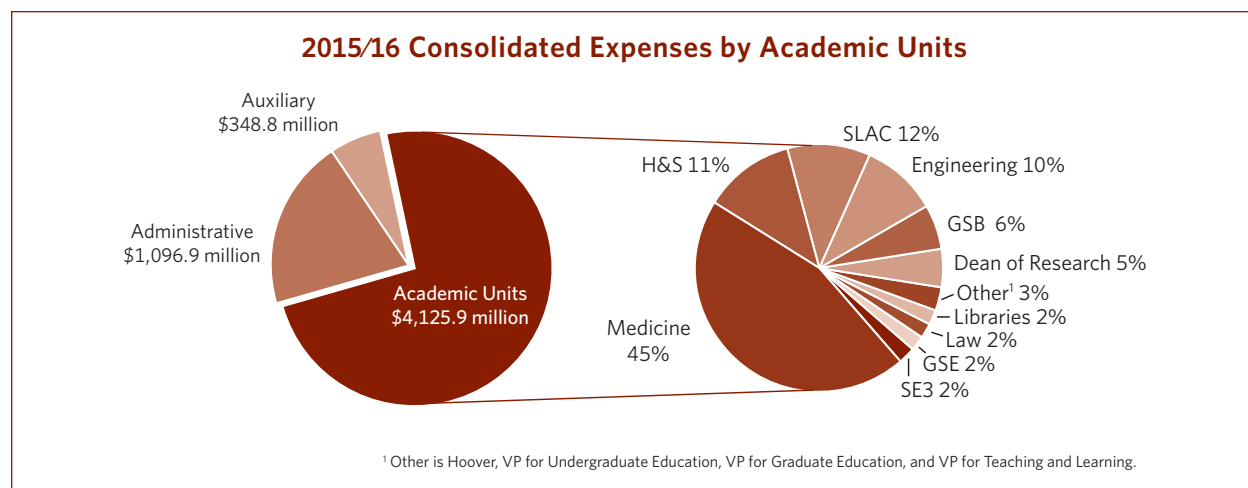
### OVERVIEW OF ACADEMIC UNITS

This chapter summarizes programmatic and financial activity for each academic unit. The revenue expectation in 2015/16 for these academic units comprises nearly 75% of the university total revenue. Overall, the academic units project an operating surplus of \$186.4 million. After transfers to facilities and endowment, the unit budgets overall will achieve a \$137.4 million surplus.

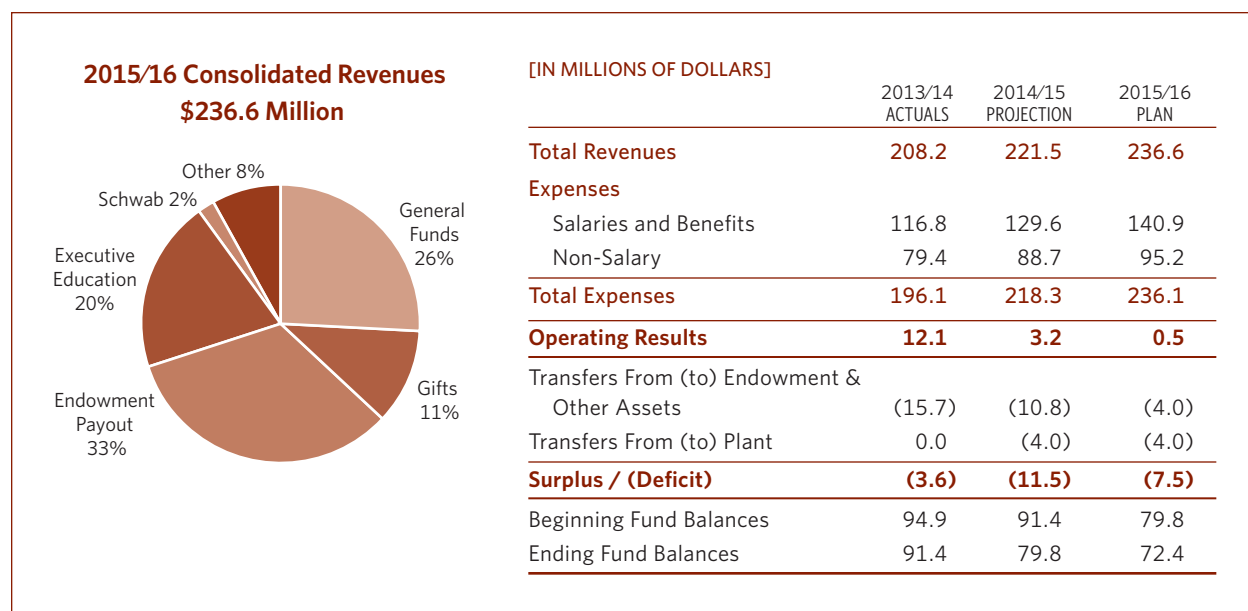
### CONSOLIDATED BUDGET FOR OPERATIONS, 2015/16: ACADEMIC UNITS

[IN MILLIONS OF DOLLARS]

	TOTAL REVENUES AND TRANSFERS	TOTAL EXPENSES	RESULT OF CURRENT OPERATIONS	TRANSFERS (TO)/FROM ASSETS	CHANGE IN EXPENDABLE FUND BALANCE
<b>Academic Units:</b>					
Graduate School of Business	236.6	236.1	0.5	(8.0)	(7.5)
School of Earth, Energy & Environmental Sciences	70.2	66.4	3.8	(1.5)	2.3
Graduate School of Education	68.0	68.2	(0.3)	(0.6)	(0.9)
School of Engineering	409.7	395.7	14.0	(5.9)	8.1
School of Humanities and Sciences	487.0	473.3	13.8	2.2	16.0
School of Law	88.2	81.8	6.3	(6.0)	0.3
School of Medicine	2,004.9	1,854.7	150.2	(24.9)	125.3
Vice Provost and Dean of Research	215.8	217.1	(1.3)	(2.7)	(4.0)
Vice Provost for Undergraduate Education	48.6	49.6	(1.0)	0.0	(1.0)
Vice Provost for Graduate Education	8.0	10.0	(2.0)	(0.5)	(2.5)
Vice Provost for Teaching and Learning	16.6	16.6	0.0	0.0	0.0
Hoover Institution	60.7	61.1	(0.4)	(1.1)	(1.5)
Stanford University Libraries	84.3	84.5	(0.2)	0.0	(0.2)
SLAC	513.7	510.8	2.9	0.0	2.9
<b>Total Academic Units</b>	<b>4,312.2</b>	<b>4,125.9</b>	<b>186.4</b>	<b>(48.9)</b>	<b>137.4</b>



## GRADUATE SCHOOL OF BUSINESS



### PROGRAMMATIC DIRECTIONS

The Graduate School of Business (GSB) is beginning the second five years of the GSB2020 strategy, which has a two-pronged goal for 2020: to strengthen the GSB's core and to increase its reach and impact. Initiatives in support of strengthening the core include adding new electives, adding joint degrees, establishing global fellowships, expanding and integrating the Master's of Science for Experienced Managers (MSx) program, and improving data resources for research. Initiatives in support of increasing reach and impact include reinventing the classroom through distance and online education and expanding global reach.

#### Strengthening the Core

Change and innovation at the GSB include faculty growth, new electives, and new joint degree opportunities. There will be at least nine new faculty hires over the next three to four years, across all of the MBA academic areas, who are world-renowned business experts in emerging subdisciplines. The GSB has also added two-week compressed courses to build deep knowledge in specific business topics and has added new electives to respond to changes in the business environment and students' interests. On average, 28% of all electives are new each year. In addition, the GSB now has eight different joint and dual degree opportunities, including the latest additions, MS in Electrical Engineering/MBA and MS in Computer Science/MBA.

The GSB Stanford Africa MBA Fellowship program, intended to encourage African MBA candidates to return to their originating countries after graduation, admitted two students in the class of 2015 and eight in the class of 2016. The GSB's success in recruiting highly qualified candidates has resulted in part from making the application process more accessible by waiving application fees and providing financial aid to pay for the GMAT.

The MSx program will have 96 students in 2015/16, compared with 57 in 2009/10. Exciting changes have improved integration and synergy with the MBA program. For example, MSx students take electives and may participate in the Global Study Trips and Social Innovation Study Trips along with the MBA students. These changes, along with the addition of dedicated resources at the GSB Career Management Center, have strengthened the MSx program for years to come.

The GSB has also focused on improving data resources for faculty and PhD research. In 2014/15 it reorganized its research centers into the Centers and Initiatives for Research, Curriculum & Learning Experiences (CIRCLE). CIRCLE will help encourage faculty research, curriculum development, and interaction among academic disciplines, and will provide access to dedicated staff.

## Increasing Reach and Impact

The unique international Ignite certificate program helps innovators around the world without graduate-level business training to formulate, develop, and commercialize their business ideas. After operating successfully on campus for many years, the program was launched in Bangalore, India, and has since run in Europe, China, and Latin America. Continued global expansion is planned in 2015/16, with locations including Bangalore, São Paulo, Santiago, Beijing, and London. The China Ignite program, which ran in the fall of 2014/15 at the Stanford Center at Peking University in Beijing, used the GSB's new highly immersive classroom, nicknamed the "Boardroom". The Boardroom creates the feel of an in-person teaching experience, even though the professor is projected from the matching Boardroom at the Knight Management Center. The GSB will continue to leverage its new distance-learning facilities in future programs in foreign countries. The Stanford/China Boardroom has also been useful for international events hosted by other departments and schools around the university.

In 2015/16 SEED will begin its third year operating in Ghana, delivering its Transformation Program to businesses in the West African subregion. The program challenges those businesses to assess their visions, redefine their strategies, and make ambitious changes towards exponential growth. It targets companies in sectors where growth can improve lives. Some examples of curriculum led by Stanford faculty and industry experts include accounting, marketing, operations, teamwork, leadership, and product design. SEED is positioning itself to provide the Transformation Program in other developing countries that can most benefit from its mission. Distance learning and online modules will facilitate this growth.

As part of SEED and in collaboration with Stanford's Freeman Spogli Institute, the Global Development and Poverty Initiative has made \$10 million in grants available to Stanford faculty across the university who plan to take a collaborative, interdisciplinary approach to combating poverty. The grants will also support teaching and efforts to apply research findings to on-the-ground training and practical problems affecting global poverty. The initiative's final awards will be announced during 2015/16.

Executive Education launched the LEAD (Learn, Engage, Accelerate, Disrupt) Certificate with the Corporate Innovation program in late spring 2015. The curriculum will be academically rigorous, with three foundation courses

and five individually selected innovation-focused electives. Cohort-level engagements outside of the courses are planned to include communications workshops, virtual lectures or panels with Stanford and Silicon Valley thought leaders, and opportunities to integrate learning with the students' work environment. The second program is planned for the fall of 2015.

## CONSOLIDATED BUDGET OVERVIEW

The GSB is projecting a \$500,000 net surplus from operations in 2015/16. Transfers of \$4.0 million for planned capital improvements to Schwab Housing and investment of \$4.0 million of unrestricted funds to endowment principal result in a net funds decrease of \$7.5 million.

Revenues and transfers for 2015/16 are projected to increase by \$15.1 million, or 6.8%, driven by increases in the tuition rate, student enrollment in all programs, endowment payout, and Executive Education/Global Innovations Program revenues. Endowment payout and investment income are projected to increase by 6.1% due to growth from new gifts and investment of designated funds.

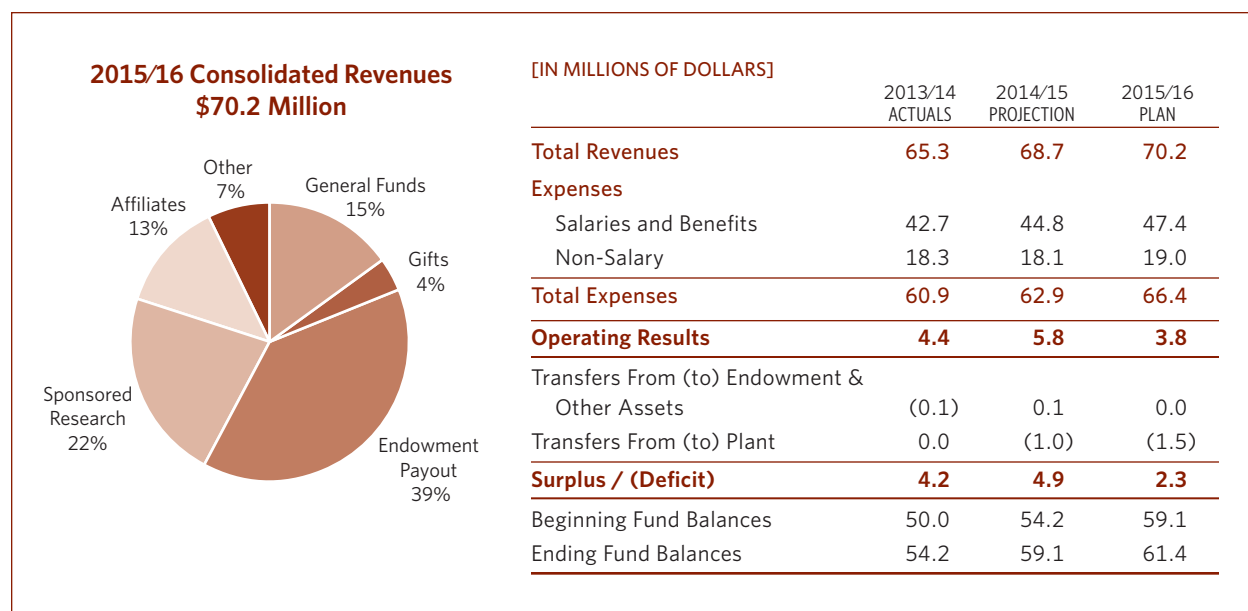
Executive Education revenues are projected to increase in 2015/16 due to the new online certificate programs, as well as growth in custom programs and open enrollment. Expenses grow incrementally with revenues, primarily for additional faculty and staff, in addition to other program-related materials and services.

GSB expenses are projected to increase by 8.2% in 2015/16. Compensation is projected to increase by 8.7% through salary increases and growth in the number of faculty and staff. Non-compensation expenses are planned to grow by 7.4% to support the initiatives discussed above. Financial aid is planned to grow by 10.9% to support higher total cost of attendance and growth in the numbers of PhD and MBA students.

## CAPITAL PLAN

The 200-bed residence, Highland Hall, will be connected to the existing 280-bed Schwab Residential Center and will enable the GSB to accommodate all first-year MBA students. The estimated cost of the project is \$75.0 million. It is currently under construction and is expected to open for the 2016/17 academic year. Concurrently, \$10.0 million in renovations will be made to the Schwab Residential Center over the next two years.

# SCHOOL OF EARTH, ENERGY & ENVIRONMENTAL SCIENCES



## PROGRAMMATIC DIRECTIONS

Newly renamed to reflect its breadth of research and teaching, the School of Earth, Energy & Environmental Sciences (SE3) is poised to increase its impact on global problem solving by building strength in four interrelated areas that are among the most important to human well-being:

- **Securing the energy future:** providing critical knowledge and leadership for the transition to a low-carbon energy future, with a near-term focus on resource and environmental optimization in the use of natural gas, oil, and geothermal resources.
- **Climate solutions:** fostering advanced work at the intersection of climate and society to understand climate change impacts and reduce unintended consequences of society's responses to climate change.
- **Reducing disaster risks:** expanding and integrating cross-disciplinary expertise across the breadth of natural hazards in order to understand, predict, and reduce the risk to vulnerable populations.
- **Food and water security:** leading research and teaching at the intersection of agriculture, water, and climate change to determine how we can manage food and water resources for a growing population in the context of climate change-related uncertainties.

In addition to these research areas, SE3 has prioritized growth and innovation in its educational programs, with particular emphasis on experiential, on-the-ground learning. The school is building the following programs:

- **A new educational curriculum, Transformative Change for Sustainability and Resilience.** This will supplement current undergraduate and graduate programs and serve as the basis for professional education and, potentially, new graduate degrees. The curriculum will prepare leaders to radically accelerate the transition to a more resilient and sustainable society.
- **Executive education** in earth, energy, and environmental sciences. Partnering with the Vice Provost for Teaching and Learning, SE3 will develop online educational opportunities for working professionals, with an initial focus on energy resources and the new sustainability and resilience curriculum.
- **Broader outreach to Stanford undergraduates.** By designing a new set of "blockbuster" introductory courses taught by its best faculty, expanding participatory and field-based learning, and exploring a variety of uses of online learning to enhance pedagogy, the school hopes to expand the number of Stanford undergraduates who understand what it means to be a citizen of planet Earth.

- **New experiential and field learning opportunities.** In addition to traditional field courses, the school offers several new field programs, such as the quarter-long Wrigley Field Program in Hawaii, that represent new approaches to engage students in focused education and deep collaboration and learning with local stakeholders. With the O'Donohue Family Stanford Educational Farm in its first year, and other research/education activities being piloted, the school expects to offer more of these opportunities in the future.

To increase its impact in both research and education, SE3 plans to add 10-15 faculty over the next decade in areas such as risk assessment, spatial analysis and planning, and cryospheric science. But the most critical factor in determining the school's future is its ability to secure a new research and teaching facility. All of its other priorities depend almost entirely on its ability to create a new Center for Earth, Energy & Environmental Sciences—an anchor in a cohesive campus that can support the school's vision and enhance its capacity for transformative learning and research.

## CONSOLIDATED BUDGET OVERVIEW

SE3 projects a positive 2015/16 consolidated budget, with total revenues and transfers exceeding expenses by \$2.3 million. Revenues are anticipated to reach \$70.2 million, and expenses are projected to reach \$66.4 million. A \$1.5 million transfer to plant is also planned for remodeling of the Green Earth Sciences Building to create much-needed office space.

Total revenues are expected to grow by \$1.5 million, or 2.2%, over 2014/15. This is primarily driven by the increase in restricted revenues, which will rise 4.3% to \$52.9 million. A steady annual growth in endowment payout, coupled with a modest payout generated by new endowment, will contribute additional endowment income. Additional increase is anticipated in fee incomes from Industrial Affiliates Programs due to membership growth in the two recently launched programs, the Stanford Center for Induced and Triggered Seismicity and the Natural Gas Initiative.

Total expenses are expected to grow by \$3.5 million, or 5.6%, over 2014/15. The school continues to invest heavily in new faculty who bring knowledge critical to expanding the school's impact in global problem solving. The ef-

fort leads to additional expenditures in compensation for faculty, researchers, and graduate students, as well as in non-salary expenses for scientific infrastructure to support new research. Staff growth is also anticipated as several schoolwide programs move into full swing. The newly completed O'Donohue Family Stanford Educational Farm and the Natural Gas Initiative are two of the notable programs.

The projected \$2.3 million surplus predominantly comprises designated and expendable funds earmarked for various initiatives and faculty start-up needs. No material addition to school-controlled fund balances is expected.

## CAPITAL PLAN

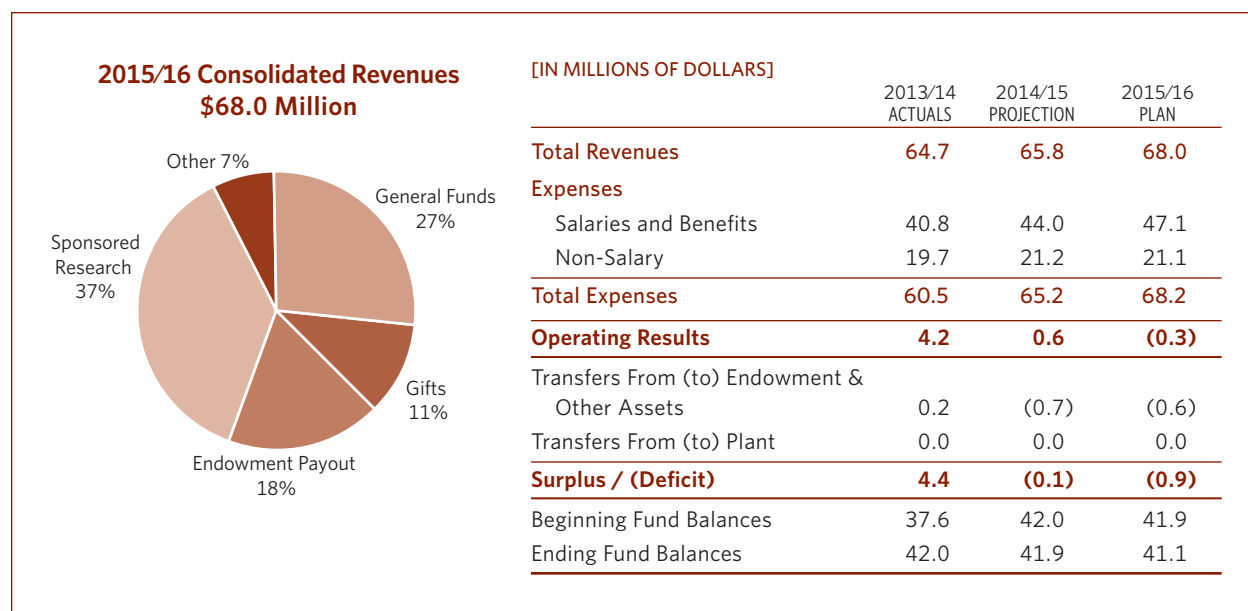
SE3 has an ambitious capital plan for 2015/16. Critical elements include the following:

**Earth, Energy & Environmental Sciences Building:** The school has received approval to move ahead with conceptual design and program planning for a new 115,000-gross-square-foot building. Following its completion, the school will vacate the Mitchell Earth Sciences Building. The benchmarked cost for the new building is approximately \$126 million. Of this, \$40 million is planned to come from academic debt, the balance from school resources and fundraising. The target project completion date is 2019.

**Green Industry Courtyard Renovation:** Significant growth in the school's faculty, student, and postdoc population over the past decade has resulted in limited space to accommodate additional growth. With a new building being at least five years out, the school received approval to enclose an underutilized interior courtyard in the Green Earth Sciences Building for student and postdoc offices and meeting space. The estimated cost is \$2.3 million, with funding coming from the school and the university. The estimated completion date is February 2016.

**Stanford Educational Farm—Phase II:** In response to enthusiastic student demand and a burgeoning program in sustainability, the school's educational farm will enter its second phase of development. This phase will include a barn, outdoor kitchen, and demonstration garden. The barn is planned to be approximately 1,600 gross square feet. The overall project cost is estimated at \$2.8 million; the majority of funding will come from fundraising.

## GRADUATE SCHOOL OF EDUCATION



### PROGRAMMATIC DIRECTIONS

The Graduate School of Education (GSE) has been engaged in strategic planning to expand its role as a leader in scholarship, in the training of teachers and education leaders, and in the development of impact-oriented solutions to education problems. In particular, GSE faculty have spent the past half year considering the school's role with regard to three key elements of the educational system: how and where people learn, the profession of teaching, and decision-making by education leaders. Over the coming year the school will develop strategic plans for deepening its work and impact in these three areas.

Several important initiatives are already under way: expanding the GSE's impact in teaching and learning, developing leaders, and strengthening the foundation.

#### Expanding Impact in the Classroom

One of the greatest strengths of the GSE is the dynamic integration of rigorous scholarship with real-world educational practice. Not only does faculty research inform and transform school-based practice, but the feedback loop from practice in turn informs the research being conducted at the GSE.

To support the link between research and practice, the GSE has established over 100 partnerships with school districts across the nation. Recently, the GSE committed to raising \$1.0 million a year for five years for initiatives within the San Francisco Unified School District that will enable teachers and administrators to use research more effectively to meet the needs of district students.

One example of GSE research impacting classroom learning is the Reading Like a Historian project. Its aim is to help students engage in critical analysis in the classroom through use of primary documents. The curriculum has been downloaded over 1.5 million times and is being used widely in many school districts.

#### Developing Leaders in Education

An essential element of the GSE's vision involves creating a continuum of training and professional development programs that spans the spectrum from preservice teachers through superintendents. These programs provide opportunities for teachers, principals, and superintendents to engage with Stanford faculty and develop a common set of tools and resources to lead change.

For preservice teacher training, the GSE has committed to making the Stanford Teacher Education Program (STEP)

tuition free for five students in 2015/16. It is dedicated to growing this number in the future.

The Hollyhock Fellowship for Teachers invites over 100 early-career teachers from high-poverty high schools around the country to participate in on-campus summer sessions and a year-round online coaching program. In addition, the rollout of the Common Core standards has created a demand for focused professional development. Faculty at the GSE have developed online courses that have reached tens of thousands of teachers in California and around the globe, and they continue to work on new courses and platforms that will deliver timely and useful information.

The GSE's Stanford Educational Leadership Initiative (SELI) offers multidimensional professional development opportunities for leaders in K-12, higher education, and educational policy. SELI has partnered with the Graduate School of Business to launch the first Stanford Executive Program for Education Leaders in 2015/16. This program will help superintendents develop leadership and problem-solving management skills. SELI also offers the Principal Fellows Program, focused on building principals' capacity for skillful and strategic leadership.

Internationally, iSTEP (the International Stanford Teacher Education Program) develops curriculum and leadership skills rooted in Stanford research for teachers and education leaders across the globe.

### **Strengthening the Foundation**

Attainment of the GSE's strategic vision necessitates a robust school community that embraces diversity, collaboration, and focused leadership.

The GSE is committed to promoting and supporting school diversity, broadly defined, and has launched a yearlong examination of the current practices and climate at the school. The GSE Diversity Committee, which includes faculty, students, and staff, has developed strategies for ensuring inclusive communities at the school.

The GSE recently completed the scoping phase for a new building, and the feasibility and programming phases will begin in 2015/16. Examination of its use of space and policies that guide that use has given the school a deeper understanding of its needs. The continued toll on the community of being spread across six buildings is felt widely, though efforts to promote collaboration and relationship building continue as a primary focus of the dean's office.

This important strategic work coincides with a significant transition in school leadership. In 2015/16 the GSE will welcome two new faculty associate deans overseeing student and faculty affairs, and anticipates the announcement of a new dean. A transition plan is in place, and throughout these shifts in leadership the school will remain committed to its long-term goals, as well as create new plans to advance its role and impact.

### **CONSOLIDATED BUDGET OVERVIEW**

For 2015/16, the GSE projects a modest deficit of \$871,000 on a budget of \$68 million. The school anticipates a transfer of \$1.1 million from endowment income to student loan funds in support of master's students enrolled in the STEP, as well as an offsetting \$500,000 transfer in from pending funds. The deficit reflects a one-time planned use of expendable gifts and accumulated endowed income funds in support of two GSE research centers and the partnership with the San Francisco Unified School District.

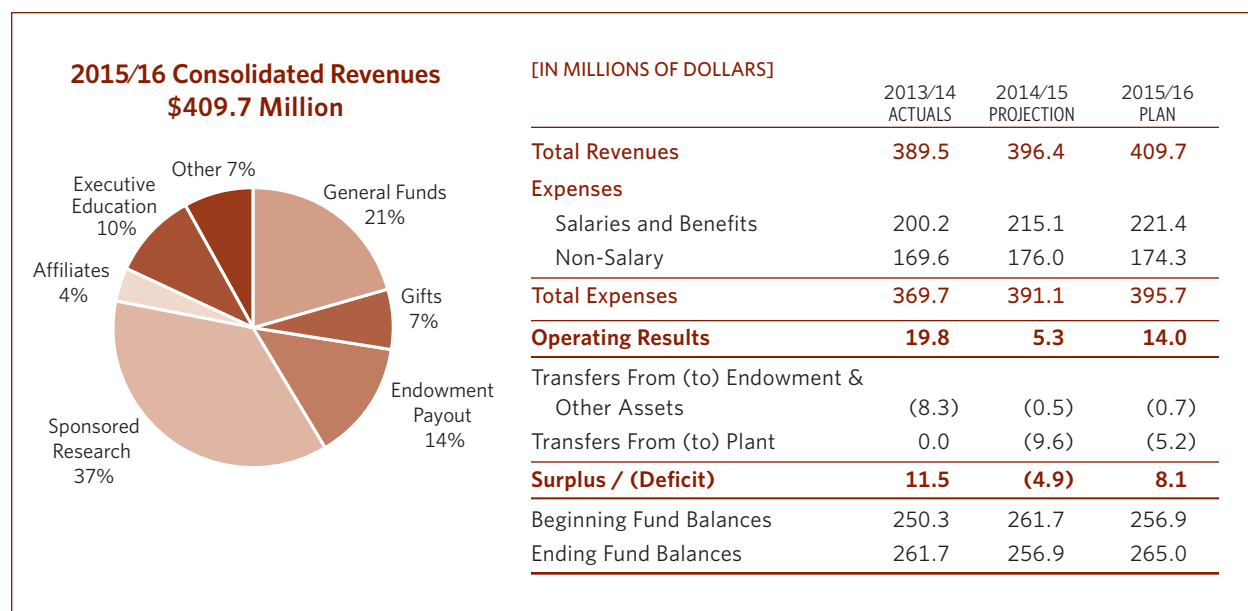
The GSE has enjoyed tremendous growth in sponsored research volume over the past five years; both federal and non-federal research volumes have grown an average of 12% annually since 2008/09. Both are projected to grow nearly 8% 2014/15, and the school anticipates moderate growth through 2015/16.

The GSE projects a significant increase in academic salaries in 2015/16 as it anticipates a large number of new faculty. The high volume of new appointments stems from several collaborations with other university departments and the desire to bring in a cohort of young scholars. The GSE expects a significant number of faculty retirements over the next several years and thus is planning for new hires to strengthen targeted academic areas.

Graduate aid continues to be a major concern at the GSE. The school recently expanded guaranteed doctoral student funding from four to five years, further straining an already tight student aid budget. With the goal of making a larger doctoral cohort financially viable, the school is committed to raising new endowed fellowships and ensuring students graduate in a timely manner.

The school is also investing in modifying its current buildings to accommodate faculty growth and the increase in research activity. A particularly important project is the renovation of underutilized student space in the Cubberley Building basement.

## SCHOOL OF ENGINEERING



### PROGRAMMATIC DIRECTIONS

The new dean of the School of Engineering (SoE), Persis S. Drell, began her appointment by consulting with the school faculty and staff in departmental groups. With the understanding that engineering fields are changing rapidly, the dean convened a task force primarily composed of midcareer faculty members who will lead the school in the future, and charged them with developing a strategic plan for the next 10-15 years. The composition and nature of this committee reflect the bottom-up culture that underlies the school's success. The SoE Future Committee will provide a preliminary report by the end of spring quarter 2015.

With an eye toward the future, the school is also addressing immediate operational needs related to teaching, shared research facilities, and research lab safety. Each of these initiatives received general funds allocations from the university in the 2015/16 budget process.

**Teaching:** Stanford undergraduates continue to declare engineering majors and take engineering classes outside their majors at rates that exceed historic norms. These increased enrollments manifest themselves most acutely in the Computer Science and Mechanical Engineering departments, and the school is supporting these departments with dedicated staff. A new staff member will run the

course support logistics for the introductory computer science classes taken by nearly every undergraduate student and a growing number of graduate students. Three new technical staff will support the complex equipment used in the hands-on, experimental portions of undergraduate mechanical engineering courses. Faculty teaching courses with increased enrollments will also receive additional teaching assistant support.

**Shared facilities:** The Stanford Nanofabrication Facility (SNF) in Allen Lab was the world's leading academic cleanroom when it was dedicated in 1985. Over the last 30 years, it has slowly evolved to meet the shifting research needs of the faculty groups. Currently SNF operates as a fully shared facility managed by the SoE and supports researchers from across Stanford and Silicon Valley. The faculty are now looking forward to the next generation of fabrication, and the school is helping SNF launch its future with the development of a small addition to the cleanroom called the Fast Turnaround Facility (FTF). The FTF will be operated as a fully shared facility open to all users and will allow for a new capability in heterogeneous systems fabrication that will support rapid device prototyping for a wide variety of materials, including thin films of metals and insulators, as well as a variety of polymers.



**Safety:** The Task Force for Advancing the Culture of Laboratory Safety at Stanford University noted that although there are not strong concerns about lab safety across the university, there is room for improvement to ensure that the university's culture of safety matches its culture of research excellence. In partnership with Environmental Health and Safety and other schools, the SoE will try to make the safe way the path of least resistance for researchers. Currently lab safety support is a fragment of many jobs, and the school plans to consolidate those support responsibilities. A group of dedicated lab safety specialists will partner with principal investigators and provide functional expertise in all areas of lab safety.

With a new dean, a robust strategic planning initiative, and some immediate operational support in critical areas, the school is well positioned to maintain and strengthen its position at the leading edge of engineering research and education.

## CONSOLIDATED BUDGET OVERVIEW

The SoE projects a 2015/16 consolidated budget with total revenue and transfers of \$409.7 million, expenses of \$395.7 million, and operating results of \$14.0 million. After transfers the projected surplus is \$8.1 million. Compared with 2014/15 year-end projections, 2015/16 revenue and expenses will grow by 3.4% and 1.2%, respectively.

Sponsored research remains the largest single component of SoE finances, at approximately 37% of revenue. Federal grants are projected to remain essentially flat in 2015/16, reflecting a continuing challenging environment for faculty applying to federal sponsors. Non-federal sponsored research is projected to increase slightly.

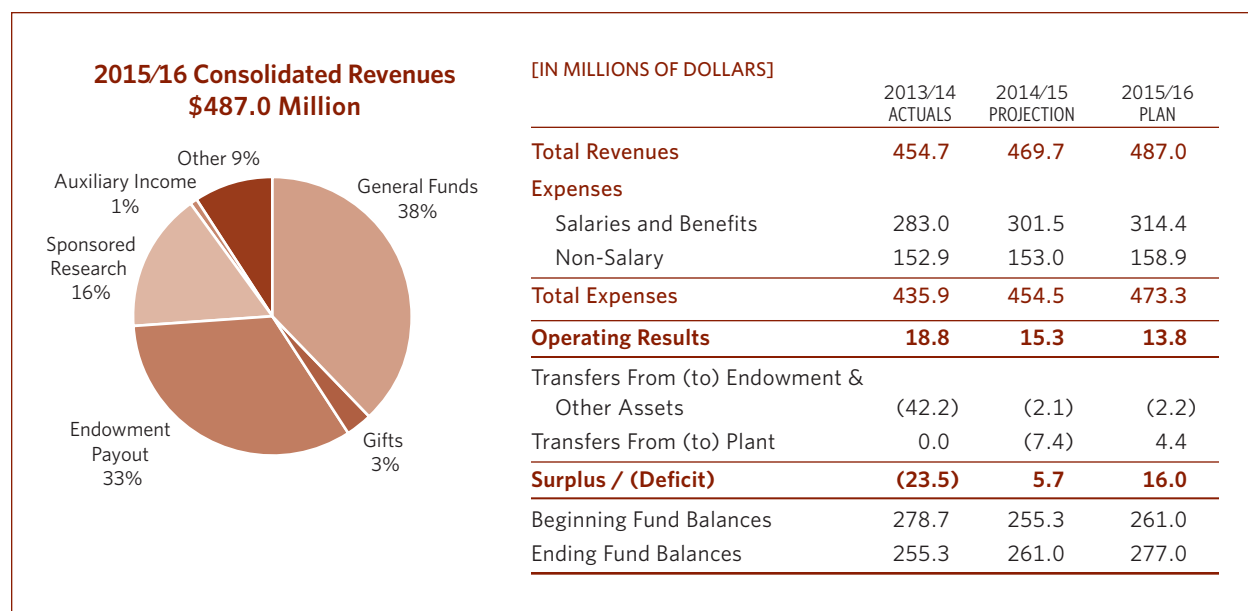
In non-sponsored activity, revenue and expense increases in 2015/16 are driven by increased general funds support for teaching assistants' salaries and tuition allowance, teaching support in Computer Science and Mechanical Engineering, enhancements in research lab safety, and equipment and operational support for shared fabrication labs.

The overall school reserve position is strong, but the funds are asymmetrically distributed among faculty, departments, and school. Faculty and laboratories within departments control 87% (\$99 million) of designated fund balances and 82% (\$78 million) of expendable gift balances, most of which are earmarked for research. The majority of reserves controlled by the school are restricted to faculty and student support. The distribution of funds and restrictions on fund balances challenge the school in seeding new initiatives.

## CAPITAL PLAN

The SoE continues construction on many shared and individual lab build-outs for new experimental faculty. In addition, the Durand programmatic study will be completed in 2014/15 and will guide a phased building renovation intended to free up additional space for the Aero/Astro and Materials Science and Engineering departments. Design will be complete in 2015/16. Programmatic work continues around the Packard Electrical Engineering and Paul Allen buildings to define the future needs of the Department of Electrical Engineering and the Stanford nanofabrication community. Lastly, the school is exploring options to accommodate growth in the Department of Computer Science that will support the ubiquitous nature of computation in an ever-growing number of fields.

## SCHOOL OF HUMANITIES & SCIENCES



### PROGRAMMATIC DIRECTIONS

During the past several years, the School of Humanities & Sciences (H&S) has made major investments to strengthen key areas and create a strong competitive position for the future. Faculty FTE has grown during the past two years to replace losses incurred during the recession. Recruitments include a number of senior-level experimental scientists who will fill key roles in new university institutes and initiatives. This success has come with a large price tag, and during the next four years school reserves will be used to fund a portion of startup packages. H&S will return to replacement-rate hiring in the upcoming year.

Unprecedented investments are also being made in capital projects to develop the Arts District and the new Biology/Chemistry District. The Old Chem and McMurtry Art and Art History buildings will better meet teaching needs and incorporate technology into instruction. The Bass Biology Building will support the university's biochemistry and computational research initiative, while the Chemistry, Engineering & Medicine for Human Health (ChEM-H) building will create a new environment for interschool research on chemistry and human health.

H&S has also invested in administrative systems and procedures to improve budgeting and forecasting of graduate aid resources. A number of departments had accumulated large unused balances across the past five years, but the school has recently reached a tipping point, using \$2.0 million of those balances in each of the past two years, in part because external funders have reduced their graduate aid. The new trend heightens the need for greater predictability and improved long-range forecasting in the planning of graduate admissions.

Investments in these three areas have drawn down dean's office unrestricted reserves from a high of \$75.0 million in 2011/12 to a projected \$21.0 million in 2014/15. After excluding one-time uses, the school's finances are essentially in equilibrium. But several areas of increasing pressure are projected to negatively impact those finances over the next several years.

Federal grant and contract funding has been flat for almost a decade, creating an erosion of buying power in real terms. Funding in 2013/14 fell 9%, with reductions affecting a few natural science departments. Most fellowship and research assistant support for graduate students in the natural

sciences comes from grant and contract sources. The provost and the dean's office have provided bridge funding for grant lapses and funding to replace reductions in federal training grants. Faculty and departments have also provided additional funds, but most of these are from one-time sources, which will ultimately be exhausted.

H&S is also increasing its faculty retention activity. As other top universities recover from the economic crisis, there is increasing competition for H&S's top faculty. Rapid inflation in the Bay Area housing and rental markets have made competitors' offers more attractive. For a number of years, the school has received additional funding from the provost to deal with market-based salary needs in top departments. This has improved its competitive position. H&S projects that competition for faculty will continue to grow over the next few years, increasing the draw on school resources.

## CONSOLIDATED BUDGET OVERVIEW

For 2015/16, H&S projects revenues and operating transfers of \$487.0 million and expenses of \$473.3 million, resulting in an operating surplus of \$13.8 million. After \$2.2 million of net transfers from assets, the school projects a \$16.0 million surplus. Revenues and operating transfers are projected to increase by \$17.3 million (3.7%) and consolidated expenses by \$18.8 million (4.1%). Expense increases are driven by the continued salary increases needed to retain faculty, increased teaching and equipment costs in new facilities, and incremental graduate diversity fellowships. The provost and H&S will jointly fund most of these incremental activities.

Dean's office reserves are projected to increase slightly from \$21.0 million in 2014/15 to \$26.5 million in 2015/16. Gifts to fund the McMurtry Art and Art History Building will allow the return of \$25.8 million of temporarily invested reserves, \$14.0 million of which will be used to fund construction of the new ChEM-H building. Reserve balances in this range are relatively small for a school of H&S's size and complexity. The school will focus on maintaining equilibrium going forward and look for opportunities to rebuild reserves. Department, program, and faculty balances are projected to

grow by \$7.1 million, with increases broadly spread across faculty-controlled funds, expendable gifts, and endowments.

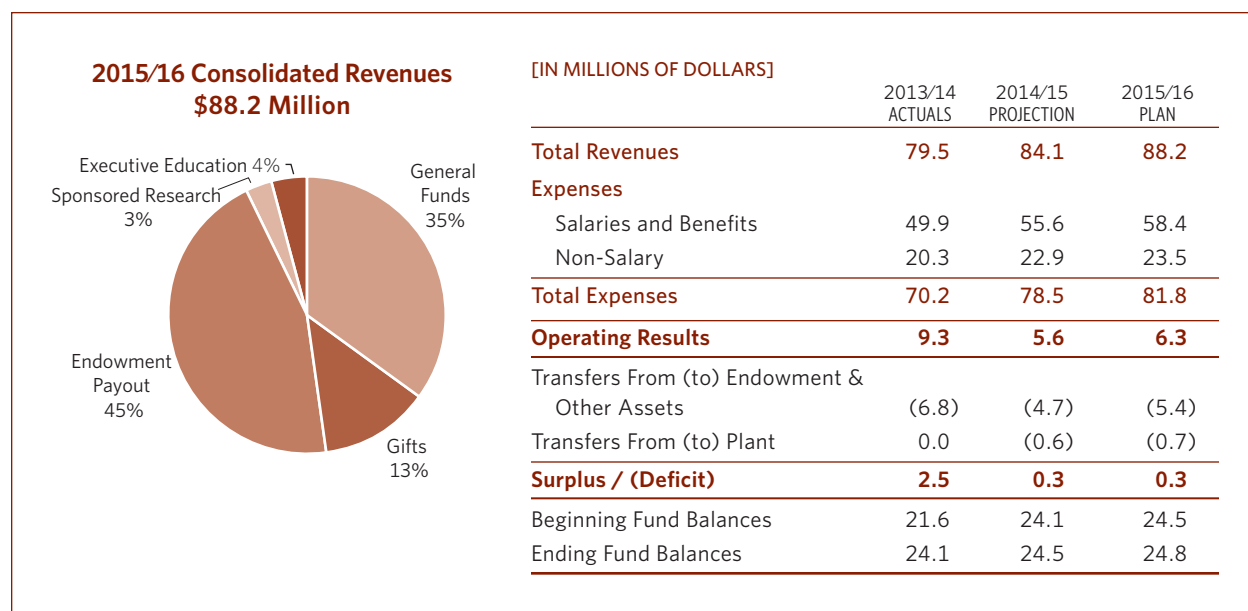
In 2014/15, federal grants are projected to decrease from prior-year levels by an additional 1.8%, while non-federal grants will rebound by 17.3%, resulting in a combined 1.1% increase. For 2015/16, the combined sponsored research volume is estimated to stay flat, with a 0.5% reduction in federal and a 3.0% increase in non-federal grants. As sponsored research activity has declined, many expenses have migrated to other funding sources. Dean's office bridge funding, department graduate savings, faculty-controlled funds, and increased Stanford Graduate Fellowship and Stanford Interdisciplinary Graduate Fellowship funding have been providing support for graduate students and faculty supplemental salaries. This long-term trend raises concerns since the replacement funding is largely from one-time and non-H&S sources.

Faculty salary expenses grew 2% more than cost rise during 2014/15 as a result of new hires and several expensive retentions. This trend is projected to continue into 2015/16. Projected retentions will require an additional \$500,000 of dean's office reserve funding to maintain an adequate raise pool for all faculty.

## CAPITAL PLAN

H&S continues to pursue an ambitious program of capital construction and planning. The Science Teaching and Learning Center (Old Chem) is under construction and slated for completion in summer 2016. This building will be a hub for undergraduate science, featuring classrooms, an auditorium, and teaching labs for biology and chemistry. The McMurtry Building for Art and Art History will be completed in summer 2015 and ready for the start of the 2015/16 academic year. The Bass Biology Building is in the final stages of design. The Roble Gym renovation project will be completed by spring 2016. It will house an innovative "arts gym" that will support and encourage student interaction, creativity, and expression.

## SCHOOL OF LAW



### PROGRAMMATIC DIRECTIONS

Stanford Law School (SLS) is in an excellent competitive position. As has been true for several years, the SLS story departs rather dramatically from the situation at many other law schools. SLS continues to enjoy a strong applicant pool, attracting excellent students who are in great demand by employers and extremely successful in securing jobs upon graduation.

SLS is in the midst of a generational shift in its faculty. In anticipation of a wave of retirements in the near future, tremendous effort has gone toward faculty renewal. Though the timing of the retirements is not necessarily easy to predict, it is imperative that the Law School be in a position to aggressively pursue individuals who would contribute greatly to its community as scholars and mentors. This year, SLS added five new people to the professoriate, and hiring efforts are continuing, with additional recruitments potentially coming to fruition over the next few months. Success in faculty recruitment (and retention) is critical to the future excellence of the school.

One of two important curricular initiatives launched over the past 18 months is the Law and Policy Lab, which enables students to learn by doing policy analysis or regulatory drafting for policymakers and others seeking to improve

public policy. The lab offered more than 20 practicums in 2013/14 and is doing so again in 2014/15. Faculty and students work together on issues ranging from patent reform to wildlife trafficking to election administration and reform.

The second initiative is aimed at preparing students for the ever-evolving world of global legal practice. It has three elements: a new foundational course; intensive courses held partly in The Hague, China, and Brazil; and integration of cross-border and comparative perspectives into the regular course curriculum. Distinguished visitors with transnational knowledge are key participants in these courses.

SLS is working on other initiatives as well. Faculty conversations have focused on changes in the legal profession, the delivery of legal services, and legal education. From these sessions, two areas of potentially new curricular focus have emerged.

The first area is changes in the delivery of legal services. Technological advancement is restructuring that delivery, and SLS should help shape the way the next generation of lawyers practice their craft. The Law School has convened a group of faculty to study this area. The other is professional and leadership skills. It is important for young lawyers to develop these skills in addition to analyzing and writing about legal doctrine. They have always been important,

but they are even more important today. SLS is considering additions to the curriculum aimed at further developing these skills.

## CONSOLIDATED BUDGET OVERVIEW

The SLS 2015/16 consolidated budget comprises total revenues and operating transfers of \$88.2 million and expenses of \$81.8 million, for an operating surplus of \$6.3 million. After projected transfers to assets of \$6.1 million (\$3.3 million to cover the SLS Loan Repayment Assistance Program [LRAP] obligations, \$2.0 million reinvested into funds functioning as endowment, and \$700,000 to plant funds for the Crown Quadrangle renovation), the school projects a net consolidated surplus of \$300,000.

Consolidated revenue is anticipated to increase 4.8% overall. Expendable gift revenue is expected to be \$11.6 million, an increase of 3%, while endowment payout income will be \$39.6 million, a rise of 5%. Designated income will tick upward by almost 3%, to \$4.5 million. Sponsored research continues to generate high levels of activity but is expected to level off at \$2.4 million. In addition to the U.S. Department of State's \$7.2 million, multiyear grant to support the Afghanistan Legal Education Project, SLS continues to receive sponsored funding for research in criminal justice, human rights, and energy policy and finance, and has secured new support for research on the Internet, society and law, and the biosciences.

In 2015/16, consolidated budget expense totals are scheduled to increase by 4.2%, to \$81.8 million. The principal factor in expense growth continues to be compensation, most significantly for academic staff; growth in faculty and new curricular initiatives will also contribute. Total non-

compensation expense will grow by 2%, though financial aid (exclusive of LRAP) expense is projected to rise by 7%.

SLS consolidated fund balances will increase by \$300,000 to \$24.8 million. Of this balance, \$12.9 million is classified as noncash investments and is not available for use, and \$11.9 million is categorized as available for use. The available fund balance comprises \$7 million for restricted purposes, such as academic programs and centers and financial aid, and \$4.9 million for unrestricted purposes.

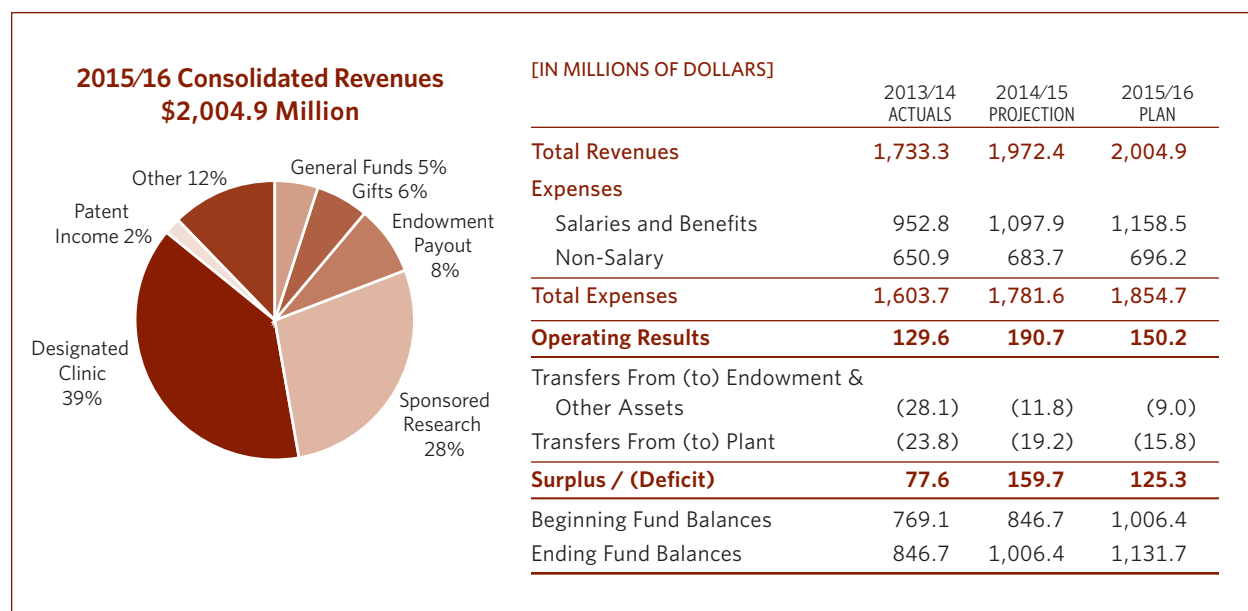
## CAPITAL PLAN

The third-floor renovation and lobby transformation of Crown Quadrangle are finished. Renovation of the remaining three floors is currently on a one-year hiatus; the disruption proved a bit overwhelming to staff and students. SLS is taking advantage of the time by reevaluating its future space needs, which may have changed since the commencement of the project. Regardless of the outcome of this reevaluation, the budget for the remaining phases will not exceed \$8 million.

A recent addition to the Crown revitalization is the Law Student Lounge project. The lounge has not had any significant renovation since the building opened in the mid-1970s. The plan is to expand it outward towards Crocker Garden and to bring more light into the space. This project is estimated at \$1.5 million.

SLS will continue to raise funds for the total remaining Crown Quadrangle project cost of \$9.5 million. Rather than wait to meet fundraising goals, it plans to move forward with the renovation, using reserves to cover expenses until funds are raised.

## SCHOOL OF MEDICINE



### PROGRAMMATIC DIRECTIONS

Stanford Medicine, which comprises the School of Medicine, Stanford Health Care (SHC), and Lucile Packard Children's Hospital Stanford (LPCH), is defining and developing the biomedical revolution in precision health, an approach to disease prevention and treatment that takes into account individual differences in people's genes, environments, and lifestyles. By leveraging its location in Silicon Valley and the university's excellence across disciplines, it is leading this next generation of care, which is proactive, predictive, and precise, and achieves the best imaginable health outcome for every individual.

In December 2014, President Hennessy convened a Stanford Medicine working group, which includes university trustees and SHC and LPCH board members, to develop a cohesive strategic plan. The centerpiece of this plan is to develop and achieve preeminence in precision health by capitalizing on interactions between and among the missions of education, research, and clinical care. Since that time, Stanford Medicine has been working diligently to realize this vision and to meet the other strategic objectives established by the working group.

One of these strategic objectives is preparing students and trainees to be leaders in their fields. The school remains

one of the most competitive MD programs in the country, accepting about 2% of applicants. It continues to transform its MD curriculum to meet the needs of a new generation of learners expected to master an ever-expanding amount of biomedical knowledge and practice in an evolving health care system.

A record number of admitted students accepted their offers to the school's PhD program in 2014. This PhD cohort is the school's largest and includes enrollees in two new programs: Health Policy, and Epidemiology and Clinical Research. Thanks to \$9.0 million in funds from the Campaign for Stanford Medicine, PhD students now have their first four years of training covered, and thus are no longer dependent on faculty's National Institutes of Health (NIH) grant funding.

Despite the decrease in NIH budgets, which has hampered biomedical research over the last decade, the research-oriented faculty have consistently achieved higher annual funding per principal investigator than those at peer institutions, and the school's overall research funding has remained strong compared to that of peer institutions. Seven of the school's faculty members are Nobel laureates, with three of them receiving the prize in the last three years.

The school is investing substantially in clinical research to bring it to a level of excellence comparable to that of its basic research. Stanford Medicine's Transforming Cancer Care initiative is redesigning cancer care with an interdisciplinary, patient-centered approach that better meets the needs of cancer patients. A multidisciplinary care coordinator is at the center of the patient's care team, acting as the patient's champion and coordinating all aspects of treatment and care. This model leads to improved coordination among the various teams of care providers and an organization culture shift. Once the model is fully established, its success will be shared broadly and replicated in other areas of strategic focus for clinical care.

## CONSOLIDATED BUDGET OVERVIEW

The school projects total revenues and transfers of \$2,004.9 million in 2015/16 and expenses of \$1,854.7 million, yielding an operating surplus of \$150.2 million. Transfers of \$24.8 million to endowment principal and plan funds result in a net change in current funds of \$125.3 million. The main contributors to the increase in revenues are the changes to the professional services agreement currently in discussion with SHC and projected gifts generated from the school's development campaign.

### Revenue

Revenues and transfers are projected to increase 1.6%, or \$32.5 million, from \$1,972.4 million in 2014/15 to \$2,004.9 million in 2015/16. Key drivers include the following:

- The professional services agreement between the school and SHC is slated to change, with the hospital reimbursing the school's services at a higher national benchmarked rate, including a one-time revenue payment in 2014/15. Removing the impact of this one-time payment, health care Services revenues will increase about 7.5% from 2014/15 to 2015/16. Also driving this increase is growth in volume from clinical programs, generated by incremental faculty and clinicians, who also drive professional services revenue increases from both SHC and LPCH.
- Both federal and non-federal sponsored research funding continue to grow. With incremental faculty contributing toward this growth, research funding is expected to increase at an inflationary rate in 2015/16.

- The anticipated success of the development campaign will drive growth of 3.1% in gift revenue and 5.9% in endowment income.

### Expense

Expenses are projected to increase 4.1%, or \$73.2 million, from \$1,781.6 million in 2014/15 to \$1,854.7 million in 2015/16. Major increases stem from:

- Projected net recruitment of 41 faculty, 25 in the medical center line, 13 in the university tenure line, and 3 in the nontenure line, as well as an increase of 70 clinician educators.
- An anticipated 5.5% increase in compensation for faculty, clinicians, and staff. The main drivers are the annual merit program, incremental recruitment, and clinical activity growth. The year-over-year increase from 2014/15 would be higher if it were not for projected one-time bonuses in 2014/15 due to the change in the professional services agreement with SHC.

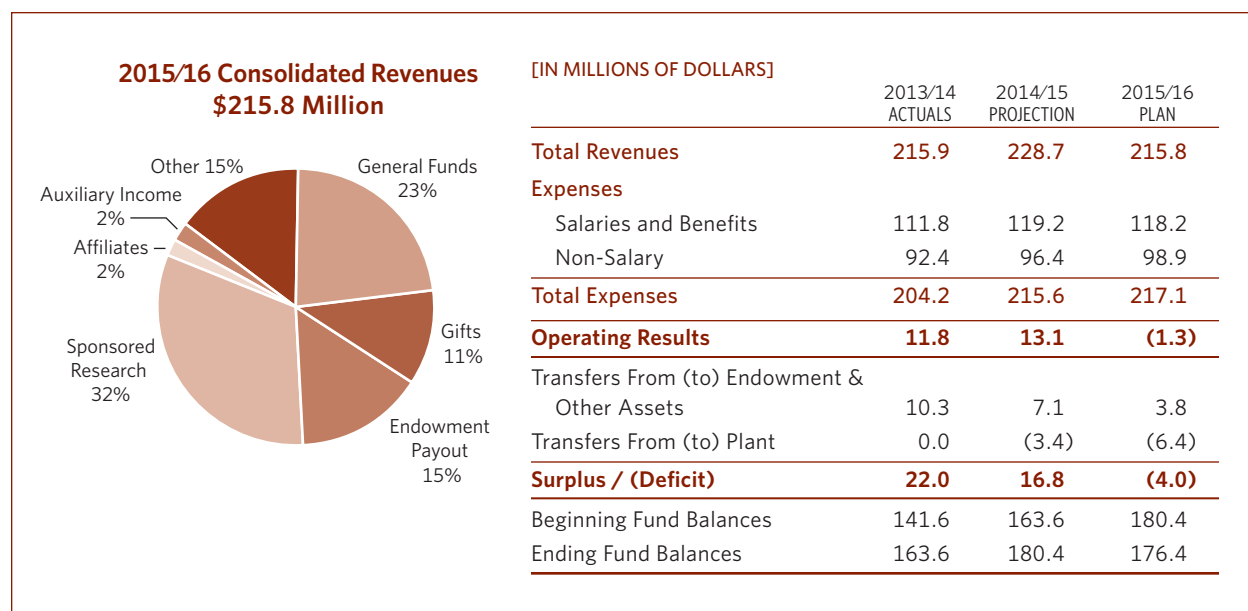
### Transfers to Plant, Endowment, and Other Assets

The projected transfers to plant of \$15.8 million primarily include \$5.0 million for seismic bracing work, and \$4.2 million for the ChEM-H (Chemistry, Engineering & Medicine for Human Health) and Stanford Neurosciences Institute (Neuro) building. Departments project an additional \$9.0 million transfer to funds functioning as endowment (FFE).

### CAPITAL PLAN

Started in February 2015, renovation work on the 72,800-gross-square-foot, \$43.3 million 1651 Page Mill Road facility will be completed in March 2016. Renovation of 855 California Avenue will create a 26,000-gross-square-foot Current Good Manufacturing Practice facility under strict environmental control to assure manufacturing of sterile, potent, and uncontaminated products for human therapies. The work began in April 2015 and will be completed in November 2015 at an estimated cost of \$9.9 million, jointly funded by LPCH and the school. Seismic bracing work will begin on the Alway Building in spring 2016 and is expected to be completed in the winter. The school will also begin initial planning on two new academic and research buildings, one located on the main campus and the second in the City of Palo Alto.

## VICE PROVOST AND DEAN OF RESEARCH



The Office of the Vice Provost and Dean of Research (DoR) is responsible for research policies and facilitation of faculty research and scholarship across all of the schools and departments. It has oversight of 18 independent laboratories, institutes, and centers and manages the compliance and administrative offices that support research. DoR also oversees major shared facilities that support a broad range of research and scholarly activities.

### PROGRAMMATIC DIRECTIONS

In supporting faculty research and scholarship and the university research and education mission, DoR focuses on four major areas: creating opportunities for interdisciplinary research through the independent laboratories, institutes, and centers; providing state-of-the-art shared facilities; minimizing compliance and administrative burdens for faculty and staff; and mitigating research-related safety risks. Research and scholarship in the independent laboratories, institutes, and centers complement discipline-based research. The independent entities facilitate collaborations among faculty with differing areas of expertise and focus particularly on complex problems that require interdisciplinary approaches. In managing specialized shared facilities, DoR provides an infrastructure that is essential for state-of-the-art research and faculty competitiveness for extramural research awards. DoR will focus on the following programs in 2015/16:

**Stanford Cyber Initiative:** The Stanford Cyber Initiative (SCI) was launched in December 2014 to create a policy framework for cyber issues. It will draw on Stanford's experience with multidisciplinary, university-wide initiatives to build programs around the core themes of trustworthiness, governance, and the emergence of unexpected impacts of technological change over time. SCI will apply broad campus expertise to the diverse challenges and opportunities that cybersecurity, cyberspace, and networked information pose for humanity.

**Chemistry, Engineering & Medicine for Human Health (ChEM-H) Institute:** Founded in 2012, ChEM-H has had rapid and remarkable success in engaging with faculty from the schools of Engineering, Humanities & Sciences, and Medicine and in recruiting high-caliber senior and junior faculty. ChEM-H has funded 13 seed grants and has launched a graduate student fellowship program. In addition to creating the medicinal chemistry knowledge center, which helps biologists and clinicians at Stanford to incorporate medicinal chemistry into their ongoing and future research endeavors, ChEM-H is launching a structural biology knowledge center, which will utilize tools at SLAC National Accelerator Laboratory.

**Stanford Neurosciences Institute (SNI):** SNI was started in 2014. In addition to its seed grants and fellowship



programs, the institute has successfully launched Big Ideas to foster interdisciplinary collaborations spanning Stanford schools and departments and to tackle fundamental problems in neuroscience. The initiatives fall broadly into three categories: NeuroDiscovery, probing the inner workings of the brain; NeuroEngineering, creating innovative new technologies for interfacing with the brain; and NeuroHealth, translating neuroscience discoveries into treatments.

**Office of International Affairs (OIA):** Created in 2011, OIA helps faculty, students, and staff maximize global opportunities for global research and teaching. OIA works with faculty, departments, and schools to identify resources necessary to support these endeavors. It provides seed grants to help address challenges identified by faculty as well as to develop policies and guidelines that help mitigate risks associated with international activities.

**Shared Facilities:** Cutting-edge research now requires highly specialized instruments and facilities that are too expensive for individual investigators to support and must be maintained by skilled, dedicated research scientists. These facilities are essential to preserving faculty competitiveness in the current research funding climate. DoR continues to expand the basic mass spectrometry services to support the critical field of proteomics. In addition, DoR will continue to encourage researchers from disciplines who have not typically relied on the shared instruments to explore potential applications to their research questions. DoR will provide seed funding for proof-of-concept experiments, using the Stanford Mass Spectrometry Center, Stanford Nanosciences Shared Facility, and Center for Cognitive and Neurobiological Imaging, that can enhance faculty competitiveness for extramural grants.

**Culture of Safety:** In the academic environment, risk presents itself on many levels, including loss of life and personal safety, damage or theft of property, legal liability, and loss of reputation. The University Committee on Health and Safety established a task force of senior faculty that examined how Stanford is managing safety issues and identified opportunities for improvement and ways to instill a culture of safety broadly across all university units. Academic research laboratories are the first area of focus in a three-to-five-year initiative to implement these recommendations.

## CONSOLIDATED BUDGET OVERVIEW

The 2015/16 consolidated budget for DoR shows total revenues of \$215.8 million and expenses of \$217.1 million,

resulting in a net operating deficit of \$1.3 million. After estimated transfers of \$2.6 million to endowment, plant, and other assets, DoR projects a planned deficit of \$4.0 million.

Total revenues in 2015/16 are projected to decrease by \$12.9 million, or 5.6%, from 2014/15. Unexpected gift revenue of \$15.0 million for SCI in 2014/15 is not expected to recur in 2015/16. In addition, sponsored research is expected to decrease by \$5.2 million, or 6%, from 2014/15. This is offset by an increase in endowment income due to fulfillment of a pledge to the Precourt Institute for Energy in 2014/15. Operating transfers are expected to increase \$1.5 million, or 9%, from 2014/15, primarily due to one-time funding for new initiatives.

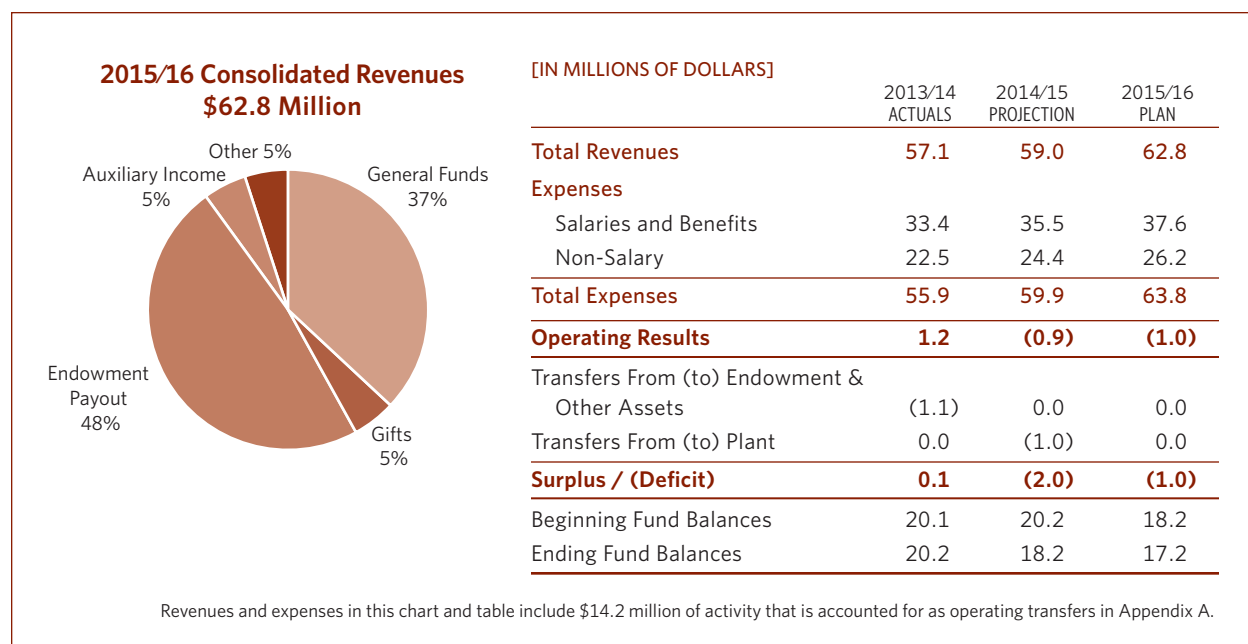
Total expenses in 2015/16 are projected to increase by \$1.4 million, or 1.0%, primarily due to the growth of ChEM-H, SNI, and SCI. Transfers from endowments are projected to be \$3.8 million, or 46%, lower than in 2014/15 as independent laboratories, institutes, and centers have spent down term endowments. Transfers to plant are projected to be \$6.4 million, almost double the amount in 2014/15 due to DoR support for the ChEM-H/SNI building.

Faculty and the independent labs, institutes, and centers control 83% of fund balances. Endowment and expendable funds are mainly focused on multiyear, multidisciplinary research programs. A percentage of endowment and expendable funds are earmarked for research and are expected to provide bridge funds for research programs if sponsored research funding continues to decline.

## CAPITAL PLAN

The ChEM-H/SNI building will facilitate easier and more frequent collaborations within a single physical space. It will provide unique facilities for these two intellectual communities to foster great ideas and innovative scholars that transcend individual schools and departments. The building will include wet, dry, and computational laboratory space; research support and shared equipment space; a vivarium; offices for faculty, postdocs, and students; and collaborative common spaces that facilitate formal and informal teaching and learning among scholars from diverse backgrounds. The budget is \$240.4 million for 235,000 gross square feet. The west campus site is currently occupied by the Cardinal Cogeneration Plant, which was recently decommissioned. The Board of Trustees approved the concept and site designs in September 2014. The building is now in the schematic design phase.

## VICE PROVOST FOR UNDERGRADUATE EDUCATION



### PROGRAMMATIC DIRECTIONS

In recent years, the Office of the Vice Provost for Undergraduate Education (VPUE) has launched new initiatives, implemented Senate-mandated programs, developed a new unit focused on residential programming, and strengthened undergraduate education partnerships across campus.

Last year VPUE worked with Residential Education to examine implementation of the Study of Undergraduate Education at Stanford (SUES) recommendations for increased academic programming in residences and greater faculty influence on residential life. A working group recommended establishing a more formal academic presence in the residential space. As a result, VPUE formed the Residential Programs unit. This comprises both long-standing and pilot cocurricular or residential programs focused on academic communities or cohorts transcending the classroom: Freshman and Sophomore College, Leadership Intensive, the Leland Scholars Program (LSP), and three Integrated Learning Environments (ILEs)—Structured Liberal Education (SLE), Immersion in the Arts: Living in Culture (ITALIC), and Science in the Making ILE (SIMILE). The new unit seeks to-

- leverage synergies between residential expertise in the Office of the Vice Provost for Student Affairs and curricular expertise in VPUE;
- enhance faculty experience in the residences;
- provide a central faculty voice on residential issues related to community educational experiences; and
- clarify ownership and advocacy for residentially based educational experiences within VPUE.

One risk associated with piloting innovative programs is the uncertainty of matching intended outcomes with student interest. The initial interest in SIMILE was high, with twice as many freshmen applying as the program could accommodate. In the first year, however, the student cohort shrank each term, ending with one-third of the original participants. Despite rebranding and academic program adjustment, the marked attrition continued this year. VPUE faculty leadership consulted with program faculty and determined that the ILE format was not a good fit for the material. As a result, SIMILE's pilot will not continue in 2015/16.

In contrast, faculty are enthusiastic about the ITALIC program, and students articulate strongly positive outcomes and sustained interest. Indeed, half of the 2013/14 cohort drew into Kimball for another arts experience in their sopho-

more year. LSP also shows promising results, including greater academic resilience in the chemistry core sequence; greater intellectual confidence, exhibited by increased Introductory Seminar and summer program participation; and enduring cohort cohesiveness. As the first cohort graduates in 2016, VPUE expects to gain a more holistic understanding of LSP's academic impact and will explore more permanent funding solutions based on that assessment.

The implementation of the Ways of Thinking/Ways of Doing breadth requirement is in full swing. While 1,591 courses are certified for the eight Ways, VPUE's main focus has been on ensuring capacity in the Creative Expression Way through departmental support, including an additional \$100,000 in 2014/15. VPUE also continues to refine its support for large introductory courses foundational to undergraduate education. Introductory computer science courses such as the CS106 series have become ubiquitous, with over 90% of undergraduates enrolling. In 2015/16, VPUE will reallocate funds to increase the number of Computer Science section leaders and fund a partial lecturer in collaboration with the School of Engineering. VPUE partnered with Biology to develop BioSolvelt, a companion problem-solving seminar for the biology core. Finally, VPUE supports a capstone director in Computer Science for the new interdisciplinary joint major, CS+X.

VPUE is excited to offer the Stanford in New York program, which will begin in autumn quarter 2015 with 20 students selected from 50 applicants. The program initially focuses on the arts and urban studies. The students will take courses using the city as their text, work in internships in the thematic areas, and experience living and learning in the urban environment of New York City. The three-year pilot received president's funds totaling \$2.4 million, with VPUE providing the remaining \$1.1 million. Eventually the program will run three quarters, with varying focus areas each quarter.

In 2014/15, the Bing Overseas Studies Programs (BOSP) opened a quarter-length program in Istanbul, expanded in Cape Town, and reopened in Oxford following its facility renovation. BOSP's goal for 2015/16 remains to increase student participation overseas from 50% to over 60%. The faculty director is seeking innovative programs to expand that participation. One success has been summer overseas seminars, which have generated high student interest, especially from athletes and STEM majors.

The Directors of Community Engaged Learning program grew in 2014/15 to include a director with an engineering concentration. The program is a key component in a growing partnership with the Haas Center and the new Cardinal Service Initiative to foster experiential service-based learning throughout the university.

Several pilot programs supporting SUES goals have been funded with a combination of university funds and gift funds. VPUE plans to evaluate these initiatives based on the following educational objectives, learning outcomes, and fiscal reasonableness, including per student costs. VPUE will pursue development opportunities and base funding to sustain successful programs.

## CONSOLIDATED BUDGET OVERVIEW

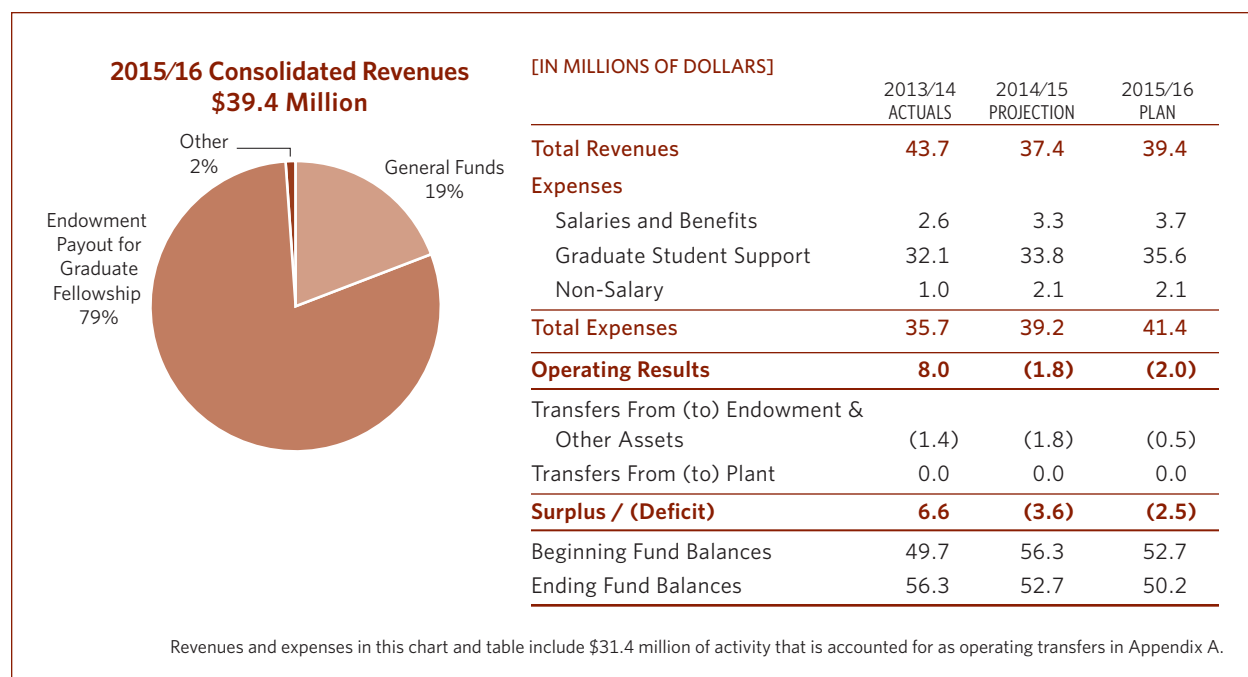
The 2015/16 consolidated budget shows total revenues and operating transfers of \$62.8 million and expenses of \$63.8 million, yielding an operating deficit of \$1.0 million. The deficit results mainly from costs related to expansion of the overseas seminar program (\$215,000), Sophomore College (\$172,000) and Introductory Seminars (\$160,000). Two new academic advising directors, one funded with general funds, the other by VPUE, will be hired to address increased demand for advising. They will be located in the freshman-heavy Wilbur and Stern dormitories.

Programmatic expenses of roughly \$2.8 million related to the Center for Teaching and Learning were transferred from VPUE to the new Vice Provost for Teaching and Learning (VPTL), and general funds supporting these expenses were transferred as well. The consolidated budget history is adjusted accordingly.

## CAPITAL PLAN

VPUE completed the Oxford center renovation and a Sweet Hall renovation in 2014/15. The Sweet Hall garden-level renovation upgraded global teleconferencing capability, opened a large configurable meeting space, and generated office space for BOSP as well as the new Residential Programs unit. The Oxford center renovation incurred unbudgeted expenses for value-added tax and construction delays that added \$1.2 million in costs, which were covered by VPUE fund balances. The program was only offline for fall quarter, 2014/15; the 45 students that arrived in winter quarter spent the first two weeks in a hotel nearby before being welcomed into the remodeled living and communal spaces. VPUE has no capital projects planned for 2015/16.

## VICE PROVOST FOR GRADUATE EDUCATION



### PROGRAMMATIC DIRECTIONS

The Vice Provost for Graduate Education (VPGE) works collaboratively across the university's seven schools, to enhance the quality of graduate education for 9,100 students pursuing degrees in 90 degree programs and departments. VPGE addresses several critical university priorities, including administering university-wide fellowships, fostering innovation by providing opportunities for students' professional development and support for innovative initiatives within graduate programs, advancing diversity, and facilitating interdisciplinarity. VPGE programs and fellowships reach roughly 3,000 graduate students (over 600 on fellowships) annually.

Achieving growth and stability in funding sources for graduate students remains a major goal across the university. Total funds for graduate student financial support reached a high of \$348 million in 2013/14, with 25% from external grants and contracts (down from 27% in 2012/13), 36% from restricted funds, 7% from designated funds, and 32% from general and school funds (up from 30% in 2012/13). VPGE contributes about 10% of this total, mostly as doctoral fellowships (full-tuition and stipend) in six university-wide programs. The largest is the Stanford Graduate Fellowships (SGF) Program in Science and Engineering, used to attract the best students in the world to doctoral study

in these fields at Stanford. The Stanford Interdisciplinary Graduate Fellowships (SIGFs) have gained momentum. The fundraising goal for SIGFs is 100 fellowships, and 67 have been raised to date.

This year VPGE focused on expanding resources for the Graduate Professional Development (GPD) Framework, including incremental initiatives in leadership and preparing for faculty careers. The GPD framework, now enhanced as an interactive tool, is designed to assist graduate students in reflecting on their skills, determining priorities for development, and locating resources within the university. This framework has six domains: specialized content knowledge and skills; teaching; communication; leadership and management; career development; and personal development. The programs in the GPD portfolio now cover a wider array of topics (time management, self-management, presentation skills, ethics, resilience) in different formats, often in collaboration with the Center for Teaching and Learning and the Career Services Centers.

VPGE is also developing resources and piloting programs for students to explore and better prepare for academic careers.

- Online resources help students learn about the nature of faculty roles and rewards, institutional types, and how to be competitive in the job market.

- Jumpstart Your Academic Job Search, a new Stanford Graduate Summer Institute course, instructs graduate students on how to prepare applications and job talks as well as how to negotiate offers.
- Monthly Academic Chats focus on different aspects of faculty roles, academic life, and the academic workplace in different types of colleges and universities. About 500 students attend the chats each year. Some sessions have been video-recorded, and more will be recorded next year.
- The Preparing Future Professors: Stanford–San Jose State University Shadowing Program gives doctoral students the opportunity to shadow a faculty mentor in their academic field. A practicum facilitates reflection and synthesis.
- VPGE disseminates data from a new study on Stanford PhD alumni employment, so that students and faculty can see where alumni from their academic fields found initial employment within one year of graduating as well as their current employment (as of summer 2013).

VPGE also provides funds for initiatives that diversify the academic pipeline. Supplementing activities in Stanford's seven schools, these initiatives develop university-wide programs for recruiting, enhancing the educational experience of current students, and cultivating interest in academic careers to diversify the professoriate nationally.

VPGE has further expanded the Enhancing Diversity in Graduate Education (EDGE) Fellowship Program to include Graduate School of Business and Humanities & Sciences humanities and arts doctoral students. EDGE provides mentoring and professional development resources to support the academic success of doctoral students in their first two years, with ongoing access to research funds in subsequent years. EDGE workshops expand the fellows' academic networks, mitigate isolation, and convey effective strategies for handling typical challenges encountered early in doctoral programs. Fellows are mentored by advanced PhD students (thereby concurrently helping them develop mentoring skills) as well as by faculty. Gradual scaling up of the EDGE program has been met with enthusiasm by faculty, students, and staff across the university.

Committed to extending its reach with programs of the highest quality that use students' time efficiently, VPGE launches new pilots to address priority unmet needs. The office communicates widely about these innovative opportunities and resources as well as engaging students through

its website resources, a monthly newsletter, and various social media. Faculty, students, and staff across the seven schools provide ongoing input about needs and program effectiveness.

## CONSOLIDATED BUDGET OVERVIEW

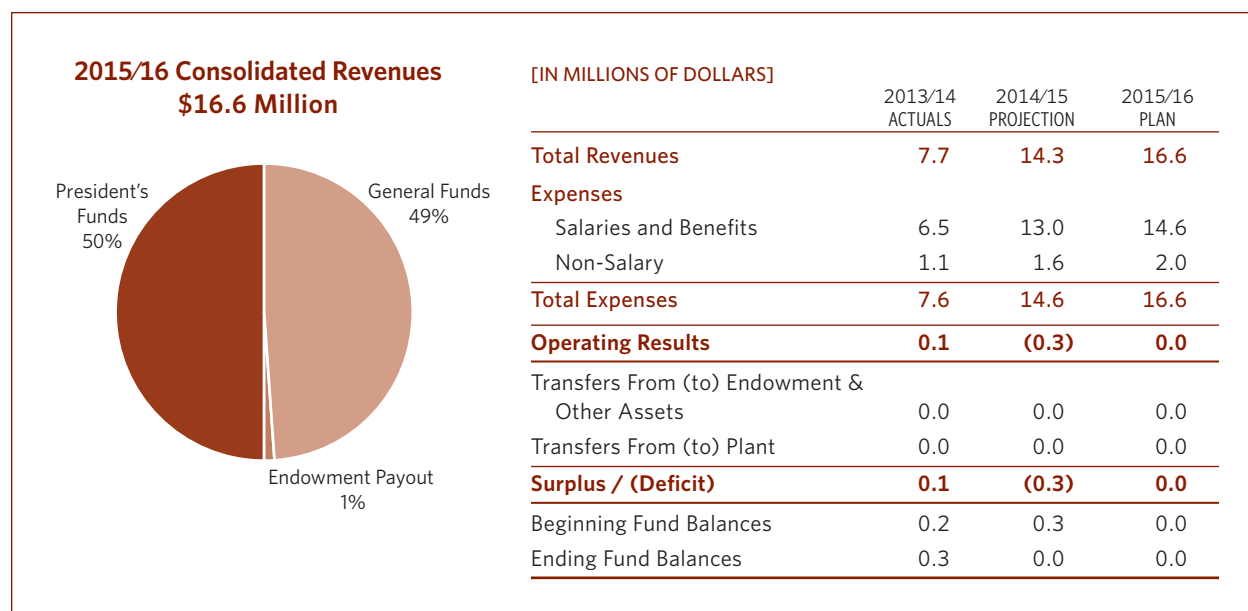
Endowment payout, general funds, and other transfers are expected to provide \$39.4 million in revenue for VPGE in 2015/16. Total expenses will be \$41.4 million, up from \$39.2 million projected for 2014/15. After asset transfers of \$500,000, a deficit of \$2.5 million is expected. Fund balances will be used to cover the deficit, which will decrease the consolidated fund balance to \$50.2 million at year-end.

The \$41.4 million consolidated expense budget comprises 86% direct graduate student support (through several fellowship programs), 9% compensation and benefits, and 5% programmatic non-compensation expenses. VPGE's graduate student funding will increase from \$33.8 million in 2014/15 to \$35.6 million in 2015/16, steadily drawing down the endowment fund balance. Compensation and non-compensation expenses will increase slightly to \$3.7 million and \$2.1 million, respectively.

Of the \$35.6 million in direct graduate student funding, most (\$32 million) will come from endowment and be allocated to department operating budgets; this includes funding for SGF, the largest university-wide fellowship program. The rest will come directly from general funds (\$3.2 million) and expendable funds (\$400,000).

In 2013/14, an unexpected, one-time transfer of \$9 million from Office of Technology Licensing patent income increased the consolidated fund balance to \$56.3 million from \$49.7 million. Planning is under way to determine how to best use the funds to meet the university's most pressing priorities in graduate education. By the end of 2015/16, increased expenditures in graduate student funding, compensation, and programmatic non-compensation expenses are expected to reduce the consolidated fund balance to \$50.2 million. VPGE's funding to graduate students and operational expenses will continue to increase as both ongoing programs and new pilot programs are selectively expanded to reach more graduate students in new ways. Cumulatively, the planned increases in direct graduate student funding as well as programs to advance diversity and professional development will steadily decrease the consolidated fund balance.

## VICE PROVOST FOR TEACHING AND LEARNING



The Office of the Vice Provost for Teaching and Learning (VPTL) was created to promote and advance the vibrant intellectual endeavor of teaching and learning at Stanford as a pursuit as central as, and interdependent with, the university's research mission.

### PROGRAMMATIC DIRECTIONS

VPTL will support its mission through four near-term strategic priorities in 2015/16:

- Develop a strategic direction that will invigorate teaching and learning on campus;
- Continue to deliver existing teaching and learning commitments and services, including grant programs, course development assistance, and technology innovation, in a way that maintains the quality of outcomes and client relationships;
- Develop targeted innovative teaching and learning projects with faculty and instructors to improve and enhance student learning on campus and provide opportunities for interested faculty to achieve broader impact; and
- Build the organizational structure necessary to support the newly created office.

VPTL is thinking broadly about how the university will best educate students in the 21st century and is seeding

fundamental changes to higher education in the process. As a new organization, VPTL will spend 2015/16 creating a strategic vision that considers cross-campus input from faculty and students, as well as from global and national thought leaders. Through a yearlong series of events called a "Year of Learning," VPTL will generate wide-ranging discussion and debate on campus about the future of teaching and learning at Stanford and beyond. VPTL expects these events to spark an open and public discussion, help shape the national conversation, and spread good ideas about learning. Through symposia, forums, expos, and other thought-provoking events, VPTL will shape its own strategic direction to invigorate teaching and learning on campus, and it will inculcate important values that will enrich the depth and range of Stanford learning experiences for generations to come.

VPTL's cross-functional teams enable it to continue delivering existing teaching and learning commitments and services. VPTL will continue to help train the next generation of teachers and help faculty hone and evolve their teaching skills, from the beginning of their academic careers through tenure and beyond. In parallel, VPTL approaches learning as a dynamically evolving process and provides programming and critical operations to assist undergraduate and graduate students, serving as Stanford's hub for the study and practice of student-based learning.

## Digital Teaching and Learning Technology

VPTL has defined targeted initiatives related to digital teaching and learning technology that fall into three categories: 1) teaching and learning innovation; 2) broader accessibility beyond campus of Stanford research and scholarship; and 3) development and extension of programs, such as professional development programs, across all schools.

VPTL will support faculty innovation as well as department and school efforts to develop new and expanded programs that advance teaching and learning in Stanford's classrooms. These range from active learning in innovative learning spaces to networked virtual classrooms bringing world cultures to campus to expanded distance-learning opportunities for alumni and professionals.

Celebrating Stanford's preeminent and wide-ranging research enterprise, VPTL will provide expertise and assistance in developing teaching and learning modules that convey research advances and broaden their impact for individual researchers, multi-university teams, and interdisciplinary research centers. VPTL will also support emerging research in the data science of teaching and learning by fostering a research community of practice and by providing data-oriented research services.

## Embedded Learning Specialists

In response to requests from schools, VPTL has developed another noteworthy initiative for 2015/16: a program to embed staff with discipline-based teaching, learning, and technology expertise in departments to support and grow initiatives focused on students' success. Embedded learning specialists (ELs) will work with faculty to explore and implement new pedagogy and technologies for learning. Because the ELs will be embedded in departments, they will participate in the department culture, sharing interests and ideas with their faculty colleagues.

## Organizational Structure

VPTL began preliminary operation on January 1, 2015, after combining three compatibly oriented units including Vice Provost for Online Learning (VPOL), Center for Teaching and Learning (CTL), and Academic Computing Services and CourseWork (ACS). VPTL is now a single, cohesive unit with a matrix structure. Staff are divided into four functional teams and one administrative group and serve on one or more cross-functional project teams. The four functional teams are:

1) Inspiration and Outreach, which engages in the national conversation about the future of higher education, in faculty outreach to spur innovation, and in program development with schools and centers throughout the university.

2) Learning Experience Design and Development, which focuses on instructor- and student-facing activities, providing online course development support, teaching consultations, small-group evaluations, and support for integrating technology into teaching.

3) Learning Environments, which manages physical learning spaces in Lathrop Library and supports residential computing and other computing clusters.

4) Engineering and Production, which oversees the CourseWork learning management system, the Lagunita platform (previously called OpenEdX) for delivery of online course material, and instructor and learner support. It includes the Media Production & Creation team, which provides video production, motion graphics, editing, and related functions for course materials.

## CONSOLIDATED BUDGET OVERVIEW

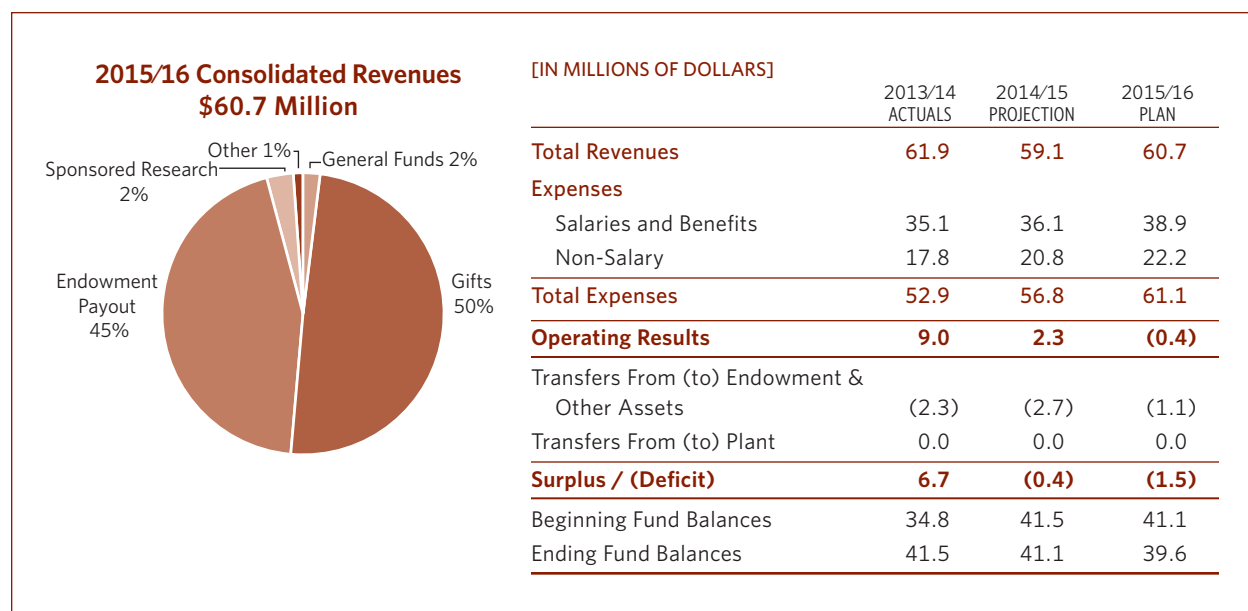
The 2015/16 consolidated budget for VPTL shows total revenues and expenses of \$16.6 million, a balanced budget.

Total revenues in 2015/16 are projected to increase by \$2.3 million, or 16%, from 2014/15. This increase is primarily due to one-time funding for teaching and learning programs and the conversion of Stanford's learning management system. A modest increase to base general funds supports administrative and operational infrastructure needed to replace those services that were provided by the former organizational units of the merging groups.

Total expenses in 2015/16 are projected to increase by \$2 million, or 14%, primarily because of the filling of several program staff positions to support new programs and the hiring of administrative leadership and staff to support the newly formed office.

Endowment and expendable funds are coming from the former CTL to support teaching and learning programs and the former Residential Computing Services unit to support student computing. These funds are earmarked to support enhancements to student learning programs and to maintain and refresh equipment in the public student spaces and residence halls.

# HOOVER INSTITUTION



With its eminent scholars and world-renowned library and archives, the Hoover Institution seeks to improve the human condition by advancing ideas that promote economic opportunity and prosperity and secure and safeguard peace for America and all humanity.

## PROGRAMMATIC DIRECTIONS

In the coming year, Hoover will build on the strategic growth recently achieved in its program areas and support functions. The institution continues to research areas of relevance to its mission via collaborative teams that have been enhanced with new scholarly talent. The library and archives have invested in personnel, program, and information technology infrastructure, positioning themselves well for growth in collecting, preservation, access, and research in the coming year. During the past 12 months, Hoover both redesigned its website and launched a new tablet application, creating updated platforms to disseminate the work of Hoover scholars and the library and archives more broadly. Finally, the institution is in the middle of a two-year process to expand its development department to sustain its growth in the years to come.

The strength of Hoover's research program lies in the exceptional ability of its scholars; thus, refreshment and expansion of the fellowship continues to be a priority. For

2015/16, the institution anticipates adding two new senior fellows. No additional term appointments are planned for 2015/16, although they may be considered in response to the needs of the research program. To complement existing initiatives, Hoover has launched several new programs that are expected to grow in 2015/16. Among them are studies of intellectual property and innovation, state and local pension reform, and a program on cybersecurity aligned to the broader initiative at the university.

Growth in the library and archives continues per the strategic plan developed last year. For 2015/16, Hoover will expand its collecting of and research on Japan's modern diaspora. The plan calls for a new Japanese curator, new acquisitions, periodic scholarly activities, and a program to digitize a portion of the existing collection. Using a new digital infrastructure and access software, Hoover is also seeking archival material that is born digital, in addition to continuing to digitize its existing holdings, hoping to make materials more broadly accessible. Finally, the library and archives will increase their visibility with Stanford students, scholars, and the public by expanding their offerings of workshops, lecture series, fellowships, and public exhibitions.

Hoover will use its redesigned website and new app as resources for public policy and fact-based scholarship.



Leveraging these new platforms and other distribution partnerships, the institution will embark on a program called Educating Americans in Public Policy. Using a variety of formats, such as brief animated video series, adaptations of Hoover fellows' massive open online courses, and live-action policy parables, the program will strive to equip American citizens and public leaders with accurate facts, historical knowledge, and an analytic perspective and inform the discussion with thoughtful public polling.

To meet the fundraising and administrative needs of its programmatic areas, Hoover will continue to expand its development office and build up the administrative function via strategic staff additions. It will both seek to augment its fundraising strength in California and increase its efforts in the eastern and central United States. The administrative capacity of the institution has not, to this point, kept pace with growth in the other functions. Hoover is engaged in a focused effort to review and restructure administrative processes to increase efficiency, but additions to staff will be required in 2015/16.

Finally, the institution will be under new leadership. After 26 years, John Raisian will be stepping down as director at the end of this academic year. Thomas Gilligan, currently dean of the McCombs School of Business at the University of Texas, will assume the directorship effective September 1, 2015.

## CONSOLIDATED BUDGET OVERVIEW

For 2015/16, Hoover projects revenues of \$60.7 million and expenses of \$61.1 million, for an operating deficit of \$400,000. A planned \$1.1 million transfer to the capital facilities fund will reduce fund balances by \$1.5 million, to \$39.6 million.

Revenues are projected to increase by \$1.6 million, or 2.7%, over 2014/15. Endowment income is expected to grow by 3.6%, net of payout on new endowment gifts and transfers. Payout growth will be lower than the 4.2% expected by the university because the institution recently withdrew \$20 million from the principal of the capital facilities fund as a subvention payment to move the Art Department from the Cummings Art Building, per Hoover's agreement with the university. Ongoing expendable giving growth is expected to be modest as recent program-specific fundraising has been remarkably successful, with significant prepayment of long-range pledges, particularly for the Educating Americans in Public Policy program. Thus, Hoover plans

to draw down accumulated reserves as program-specific expenses begin to catch up with previous fundraising.

Given the planned use of reserves, expense growth is expected to track higher than revenue growth. Real expense growth of \$4.3 million, or 7.6%, will result from the following:

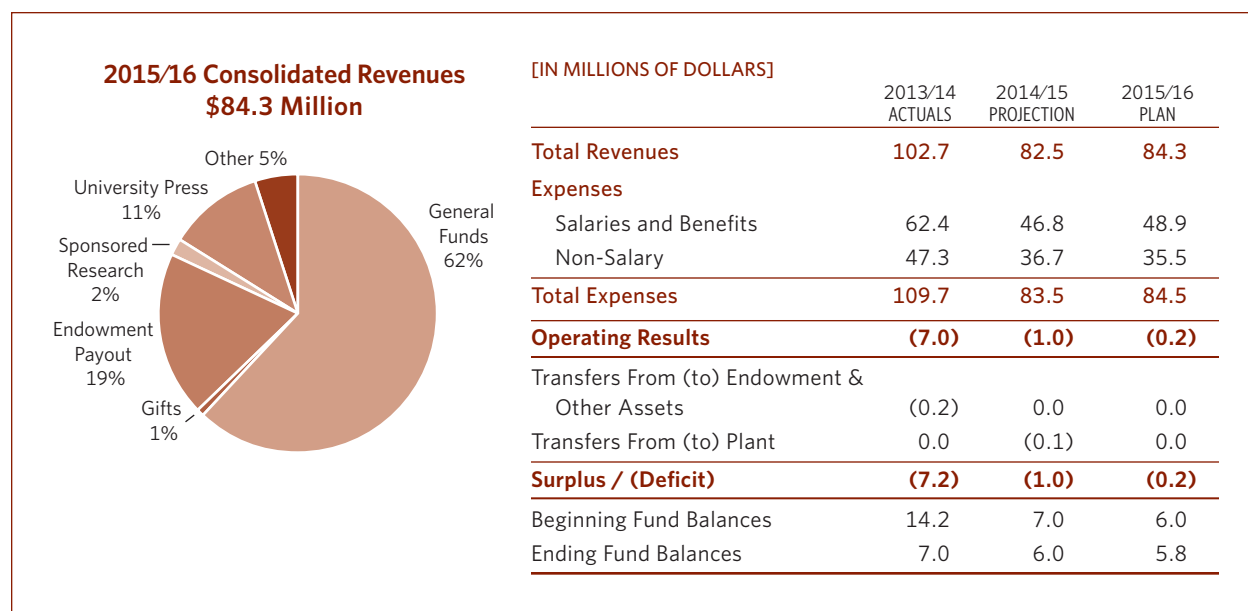
- Two new senior fellow appointments are anticipated, with additional support staff and research funds required. In conjunction with those appointments and other recent fellow additions, new program spending is expected for associated research initiatives.
- The library and archives will expand their curatorial staff and program expenses for the Japanese diaspora program and other new activities.
- Expenses for professional services, scholar payments, and general program costs for the Educating Americans in Public Policy program will increase in 2015/16.
- Staff additions are expected in the development and administrative functions.

The institution plans to transfer \$1.1 million to the capital facilities fund in early 2015/16, bringing the balance of the reserve to approximately \$5.9 million. This reserve will become a backstop for operating and maintenance expenses for the new Hoover building.

## CAPITAL PLAN

Plans for the new Hoover Conference Center and Office Building on the site of the Cummings Art Building continue on schedule. The need for a fourth building results from steady growth in the institution since the opening of the Herbert Hoover Memorial Building in 1978, as well as anticipated growth in the future. The new building will add 50,340 square feet of offices and conferencing facilities. The total project cost is \$65 million, \$57.5 million for construction of the building and \$7.5 million for connective elements. Hoover has received signed pledges for expendable gifts that will fully fund this cost. The Board of Trustees has granted concept and design approval; construction approval is anticipated later this year. The current project plan estimates groundbreaking this summer and project completion in 2016/17. Hoover has initiated a programmatic study of its three existing buildings to assess the need and propose a plan for their phased renovation after the new building is complete.

# STANFORD UNIVERSITY LIBRARIES



## PROGRAMMATIC DIRECTIONS

The Stanford University Libraries (SUL) continue to provide scholars and students at Stanford with a range of services and collections supporting their roles and research agendas. As noted below, the efforts of great research libraries, including SUL, to support their users sometimes make the critical nature of their role invisible. The information provided below is aimed at increasing that visibility, demonstrating the very particular role SUL plays in this leading research university, and outlining SUL's directions for the coming year.

Libraries are most commonly associated with published materials, and SUL supports access to and use of a broad spectrum of those materials. SUL still circulates about 5 million items each year from its print collection, which includes over 9 million items, and SUL's librarians and other specialists offer five hundred workshops and courses each year to assist faculty and students in identifying and using all materials relevant to their research. Many of those materials are electronic. Well over 4 million articles are accessed each year from the roughly 25,000 e-journals SUL licenses, while more than 2.5 million uses are made of the million e-books SUL licenses. SUL constantly improves client access to these resources and makes a point of not complicating that access by adding overlays or interactive

screens advertising. Its role in bringing them to the Stanford community, the work of hundreds of SUL staff in licensing, deploying, coordinating, and providing a discovery interface for the resources, is largely unrecognized by the average user. Without their support, however, the 24x7x365 access to resources that Stanford students and faculty enjoy would not be possible.

Where electronic materials are the norm, discovery tools are key, and SUL is very proud of the advanced discovery interface that it provides for its users. During 2015/16, SUL will add a geographic element to that discovery environment. Known as EarthWorks, the new tool will allow users to leverage maps in finding and utilizing resources, which will accelerate the already heavy use of geospatial information resources in virtually all fields of academic endeavor. Also rolling out this year will be Spotlight, a web content management tool that will allow scholars to readily integrate digital information objects in SUL's collection into websites and exhibits, thus improving the discoverability of those objects.

Archiving is also a core library function, and 2015/16 is expected to bring expanded use of the Stanford Digital Repository (SDR), SUL's digital archiving service. The data management plans required by U.S. federal funding

agencies drive much of the demand, though SUL's archiving services cover a broad spectrum of use cases. One notable use case is website archiving. Thanks to a more refined approach to capturing websites developed here and in consultation with other research libraries, more web archiving of network-based information resources from governmental and nongovernmental organization sources will occur in the coming years. That web archiving will be accompanied by the creation of metadata elements so that the captured websites that will be deposited in SDR will be easily discoverable. For instance, many U.S. government websites sustained for access for only 90 days will be retained here for the long run. In collaboration with other research libraries here and in Europe, SUL will challenge the ephemerality of the web and the commitment of some agencies, governments, and institutions to maintaining the record of civilization.

Finally, libraries are still known for their physical spaces. On that front, SUL is excited to open a singularly important new facility. The David Rumsey Map Center will open in early 2016 and will occupy the fourth floor of the Bing Wing of Green Library. The center will provide access to Stanford's expanding collection of rare maps and geographical information resources (atlases, gazetteers, surveying instruments) in both physical and digital form, along with technologies and software to facilitate their use. It will interoperate seamlessly with SUL's Geospatial Information Service, and its services will include a program of instruction in advanced uses of maps; lectures by distinguished geographers, historians, and collectors of maps; and a regular program of seminars, exhibits, technological innovation, and public presentations. Given the widespread use of maps in various forms by virtually all Stanford faculty departments, the generosity of David and Abby Rumsey as well as a cast of other donors and supporters, is making Stanford the most avant-garde full-service map service west of Washington, D.C.

Several challenges remain worrisome. SUL's efforts to return the Library Information Budget, its acquisitions budget, to the purchasing-power level of 2007/08 remain frustrating. That purchasing power regularly declines, de-

spite the occasional strong increases, and thus SUL is unable to respond effectively to requirements newly expressed by Stanford faculty. This year that meant SUL could not acquire requested engineering and other standards from the developed world. The formula driving increases in the Library Materials Budget is tied to the national Consumer Price Index (CPI), but price increases in academic publishing on a global scale are always multiples of CPI. Planning is under way to move about one hundred SUL staff, formerly housed on Page Mill Road, from recently refurbished and occupied spaces at 425 Broadway in Redwood City to surge spaces across Broadway and then, two years later, to a new building, but the loss of productivity due to these moves is regrettable. As SUL plans and implements bookless libraries on campus for the sciences and engineering, Stanford students demonstrate strong needs for library spaces for study and research. The recent realization of the Lathrop Library from the building formerly known as GSB South has been very successful, and underscores the role of well-maintained and supervised spaces for students.

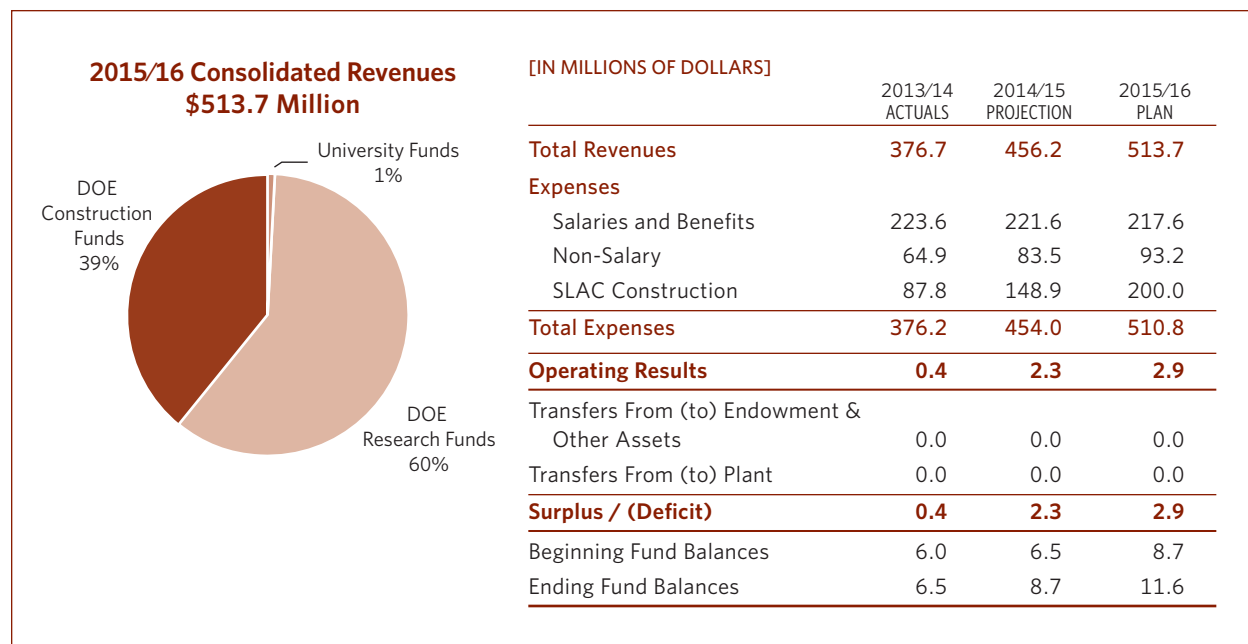
## CONSOLIDATED BUDGET

Consolidated revenue and transfers are expected to total \$84.3 million: \$52.3 million in general funds, \$9.7 million in auxiliary revenue, and \$22.3 million in restricted and other funds. Consolidated expenses are projected to total \$84.5 million: \$48.9 million in compensation expenses, \$12.9 million in operating expenses, and \$22.7 million in library materials acquisitions. The resulting planned operating deficit of \$200,000 will be covered by restricted fund balances.

SUL's base operating budget is projected to grow 3.7% from the 2014/15 level. SUL will also receive the third installment of \$2.6 million in one-time presidential funds to continue its digital efforts.

Fund balances at the end of 2015/16 are expected to be \$5.8 million. SUL projects balances of \$1.9 million in restricted expendable funds, \$3.4 million in restricted endowed funds, \$1.0 million in designated funds, \$2.2 million in Lots of Copies Keep Stuff Safe (LOCKSS) auxiliary reserves, and \$800,000 in LOCKSS auxiliary operations.

# SLAC NATIONAL ACCELERATOR LABORATORY



## PROGRAMMATIC DIRECTIONS

SLAC is a national laboratory operated through a management and operating contract by Stanford University for the Department of Energy (DOE). This contract has been renewed through September 30, 2017. DOE's land lease at SLAC extends through September 30, 2043. The duration of this lease guarantees the full usage of the DOE Office of Science's Linac Coherent Light Source (LCLS) facility.

SLAC hosts DOE scientific user facilities allowing more than 3,000 scientists annually from around the world to conduct research in photon science, astrophysics, particle physics, and accelerator science.

### Scientific User Facilities

SLAC operates three DOE Office of Science user facilities: Stanford Synchrotron Radiation Lightsource (SSRL), LCLS, and the Facility for Advanced Accelerator Experimental Tests (FACET).

SSRL provides X-ray beams and advanced instrumentation for research ranging from energy storage and environmental remediation to drug discovery and magnetism in thin films. In 2014, approximately 1,600 unique scientific users performed research using SSRL's X-ray beam lines. SSRL

continues to routinely deliver its highest operation current (500 milliamperes), which is among the highest of the intermediate energy X-ray light sources in the world. The increased current makes SSRL's X-ray beam lines brighter, enhancing experimental capabilities and reducing the time needed for data collection, thus adding capacity.

LCLS is the world's first hard X-ray free electron laser (FEL) and one of only two currently operational in the world. LCLS probes the structure and dynamics of matter at nanometer-to-atomic dimensions and on femtosecond time scales. This is opening new frontiers of discovery in areas including atomic physics, imaging of nonperiodic nanoscale materials, nanocrystallography, ultrafast structural and electrodynamic, and matter under extreme conditions.

LCLS-II, which is an upgrade of LCLS, was reconfigured consistent with a DOE advisory panel (BESAC) to incorporate a new superconducting linear accelerator. Compared to the original upgrade, this new approach will allow LCLS II to produce X-ray laser pulses with higher energies as well as higher repetition rates for a much broader range of wavelengths. This new configuration in fact will put the LCLS II x-ray laser worldwide at the forefront of x-ray facilities, significantly enhancing SLAC's scientific capability and

capacity. SLAC is developing and building the project in partnership with four DOE national labs—Argonne, Berkeley Lab, Fermilab, and Jefferson Lab—and Cornell University, utilizing core competencies of the DOE complex to accelerate implementation. LCLS and LCLS-II will maintain SLAC's position as a world leader in ultrafast X-ray science for a decade to come. Given the impact it already had, this area will see significant growth and impact in the coming years.

FACET is an accelerator test facility that provides unique high energy and intensity beams of electrons and positrons for a diverse experimental program. It supports a broad program of advanced accelerator R&D with users from around the world. FACET is crucial to sustaining SLAC's core capabilities in advanced accelerators and serves as a test bed for developing new acceleration concepts.

### Science Programs

SLAC established a Science Directorate in 2015 in pursuance of its strategic plan. SLAC recognizes that providing world-class research facilities is not enough. To ensure that the best science is carried out at SLAC, the laboratory must continually take a leadership role in identifying and pursuing new science. The Science Directorate focuses on material science, chemical science, biosciences, high-energy density science, applied energy, particle physics, and particle astrophysics and cosmology.

The directorate pursues much of its research through joint Stanford-SLAC institutes. These include the Photon Ultrafast Laser Science and Engineering Center, the Stanford Institute for Materials and Energy Sciences, and the SUNCAT Center for Sustainable Energy through Catalysis.

Material science studies the origins of high-temperature superconductivity and the dynamic properties of ferroelectric and magnetic materials through X-ray and ultrafast techniques. Chemical science explores the attosecond and high-field frontier, imaging molecular structures and dynamics, controlling charge separation and excited state processes, and following the dynamics of catalytic reactions at surfaces and interfaces in real time. The biosciences division has been established in partnership with the schools of Medicine, Engineering, and Humanities & Sciences and builds on structural biology research at SSRL. High-energy density science explores matter in extreme conditions with the unique capabilities of the LCLS FEL, while the applied program extends SLAC's capability into applied energy research.

SLAC is a major partner in the ATLAS experiment at the Large Hadron Collider at the European Organization for Nuclear Research (CERN). The ATLAS experiment continues to explore the properties of the Higgs boson while searching for physics beyond the Standard Model of particle physics.

SLAC's cosmic frontier program includes the Fermi Gamma-ray Space Telescope, research and development efforts for the next generation of dark matter experiments, and construction of the ground-based Large Synoptic Survey Telescope (LSST). The Kavli Institute for Particle Astrophysics and Cosmology provides the intellectual center for these activities and is a vital link to Stanford campus researchers in these fields.

### CONSOLIDATED BUDGET OVERVIEW

The 2015/16 SLAC consolidated budget projects total revenues of \$513.7 million and total expenses of \$510.8 million, with an operating surplus of \$2.9 million. The DOE Office of Science funds over 98% of the SLAC budget, \$507.5 million, of which \$307.5 million is for direct research and \$200.0 million is for major capital project costs. SLAC also receives funding from university general funds and other research grants and contracts.

SLAC consolidated expenses will increase 12.5% in 2015/16 from the \$454.0 million planned for 2014/15. The direct research part of the expense budget continues to face federal budget constraints from the DOE Office of Science and will grow only 1.9%. At the same time, SLAC is pursuing new opportunities in other areas of science, as supported by the laboratory's decision to establish a new Science Directorate. The construction component of the expense budget, in contrast, will grow 34.3% to \$200.0 million. The majority of this growth is attributable to the LCLS-II construction project, whose scope is described in the Programmatic Directions section above.

### CAPITAL PLAN

SLAC's long-range development plan was developed with a vision of supporting future scientific program direction by consolidating research activities, upgrading infrastructure, renovating facilities, and demolishing substandard structures. This plan serves as a working document and resource guide beyond the immediate future of planned capital projects.

The \$97 million, DOE-funded Research Support Building and Infrastructure Modernization Project is nearing its completion date of June 2015. The project includes construction of a 64,000-square-foot building to house accelerator research staff and a control room, renovation of 4,000 square feet of existing lab space to create two new biology labs and a materials lab, renovation of two administrative buildings (64,000 square feet), demolition of some substandard buildings, and the upgrade of an aging protective relay system for a main transformer that provides power to SLAC.

Additional planned projects include three funded by DOE—the \$65 million Science and User Support Building (SUSB), the \$55 million Photon Sciences Laboratory Building (PSLB), and the \$895 million LCLS-II Experimental Complex. Another current project is the \$168 million LSST camera system, which received its baseline budget in 2014/15. The LSST is designed to determine the properties of dark energy with high precision, and SLAC is leading the construction of the 3.2-gigapixel camera.

SUSB construction started in July 2013, with occupancy planned in late 2015. The project includes the demolition of the existing auditorium and cafeteria and their replacement with a new auditorium, cafeteria, and user center. The DOE funding for the PSLB is currently planned for 2015, with groundbreaking tentatively scheduled for 2016 and occupancy for 2018. This environmentally sustainable facility will include wet labs, dry labs, characterization, and a small cleanroom, as well as offices and collaboration space, to support SLAC's photon science mission.