

# CHAPTER 2

## ACADEMIC UNITS

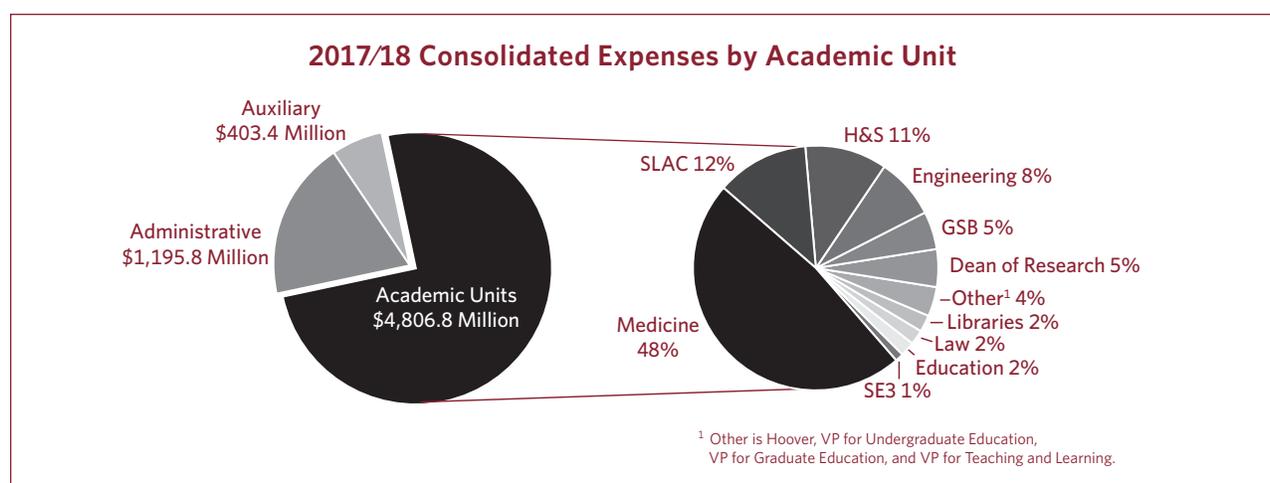
### OVERVIEW OF ACADEMIC UNITS

This chapter summarizes programmatic and financial activity for each academic unit. The revenue expectation in 2017/18 for these academic units comprises nearly 75% of the university total revenue. Overall, the academic units project an operating surplus of \$158.1 million. After transfers to facilities and endowment, the unit budgets overall will achieve a \$104.2 million surplus.

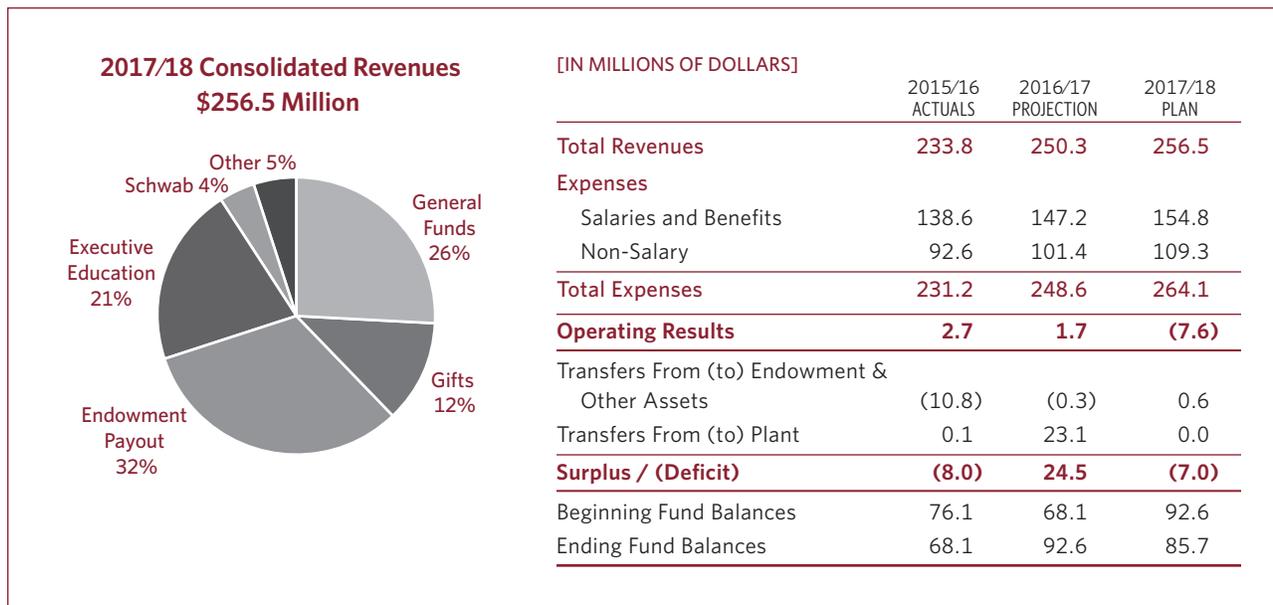
### CONSOLIDATED BUDGET FOR OPERATIONS, 2017/18: ACADEMIC UNITS

[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	256.5	264.1	(7.6)	0.6	(7.0)
School of Earth, Energy & Environmental Sciences	65.4	71.7	(6.3)	1.8	(4.5)
Graduate School of Education	76.4	75.2	1.2	(1.2)	0.1
School of Engineering	399.4	398.2	1.2	1.7	2.9
School of Humanities and Sciences	529.8	518.4	11.4	(9.5)	1.9
School of Law	96.9	90.1	6.8	(6.7)	0.1
School of Medicine	2,464.4	2,327.8	136.6	(43.8)	92.8
Vice Provost and Dean of Research	246.6	234.0	12.6	3.3	15.9
Vice Provost for Undergraduate Education	57.2	49.1	8.1	0.1	8.3
Vice Provost for Graduate Education	10.5	12.6	(2.1)	(0.3)	(2.4)
Vice Provost for Teaching and Learning	40.1	39.9	0.2	0.0	0.2
Hoover Institution	68.6	72.1	(3.4)	0.0	(3.4)
Stanford University Libraries	89.5	89.1	0.4	0.0	0.4
SLAC	563.6	564.6	(1.0)	0.0	(1.0)
<b>Total Academic Units</b>	<b>4,964.9</b>	<b>4,806.8</b>	<b>158.1</b>	<b>(53.9)</b>	<b>104.2</b>



## GRADUATE SCHOOL OF BUSINESS



### PROGRAMMATIC DIRECTIONS

The Graduate School of Business (GSB) has a mission to create ideas that deepen and advance the understanding of management and, with those ideas, to develop innovative, principled, and insightful leaders who change the world. The GSB remains focused on pairing faculty research and teaching with the practical application of that research to address the business and management challenges that exist in the world today. The GSB offers the two-year full-time MBA, PhDs in seven distinct fields of study, and the Master of Science in Management. In addition, the GSB runs a host of custom, open, online, and international executive education programs.

Academic year 2016/17 was one of leadership transition for the GSB, with the arrival of the new dean and the appointment of two new faculty senior associate deans. The GSB created two committees to explore and develop a vision for research and management education at the school over the next 10-15 years. The process is designed to complement the university's long-range planning process.

#### Faculty Research and Teaching

The GSB plans to maintain roughly 125 tenure-line faculty. In addition, roughly 150 lecturers bring in expertise from organizations across the world. The school continues to emphasize

support for faculty research through its Centers and Initiatives for Research, Curriculum & Learning Experiences (CIRCLE). CIRCLE facilitates connections to industry leaders, provides highly technical support for data-driven research, provides research assistance, and manages events that disseminate learnings.

#### The Student Experience

The breadth of the elective curriculum remains one of the strengths of the GSB. Last year the school offered 173 electives that provided students with opportunities to take courses matching their passions and priorities. Beyond the campus, the MBA program organized 22 Global Study Trips and 3 Global Seminars that took nearly 600 students to 23 different countries for 8-10 days. The Global Management Immersion Experience program sent 90 first- and second-year students to 32 countries to hone their international management skills by working in corporate, government, and nonprofit organizations for a minimum of four weeks.

The GSB continues to attract the highest-quality students into all of its degree programs. The student body is more diverse than ever, and selectivity and yield continue to increase, a trend that parallels that of the university's undergraduate program. Nearly 41% of the MBA class of 2018 are women. The

GSB has a number of pilot initiatives in support of increasing diversity. One successful pilot has been the research fellows program. This is a postbaccalaureate program for eight high-potential individuals to gain valuable experience as research assistants, take doctoral-level courses, and participate in the intellectual community. The program targets students from underrepresented groups and covers the cost of their tuition and living expenses. Its goal is to broaden the pipeline of prospective PhD students, with an emphasis on attracting women and minorities.

The GSB's newest residence, Highland Hall, opened in the fall of 2016, increasing the number of beds available for business students from 280 to 480. The GSB can now provide housing to all of its single, first-year MBA students. Immediately following completion of Highland Hall, the GSB began renovation of the Schwab Residential Center, which will be completed in 2017/18.

### Global Impact

The GSB continues to reach into international markets to bring a range of insights to students, provide research opportunities for faculty, and stay connected to dynamic trends in global business. The primary global programs are the Global Innovation Programs, the Stanford Institute for Innovation in Developing Economies (Seed), and the Executive Education Online LEAD Certificate in Corporate Innovation. Each year, the Global Innovation Programs deliver leadership, innovation, and entrepreneurship programs in person and through distance education technology to 900 young professionals, aspiring innovators, government leaders, and prospective students all around the world. More than 170 students from around the globe enroll in the two online LEAD Certificate program cohorts annually. This intellectually rigorous, yearlong, multidisciplinary, high-touch program is delivered entirely online with both synchronous and asynchronous elements. It also involves extensive cohort-based learning and networking experiences, sometimes using a virtual reality platform. The eight-course, one-year program has become a model for integrating education technology to improve program curricula. Seed, with regional centers in West and East Africa, will be opening its third international center in southern India at the beginning of 2017/18. Seed's mission is

to end the cycle of poverty in developing economies through in-country educational programs, student internships, and research. After running its educational programs free of charge for four years, Seed began charging a small fee based on feedback that participants should have a stake in the programs.

### CONSOLIDATED BUDGET OVERVIEW

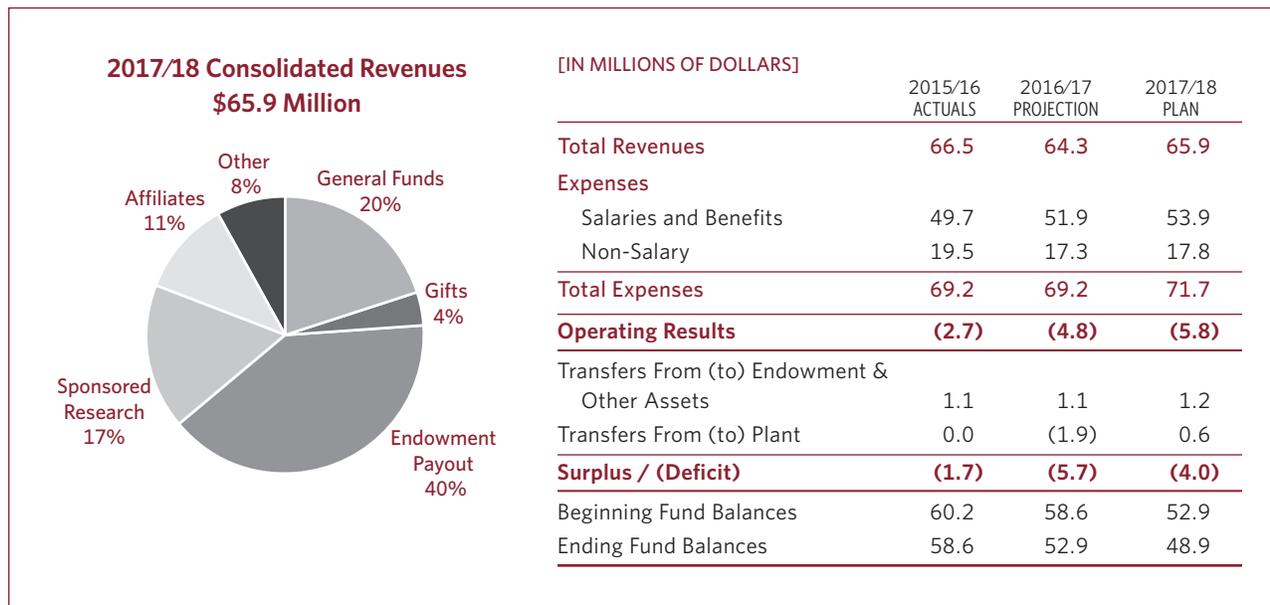
The school projects a 2017/18 consolidated budget with total revenue and transfers of \$256.5 million, expenses of \$264.1 million, and a net deficit of \$7.0 million after \$600,000 in transfers from endowment and other assets. This net deficit compares to a \$500,000 deficit in 2016/17, excluding a one-time transfer into the GSB of \$25 million from a bequeathed gift. The GSB expects \$85.7 million in fund balances at year-end.

The GSB projects that revenues and transfers for 2017/18 will increase by \$6.2 million, or 2.5%. Endowment income is expected to increase by \$2.3 million due to investment gains and newly endowed gifts. This increase is offset by \$1.9 million due to a conservative estimate of investment income. Gift revenue is planned to grow primarily in Seed restricted funds. Other revenue growth is planned from Executive Education through the online LEAD program and new face-to-face programs. Seed also plans to add revenue through its new educational program fees. Finally, the completion of the Schwab Residential Center Renovations in early 2017/18 will result in higher revenue from GSB residences.

Overall, the Business School projects a \$15.5 million, or 6%, increase in expenses in 2017/18. Compensation is projected to increase primarily due to merit increases as well as staff growth in Seed. Non-compensation expenses are projected to increase above inflationary growth. The largest areas of expense growth within the GSB are Seed, due to its new regional center; Executive Education; research support; and fellowship support. Increased expenses for Seed and Executive Education are offset by their increased revenue.

The 7.5% decrease in fund balances is projected to reduce unrestricted funds by \$3.5 million and restricted funds by \$3.5 million in 2017/18.

## SCHOOL OF EARTH, ENERGY & ENVIRONMENTAL SCIENCES



### PROGRAMMATIC DIRECTIONS

The School of Earth, Energy & Environmental Sciences (Stanford Earth, SE3) is dedicated to creating knowledge to understand Earth and sustain its inhabitants. In the summer of 2016, Stanford Earth launched a new strategic planning effort. This is an exciting process and an important one to ensure the health and vibrancy of the school. The planning process confirmed the priority of four challenge areas that constitute the school's research focus on the environment and sustainability (the energy future, climate solutions, reducing disaster risk, and food and water security) and began to identify new research challenges. More importantly, a number of critical goals will guide activities and investment in 2017/18 and beyond. Implementation of these goals is already under way. The goals are:

- Engage all Stanford students in gaining knowledge about Earth and increasing their awareness of its resource and environmental challenges.
- Enhance the life and career success of graduate students and postdoctoral scholars.
- Support, foster, and strengthen collaborations both across departments and with others in and outside the university.
- Accelerate the impact of SE3's research.

- Enhance organizational culture, work environment, and diversity.

- Fund, design, and build a new building for Stanford Earth.

The school's top strategic priority is increasing Stanford undergraduate engagement and deepening its impact on undergraduate education. The school believes there is a need for new, flexible degree programs and new ways to touch the lives of all students. The following are a few examples of activities already under way:

- A new minor in Earth systems sustainability and a new master's in sustainability science and practice in response to demand for a sustainability curriculum.
- One-unit courses, such as *Know Your Planet*, make it easy for all students to engage, regardless of time commitments to majors.
- A suite of "Big Earth" courses, seminars, and internships allows students to combine a love of computation and data science with their application to Earth and sustainability challenges.

The second goal is to enrich the academic experiences of graduate students and postdoctoral scholars and prepare them for careers. A range of activities, including modifying

the graduate admissions process, improving mentoring, and creating more professional development offerings, is in development.

The third and fourth goals focus on improving opportunities for interdisciplinary collaborations within and outside of SE3, along with accelerating the impact of Stanford Earth's research through new partnerships with decision makers in government and nongovernmental organizations, as well as new professional education offerings. Achieving these goals will take investment from seed money for innovative collaborations to foster broader interactions among graduate students and postdocs, to the development of specific executive education curricula. While resources are limited, the school plans to experiment on a small scale to assess long-term impact.

The final two goals—enhancing organizational culture and diversity, and securing funding for a new building for Stanford Earth to replace the well-worn Mitchell Building—will continue to evolve over the next several years.

In addition, 2017/18 will be a year of significant transition for Stanford Earth. Dean Pamela Matson will step down December 31, 2017, after leading the school for 15 years. The growth and evolution of the school over this time has been remarkable. Stanford Earth has significantly expanded its areas of research and teaching and increased its number of faculty (and disciplines covered) by 40% and its graduate student population by over 50% while only growing its footprint by 8%. The strategic plan developed in 2016/17 will provide an excellent launching pad for a new dean and allow progress to continue despite the leadership change.

Financially, 2016/17 has been a cautious year. As anticipated, because of zero endowment payout growth and lagging support from federal agencies and the energy industry, SE3 will end this fiscal year dipping significantly into reserves for a third consecutive year. Projections for 2017/18 are looking somewhat better, thanks in part to modest, as opposed to flat, endowment income growth, but more significantly to the allocation of additional base general funds to address the lack of endowment growth against cost rise. Federal funding, particularly in the areas of climate change and sustainability, will likely continue to drop in the next several years, limiting SE3's ability to invest in new activities and increasing reliance on reserves to weather the financial storm.

## CONSOLIDATED BUDGET OVERVIEW

SE3 projects \$65.9 million in total revenues and operating transfers in 2017/18 and \$71.7 million in total expenses, with a resulting shortfall of \$4.0 million after \$1.8 million of asset transfers. Slow revenue growth reflects modest endowment payout growth and flat gifts, designated affiliate program income, and sponsored revenue. At this time the future of these income streams remains uncertain and is subject to change depending on fundraising success, oil and gas industry performance, and federal research funding availability. Asset transfers account for another \$1.8 million; these comprise a \$1.2 million transfer from endowment principal to income, as is mandated by two venture funds, and a \$600,000 repayment of bridge funding for the Huffington Barn project, as the pledge is paid. There are no planned capital projects requiring local funding in 2017/18 and consequently no transfers out to plant.

Of the total \$71.7 million in projected expenses, compensation accounts for \$53.9 million and non-compensation for \$17.8 million. Two to three faculty hires are anticipated in 2017/18, largely into existing billets vacated due to retirements. Any incremental spending will be limited and carefully considered in the context of strategic plan goals and constrained resources.

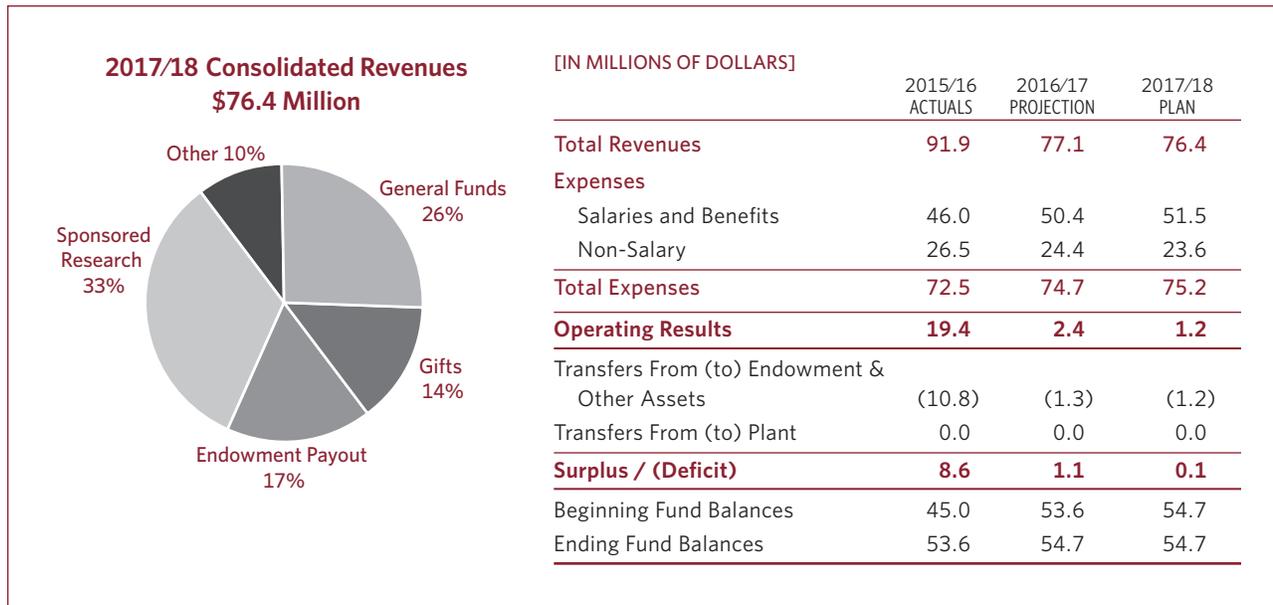
The budgetary shortfall is expected to lead to reserve draw-downs in all non-sponsored fund types, including reserves held by the school, departments, and programs, as well as affiliate program reserves and individual start-up funds, which are controlled by faculty.

## CAPITAL PLAN

SE3's capital plan for 2017/18 continues efforts from prior years. Most significantly, the new Earth, Energy and Environmental Sciences building will seek concept and site approval from the Board of Trustees in calendar 2017. The project has been scaled back due to limited total funding, from \$115 million to \$100 million. Detailed programming and design development will be the focus for 2017/18. Construction is slated to begin in 2019 with completion planned for 2021.

In fall 2017, Stanford Earth plans to dedicate the Huffington Barn at the O'Donohue Family Stanford Educational Farm. A generous gift is allowing the school to build a 1,600-square-foot structure that will provide critical teaching and working space for the ever-growing activities at the farm.

## GRADUATE SCHOOL OF EDUCATION



### PROGRAMMATIC DIRECTIONS

#### Long-Range Planning and New Initiatives

As the Graduate School of Education (GSE) begins its centennial year, it is focusing on several strategic priorities that will guide programmatic and financial planning. While education is necessarily a multidisciplinary field, the GSE is concentrating on areas in which its unique balance of research and training for practice can have the greatest impact. One such area addresses “learners in peril”: students who are disadvantaged by social and/or biological causes. These are the populations who depend on an extraordinary education the most, but are at the greatest risk for not receiving one and the least able to advocate for themselves. Imminent discoveries and emerging research methods create new possibilities of affecting the lives of countless students, together with their families and communities.

New programs have emerged as a result of this focus. The GSE has launched a doctoral specialization in race, inequality, and language in education, which will begin admitting students in 2018/19. The dean has also convened an interdisciplinary committee to consider establishing a new program in special education, leveraging Stanford’s strengths in the neurosciences, adaptive technologies, and public policy to complement the GSE’s leadership in learning science and teacher training. As these new initiatives emerge and take

shape, the GSE will also continue to support areas of traditional strength, ranging from humanistic disciplines and pedagogical research to learning technologies and cognitive science.

The GSE’s budget priorities for 2017/18 include the support of these new initiatives, as well as of activities undertaken in the past two years to strengthen collaboration within the school and to help increase and sustain its commitments to diversity and inclusion.

#### Achievements and Program Continuation/Enhancements

##### Students:

- The GSE has expanded the doctoral funding package to include two quarters of student summer funding. The primary goals are to provide packages to attract top doctoral talent and to reduce the financial burdens on the doctoral student population.
- The dean funded fellowships for master’s students to enhance diversity within the cohort in 2016/17 and has expanded these fellowships for 2017/18.
- The GSE is piloting a needs-considerate financial aid program for master’s students as a way of attracting a more diverse applicant pool and partially compensating for the reduction of federal loan programs.

- A faculty committee focused on improving the PhD experience will report findings and recommended actions in 2017/18.

#### **Faculty:**

- The faculty have modified the GSE's processes for hiring and promotion to encourage greater efficiency and transparency.
- The GSE has launched a new junior faculty mentoring program to help integrate new scholars into the community and increase their chances of success through the reappointment and tenure processes.

#### **GSE-Wide Community Initiatives:**

- The GSE has established and filled a new position of chief inclusion officer (CIO). In 2017/18, the CIO will work with faculty, staff, and students to foster a greater sense of community and inclusion across the school.
- The school has completed the programming and early feasibility phases of a new building planning process. In 2017/18, the GSE will start the next phase of the building planning and begin short-term facilities renovations to improve the quality and efficiency of current school spaces.
- A unique research/practice partnership with San Francisco Unified School District continues, engaging nearly half of the GSE's faculty in helping to resolve the most pressing issues facing the district leadership. The GSE will focus on the expansion of its partnerships with local area schools and districts in 2017/18.
- The GSE has launched a regular SiriusXM radio show discussing research-based approaches to common topics in education.

## **CONSOLIDATED BUDGET OVERVIEW**

The GSE projects a 2017/18 consolidated budget with total revenue and transfers of \$76.4 million and expenses of \$75.2 million, resulting in an operating surplus of \$1.2 million. After net asset transfers of \$1.2 million, the school projects a very modest consolidated surplus of \$50,000. Compared with the 2016/17 year-end projection, 2017/18 revenues and transfers will decrease by \$741,000 (1.0%), while expenses are projected to increase by \$420,000 (0.6%).

The major driver of expense growth is compensation. Total compensation expense will grow by \$1.2 million; this increase will largely be offset by a \$700,000 reduction in other external expenses, due mostly to the expiration of an off-campus lease.

The GSE projects total sponsored research activity to be flat in 2016/17 and decrease 2.5% in 2017/18. As in recent years, funding from federal sponsors is trending downward, and for the first time in over seven years, the GSE is also projecting a decrease in non-federal funding. The conservative 4% decrease in non-federal funding is due to retirements of GSE faculty who have traditionally brought in large volumes of research grants. However, in spite of the decline, sponsored research remains the largest funding source for GSE, making up 33% of the revenues in the budget.

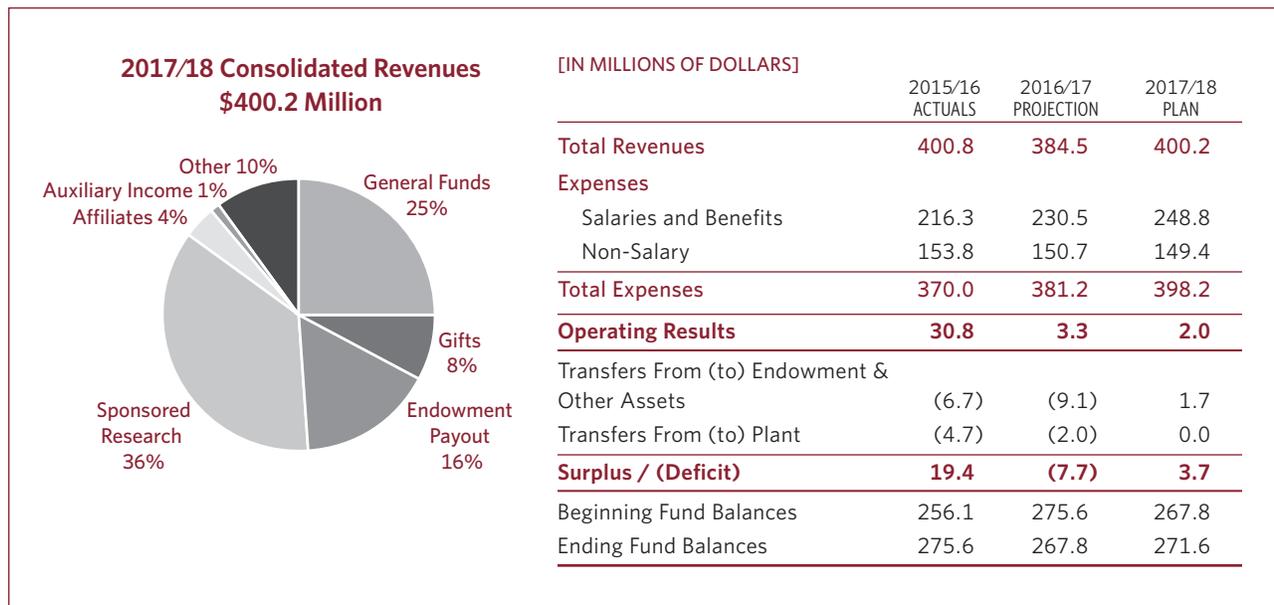
The GSE is closely monitoring the impact of the slow growth in endowment payouts for 2016/17 and 2017/18 on its operations. The primary areas of impact are the student aid and faculty salary budgets. For 2017/18 the GSE anticipates a shortfall in operating budget support from endowments of roughly \$200,000 that will need to be covered with other GSE funds. Accumulated balances will provide sustained funding in the short term. However, the GSE will need to seek sources of additional funding to support the status quo and to make growth and new initiatives possible.

## **CAPITAL PLAN**

The GSE has substantial and long-standing facilities needs that are increasingly constraining programmatic development and growth. The GSE School of Education Building opened in 1938. There have been no significant renovations since the original construction. Although this building serves as a core facility for the GSE, the school controls only one-third of its usable square footage. Consequently, GSE faculty, staff, and students are located in multiple buildings, on and off campus, in configurations of varying size and adequacy. The lack of sufficient contiguous space has adverse effects on cohesion and community.

As a long-term solution, the GSE continues the new building planning process, completing the programming and early feasibility phases in 2016/17. The schematic design phase will begin in 2017/18. In the short term, the GSE will create more efficient and modern spaces in the existing facilities and bring more of the community to the core GSE buildings. In 2017/18, the GSE will use a combination of central funding and school reserves (up to \$4 million) to renovate the School of Education building basement, including relocating the café and creating new office and meeting spaces for students and staff.

## SCHOOL OF ENGINEERING



### PROGRAMMATIC DIRECTIONS

In February 2017 the School of Engineering (SoE) welcomed a new dean, Jennifer Widom, a professor of computer science and electrical engineering. Dean Widom was previously chair of the Computer Science Department, served as the senior associate dean for faculty and academic affairs, and was a key leader in the SoE Future strategic planning process.

The school has implemented several of the operational recommendations from SoE Future and is on track to launch a pilot of the Catalyst for Collaborative Solutions beginning in the fall of 2017/18. The Catalyst pilot will bring together dedicated cross-functional teams including third-, fourth-, and fifth-year graduate students, postdocs, industry experts, and faculty from across Stanford to address the grand challenges outlined in SoE Future. The \$12 million pilot will support four teams for three-year terms (two teams beginning in 2017/18 and two teams beginning in 2018/19); it will be funded through a combination of fundraising and a presidential commitment. The Catalyst will provide project funding and strategic workshops in support of interdisciplinary research across SoE, the university, and beyond, to achieve impactful and lasting solutions to the world's most pressing problems. These grand challenge problems have an engineering component as part of their core solution, but engineers alone will

not solve these problems. This need to bring multidisciplinary researchers together is the driving force behind the Catalyst. In the long run, the Catalyst aspires to become an internationally recognized model of a purposeful, high-impact, and interdisciplinary research ecosystem.

The school is facing a very competitive landscape for faculty pursuing computational research, particularly in the Computer Science Department. Rapid expansion in the field of computer science and applied computation has created tremendous market-based pressure on faculty compensation. Given Stanford's location and symbiotic relationship with Silicon Valley, there has long been some loss of faculty to industry, but the benefits of moving to industry have been balanced by those of pursuing an academic research and teaching agenda at a world-class institution like Stanford. However, the landscape at peer and nonpeer institutions and in industry is changing, and the school's salary structure for this cohort places it at a competitive disadvantage in hiring and retention in this competitive area. An incremental increase in general funds will provide targeted help to attract and retain key faculty in this area.

A continuing need in SoE for several years has been funding for teaching assistants (TAs) to provide support for faculty in teaching. The university has increased the school's

TA funding substantially in recent years. Recent data show a slowing in the growth rate of undergraduate enrollment, and consequently, the school's allocation for TA tuition and salary will only grow by cost rise.

## CONSOLIDATED BUDGET OVERVIEW

SoE projects a 2017/18 consolidated budget with total revenue and transfers of \$400.2 million and expenses of \$398.2 million, resulting in a net surplus of \$3.7 million after \$1.7 million of transfers from endowment principal. Compared with 2016/17 year-end projections, 2017/18 revenues will increase by 5.4% and expenses by 4.4%.

Sponsored research remains the largest single component of SoE finances at approximately 36% of revenue. Federal grants are projected to grow 5% in 2017/18, due to increased spending in the Bioengineering Department. Non-federal sponsored research will see small growth from 2016/17 levels but has increased by 32% since 2015 due to ongoing, large research grants from industry.

Other revenue sources are projected to increase by \$6.5 million. Expendable gifts and endowment income are expected to increase by \$3.8 million combined, and a \$1.1 million increase in base general funds support from the university will help SoE address faculty salary concerns and provide additional support staff.

The majority of endowment payout schoolwide supports faculty salaries and students through endowed chairs and fellowships. Minimal growth in endowment payout, combined with faculty merit and market retention increases, may cause the school to use reserve balances to meet faculty payroll in the short term. Departments are managing graduate student admissions to ensure enrollments are aligned with available fellowship income. Although there is no schoolwide plan to reduce expenses due to endowment payout concerns, there may be some targeted cutbacks, and programmatic growth and innovation that would have been funded via endowment payout growth will be curtailed.

The overall school reserve position is strong, but the funds are asymmetrically distributed among faculty, departments, and the school. Of the total reserves, individual faculty and laboratory groups control 91% (\$107.8 million) of designated fund

balances and 90% (\$93 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, which leaves the dean without much financial flexibility. To address the endowment growth problem and the lack of flexible operating funds, SoE made the strategic decision to transfer \$10 million from school-controlled funds to funds functioning as endowment in 2016/17 to support general operations.

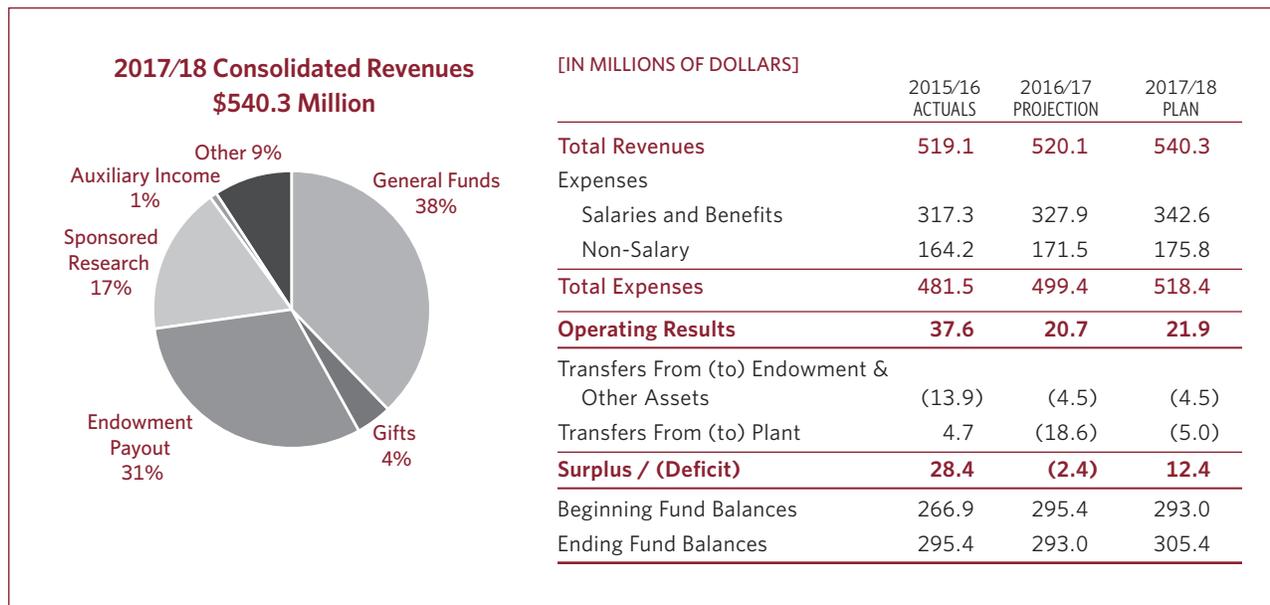
## CAPITAL PLAN

The SoE is focusing on renovations and planning for the future. The school began operations in two new shared fabrication facilities in the Allen Building in 2016/17. The Experimental Fabrication Facility and the Systems Prototyping Facility were designed to meet the needs of researchers and students today, while helping inform the school about future directions in fabrication as it explores alternatives for the aging clean room in Allen. Research activity in both facilities is ramping up in line with projections.

Renovations to both the Durand Building and the Gates Building began in 2016/17. The Durand Renovation - Phase 4, the final phase, began in April 2017. The Durand renovation will allow for growth in the Aeronautics and Astronautics and the Materials Science and Engineering departments by making use of space vacated by Mechanical Engineering and the Stanford Center for Professional Development. Renovations to the third floor of the Gates Building will improve office space and increase student, faculty, and staff density to support growth in Computer Science. The Gates loading dock is being relocated to accommodate the construction of the Bass Biology Building. The school will invest \$4 million to renovate labs for new faculty in the Durand, Shriram, and Mechanical Engineering buildings.

The school is doing long-range planning to address the growing intersections of computation with almost every other field of inquiry at the university. The school envisions a new facility sited and designed in a way that cultivates and nurtures these intersections, and it intends to begin formal programming for a new building in 2017/18.

## SCHOOL OF HUMANITIES & SCIENCES



### PROGRAMMATIC DIRECTIONS

The School of Humanities & Sciences (H&S) remains in a position of strength despite tightening budget constraints. Several years of investments in faculty and facilities have reinforced the school's strong academic and programmatic standing, but also greatly reduced unrestricted reserves.

During 2010-13, H&S grew its faculty by 10%, replacing losses that occurred after the 2008 recession. Faculty size is now sufficient to meet academic needs but is also straining financial and space capacities. H&S returned to a replacement rate of hiring three years ago, but large faculty start-up costs from the hiring surge will continue to impact its budget for several more years. For the foreseeable future, additional faculty growth will target gender and racial diversity and the neurosciences and Chemistry, Engineering and Medicine for Human Health (ChEM-H) initiatives.

With the goal of increasing undergraduate student interest in the humanities and social sciences, H&S has launched several new programs and curricular enhancements, including feeder programs for promising high school students and placement programs for graduates. These initiatives have contributed to small increases in humanities undergraduate course and degree enrollments across the past four years. In

this same vein, several initiatives in the social sciences focus on data science, the analysis of massive data sets, and how behavioral research informs the work of engineers and others in applied fields.

Doctoral student enrollments increased 9% between 2007 and 2014 but have been flat during the past two years. Selectivity of the graduate student body continues to increase, but some competing institutions are beginning to offer an additional year of guaranteed funding, raising concerns about longer-term competitiveness. The availability of fewer academic jobs has impacted time to degree as some students delay graduation to gain additional experience and become more competitive in the job market. While enrollment is projected to remain stable, the ChEM-H and neurosciences initiatives and the Knight-Hennessy Scholars program should enhance the school's ability to attract and support top doctoral students.

### CONSOLIDATED BUDGET OVERVIEW

For 2017/18, H&S projects revenues and operating transfers of \$540.3 million and expenses of \$518.4 million, resulting in an operating surplus of \$21.9 million. After \$9.5 million of net transfers to assets, the school projects an increase

in consolidated fund balances of \$12.4 million, with an ending balance of \$305.4 million. Fund balance growth is projected primarily in restricted gift and faculty-controlled research funds.

Dean's Office unrestricted reserves have declined from a high of \$74 million in 2010/11 to a projected \$17 million at the end of 2017/18. \$50 million of reserves has been used to fund significant portions of new arts and sciences facilities – notably the Bass Biology, ChEM-H, and McMurtry Art and Art History buildings. Reserves are also being used to fund a portion of the faculty hire start-up packages associated with the post-recession hiring surge. This net use will continue into 2017/18 and for several more years, gradually diminishing as the impact of replacement-rate hiring takes effect.

Lagging endowment payout during 2016/17 and 2017/18 is placing additional stress on the school's finances. H&S is highly dependent on endowment payout for funding core operations and also incremental activities that may range from new academic programming to essential staffing. The \$3.7 million funding gap between cost rise and minimal endowment payout increases was managed in 2016/17 by reducing graduate aid allocation to departments, eliminating nonessential expenditures, and using department and program reserves. The 2017/18 funding gap is projected to be \$3.1 million. A significant portion of the gap will be mitigated by additional general funding, while the remainder will be accommodated through a second year of budget reductions and uses of reserves. The effects of these funding reductions on operations and accumulated fund balances will not be fully known until fiscal year-end for both of these years. The Dean's Office will closely monitor these impacts and work with departments and programs to ensure the sustainability of operations.

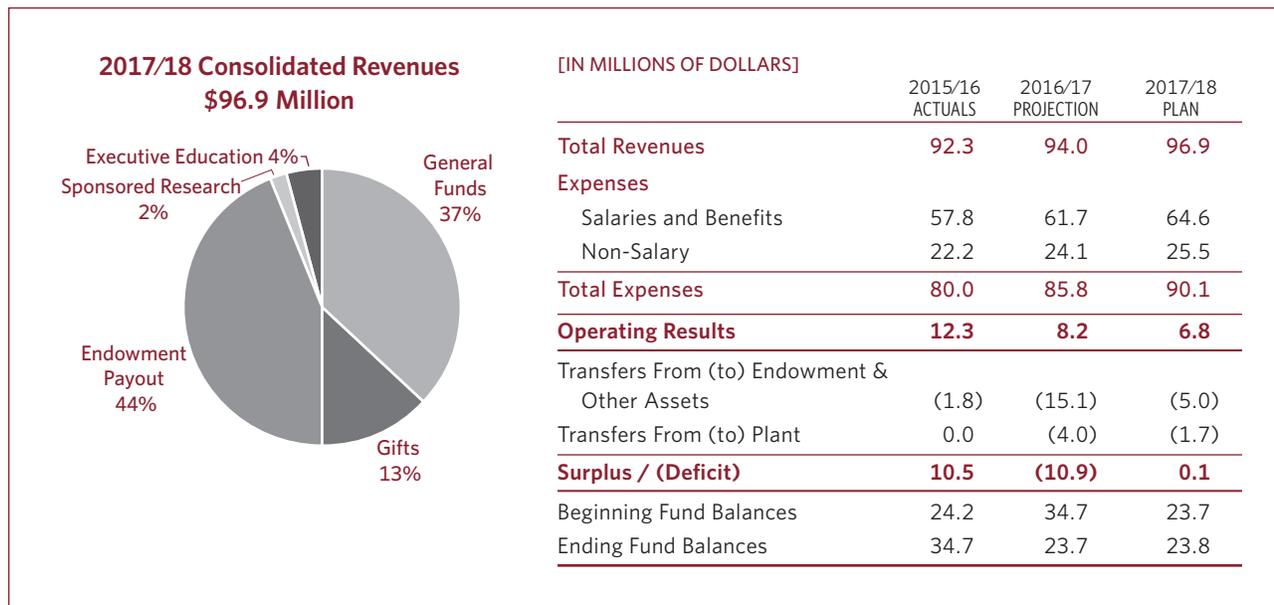
After several years of volatility, grant and contract volume increased sharply in 2015/16, a result of several senior faculty hires and large grant renewals. Federal grant and contract volume is projected to be flat during 2016/17 and decrease slightly in real terms during 2017/18. A small increase in non-federal grant and contract volume is projected for 2016/17, with volumes flattening in 2017/18. H&S has not yet seen the major volume declines experienced by other schools, but projections indicate slow or no growth during the upcoming years.

Consolidated budget numbers include programs (Cantor Center for Visual Arts, Stanford Arts Institute, Stanford Live, Bing Concert Hall, Anderson Collection, and Institute for Diversity in the Arts) that will move out of H&S and to the vice president for the arts in the upcoming year. This move will reduce the school's annual expenditures by \$20 million and accumulated fund balances by approximately \$25 million.

## CAPITAL PLAN

H&S continues to manage the largest capital plan in its history. During the upcoming two years, the school will focus on development of the new science quad and evaluation of humanities and arts performance spaces. The Bass Biology Building will be completed in summer 2018, triggering faculty moves from the Mudd Chemistry Building and its subsequent demolition. During summer 2017, the Physics Learning Center will move into newly renovated space in Building 60 on the main quad, and students will begin taking courses there in fall 2017. The Sapp Center for Teaching and Learning opened recently, providing innovative teaching and study spaces for undergraduate students. The Roble Gym now houses the Department of Theater & Performance Studies along with a "black box" theater, dance studios, and an arts gym.

## SCHOOL OF LAW



### PROGRAMMATIC DIRECTIONS

Stanford Law School (SLS) graduates excel in a wide variety of professional settings, and the school is enhancing its degree programs by focusing on two primary areas: curricular innovation and faculty recruitment. The Law School continues to innovate in its curriculum to better prepare its graduates for their professional futures, and it has prioritized the hiring of new, diverse faculty members to facilitate changes to the curriculum as well as to support the interdisciplinary interests of SLS students.

SLS recognizes that future lawyers should understand the levers of policy making and implementation, that globalization of the economy requires lawyers to have a global perspective, and that technological advances are transforming the delivery of legal services. To address these issues, the Law School is pursuing a set of new curricular initiatives.

The first of these initiatives, the Law and Policy Lab, provides opportunities for students to tackle real-life policy challenges for actual clients. Across 60 practicums over the past three years, students and faculty have worked with and advised clients on issues such as international security, patent trolls, wildlife trafficking, and copyright policy. The second initiative exposes students to transnational issues across substantive

areas of the law. To underscore the importance placed on this initiative, SLS has created a new position of associate dean for global programs that focuses on building a high-quality curriculum exposing students to the world of global legal practice. The third initiative addresses how technological changes are transforming the delivery of legal services. These changes both threaten current models for delivering legal services and hold the promise of expanding access to legal services for people who are currently underserved. Creating a curriculum to address these issues is challenging, but SLS is well placed to lead in this critical field and is actively exploring how the curriculum should evolve to reflect these developments.

The practical legal training students receive through work in the Mills Legal Clinic, where they represent actual clients under the close supervision of clinical faculty, will leverage the tools and knowledge they gain through the new innovative curricular offerings. Through university support and continued fundraising, the school now offers 11 clinics covering areas such as intellectual property, education law and policy, criminal defense, environmental law, and international human rights. In response to the current changes in immigration policy, SLS is expanding its Immigrants' Rights Clinic, through which faculty have provided advice, information, and counsel to members of the Stanford community who are directly

affected by these policy changes. The intensive training SLS students receive in the clinics serves them well as they begin their professional lives after graduation, and can spark or reinforce their dedication to pursuing public interest careers.

The SLS student population is small, and admission is extremely selective. In order to continue to attract an extraordinary, diverse student body with varied professional interests, the school's financial aid program seeks to make a law school education affordable to all. A relatively flat endowment payout in recent years has created some pressure on the financial aid program, but admission decisions are need-blind, and the school continues to meet all identified financial need of admitted students. SLS has made fundraising for financial aid a high priority, and the school will continue its strong commitment to a need-based financial aid program. In addition, the school makes sure that graduates can pursue legal careers in public service and public interest law through a generous loan forgiveness program.

The faculty is small and exceptional, and the school continues to expand its ranks to support the exciting developments taking place in the study and practice of law. Like many schools, SLS is in the midst of a generational shift in its faculty. In anticipation of future retirements, 17 individuals have joined the faculty over the past few years. These additions to the faculty recognize the desire of SLS students to explore studies in a variety of disciplines by reflecting a continued commitment to interdisciplinary research and teaching. Three of the new faculty members have joint appointments (two with the School of Medicine and one with the Freeman Spogli Institute), and many of the tenured and tenure-track faculty have a PhD as well as a JD. The recruitment and retention of faculty remains a high priority for the school and an area of focused effort and activity.

## CONSOLIDATED BUDGET OVERVIEW

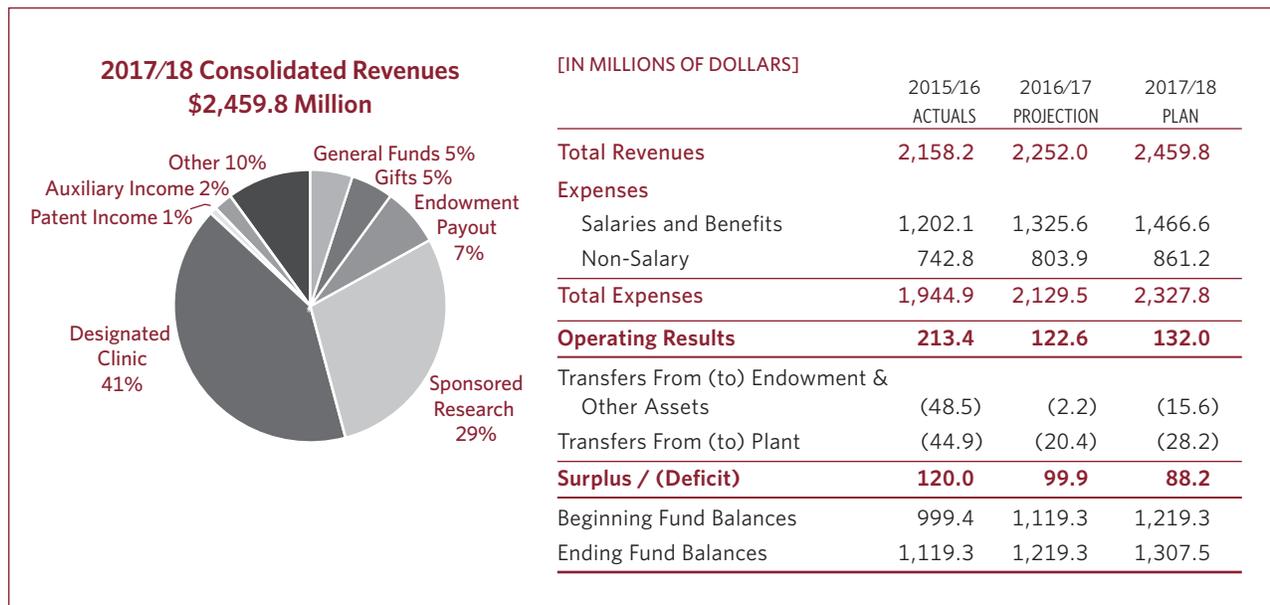
The 2017/18 consolidated budget comprises total revenues and operating transfers of \$96.9 million, expenses of \$90.1 million, and transfers to assets of \$6.7 million. SLS projects an increase in expendable fund balances of \$100,000. The transfers to assets include \$3.5 million to student loan to cover SLS Loan Repayment Assistance Program obligations; \$1.7 million transferred to plant for continuation of the Crown Quadrangle renovation; and \$1.5 million of unused restricted endowment income reinvested into funds functioning as endowment.

Consolidated revenue, exclusive of operating transfers, is anticipated to increase 2% to \$62.8 million. Designated income (\$5.2 million), expendable gifts (\$12.6 million), and endowment income (\$43.0 million) will each grow by 2%. Sponsored research remains steady and will generate \$2.2 million, of which \$1.5 million will be spent on the U.S. Department of State multiyear grant to support the Afghanistan Legal Education Project. Finally, general funds will increase by 6% to \$35.3 million.

Total consolidated expenses are projected to rise by 5% to \$90.1 million. With operating expenses targeted to grow faster than income in 2017/18, the Law School is shifting resources from long-term programming and capital projects to current operations. Additional staff and salary increases mean that compensation is expected to grow by 5% to \$64.6 million, and non-compensation will grow by 6% to \$25.5 million. Graduate student financial aid is increasing to \$9.3 million, while non-financial aid expenses are remaining constant at \$16.2 million.

SLS consolidated expendable fund balances will increase by \$100,000 to \$23.8 million. Of this balance, \$13.6 million is classified as noncash investments in housing loans and not available for use. The remaining \$10.2 million is available and consists of \$6.4 million for restricted purposes, such as academic programs and centers and financial aid, and \$3.8 million for unrestricted purposes.

## SCHOOL OF MEDICINE



### PROGRAMMATIC DIRECTIONS

The School of Medicine is an academic medical center. Combined, the medical center, Stanford Health Care (SHC), and Stanford Children's Health (SCH) are known as Stanford Medicine. Stanford Medicine's mission is to promote fundamental, clinical, and translational discovery; to train the biomedical leaders of tomorrow; and to transform patient care. Stanford Medicine recently initiated an integrated strategic planning process. The full strategic plan is expected to launch by December 2017.

Stanford Medicine's vision is to lead the biomedical revolution in precision health: to precisely predict, prevent, and cure. Precision health is a fundamental shift to proactive and personalized health care that empowers people to lead healthy lives. Stanford Medicine is driving this transformation by leveraging the art and science of medicine to predict and prevent disease before it strikes and cure it decisively if it does.

Over the past year, a precision health committee, which included many individuals across Stanford Medicine and the university, engaged in a thoughtful and collaborative process to develop a strategic plan for the vision. The committee identified numerous interconnected and overlapping priorities, including developing the science of behavior change, building a data system that learns from every patient engagement, and

facilitating the translation of new technologies into clinical diagnostics.

Through the Integrated Clinical Strategy Committee, the school and hospital leaders have established three strategic priorities for the clinical enterprise: (1) reaching pre-eminence in key precision health service lines through measured growth in depth and breadth of clinical services and biomedical innovation; (2) expanding off-campus and outpatient services to provide care through low-capital networks and partnerships while concentrating complex care on campus; and (3) maintaining strong financial performance by improving cost structure, developing capabilities to manage populations, and differentiating through consumer-facing technology.

To recognize and enhance teaching and mentoring throughout Stanford Medicine, the school has launched a Teaching and Mentoring Academy with a competitive grant program and a faculty training bootcamp. It has also launched the Digital Medical Education International Collaborative (Digital MedIC), which leverages its expertise in pedagogy and online education. With the goal of increasing global access to high-quality medical education, Stanford Medicine has begun conversations with potential partners in India, developing a strategic plan, and selecting a platform for disseminating content.

Nationally, effective levels of National Institutes of Health funding have decreased over the last decade. Despite this, the school has successfully maintained and grown its research funding. This in part is due to the recruitment of high-potential and highly prolific investigators and to the provision of \$5.2 million in seed grant funding to faculty from 2013 to 2016 to help ensure that the most innovative studies continue to get supported. In the first two years of the program, the school distributed \$3.7 million in seed grants; this investment has returned \$20.0 million in new grant funding. Also boosting research efforts, Stanford Medicine was recently selected to be a founding member of two significant philanthropic partnerships in biomedicine, the Chan Zuckerberg Biohub and the Parker Institute for Cancer Immunotherapy.

Despite the current challenging research funding environment and political proposals that could create even greater uncertainty about future research funding, the school recognizes the risks, and the current projections do not reflect an impact from these possibilities.

## CONSOLIDATED BUDGET OVERVIEW

The school projects total revenues and transfers of \$2,459.8 million in 2017/18 and expenses of \$2,327.8 million, yielding an operating surplus of \$132.0 million. After transfers to plant and funds functioning as endowment (FFE) of \$43.8 million, the net change in current funds is \$88.2 million. The major growth areas are health care services and sponsored research, and investment income as payout to the expendable funds pool (EFP) in 2017/18 is projected to improve from the prior year. Offsetting this growth is the expected decline in patent revenues from the expiration of a key patent in 2015/16.

Total revenues and transfers are projected to increase 9.2%, or \$207.8 million, to \$2,459.8 million in 2017/18. Key drivers include the following:

- The school renewed a five-year funds flow agreement with SHC in 2015/16 and renewed its agreement with SCH in 2016/17. The funds flow changes will spur growth of 12.7%, or \$128.8 million, in health care services revenues, which will reach \$1,145.4 million in 2017/18. This growth is driven by a continued increase in clinical program activities and by incremental faculty and clinicians.
- Continued faculty recruitment leads to a projected 6.1% increase in combined federal and non-federal sponsored research, 5.1% in federal and 9.0% in non-federal.
- With the merged pool projected return improvement in 2016/17, endowment income, including new gifts, is projected to increase 3.3%, and the EFP is projected to achieve the full payout.

Expenses are projected to increase 9.3%, or \$198.3 million, to \$2,327.8 million in 2017/18. Major increases will result from the following:

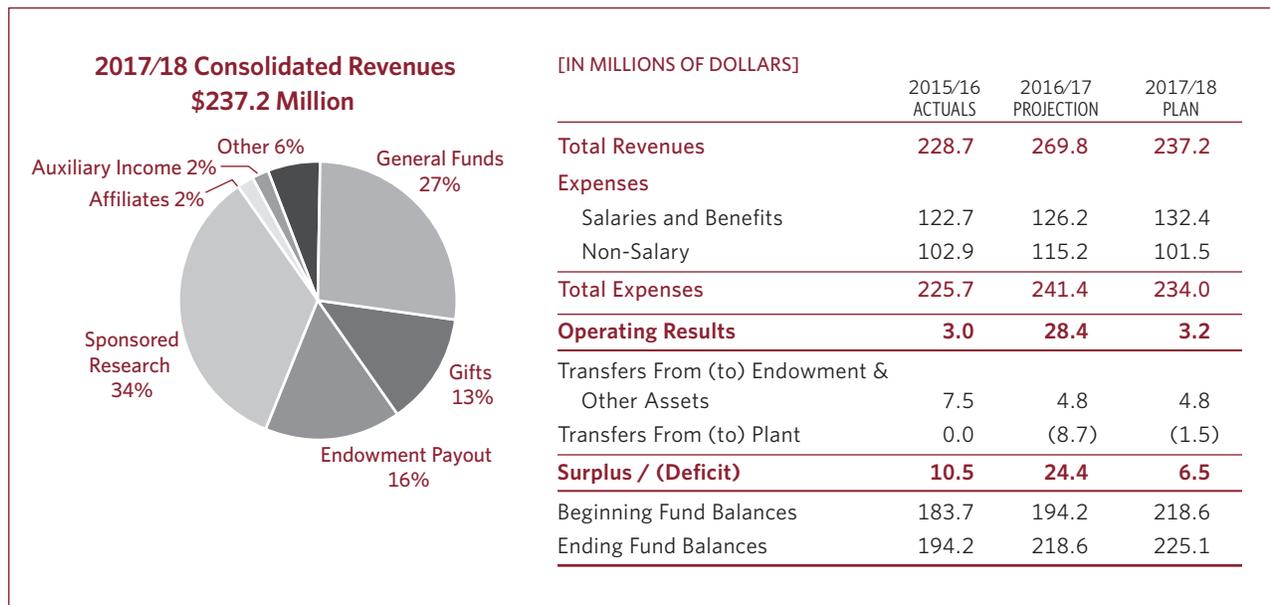
- Net recruitment of 32 faculty is projected, 20 in the medical center line and 12 in the university tenure line. In addition, 70 clinician educators are projected to join Stanford Medicine in 2017/18.
- Annual total compensation for faculty, clinicians, and staff is anticipated to increase 10.6%. The main drivers are increases in clinical activity, incremental recruitment, and the annual merit program.
- Projected growth in sponsored research and health care services revenue will drive related non-compensation expenses higher. Rent expenses are also expected to rise as rent abatement for one leased facility ends in 2016/17 and the full-year impact of another lease begins in 2017/18.

Transfers of \$28.2 million to plant include projects for Center for Academic Medicine I (CAM 1), the Stanford Oak Garden Children's Center, and Li Ka Shing Center Renovation Phases 2 and 3; entitlement payments to the City of Palo Alto; and return of bridged funds on the Lorry I. Lokey Stem Cell Research Building and the lease on 1520 Page Mill Road. Transfers to assets include investments by departments to FFE.

## CAPITAL PLAN

The school's two new buildings, BioMedical Innovations Building 1 (BMI 1) on Pasteur Drive and CAM 1 on Quarry Road, are on schedule to complete by 2020. The CAM 1 project will begin preconstruction activities during summer 2017 and will add 170,000 square feet of offices, conference spaces, and other amenities. The project also includes the construction of an underground parking garage with over 800 parking spaces along with the adjacent 10,000-square-foot Stanford Oak Garden Children's Center. The total project cost is estimated at \$230.4 million, jointly funded by the school, SHC, and SCH. BMI 1 preconstruction activities commenced during winter 2016, with full construction to begin in spring 2017. The project will add 215,500 square feet of research space at an estimated cost of \$210 million.

## VICE PROVOST AND DEAN OF RESEARCH



The Office of the Vice Provost and Dean of Research (DoR) is responsible for facilitation of faculty research and scholarship across all of the schools and departments and serves as cognizant dean for the 18 university-wide independent laboratories, institutes, and centers. These “institutes” provide intellectual and physical environments for research that invite scientific and scholarly dialogue, facilitate interdisciplinary collaborations, support policy-relevant research, and increase the success of faculty in obtaining research funding. The office has oversight for the implementation of research policies 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

Through all of its activities, DoR seeks to support faculty competitiveness in research and scholarship. This is particularly important as obtaining extramural funding becomes increasingly challenging. It will pursue this goal through the following four program objectives in 2017/18:

- Providing state-of-the-art shared facilities;
- Minimizing compliance and administration burdens for faculty and staff; and
- Mitigating research-related safety risks.

Stanford and SLAC are establishing a new Cryo-Electron Microscopy (cryo-EM) Center to be located at SLAC. Advances in the design of cryo-EM instruments during the past few years have created remarkable new opportunities to study cellular structures and their constituent proteins and other molecular interactions at a level of precision not previously possible. The impact of this development is transformative for biology and biomedical sciences. Stanford and SLAC are exceptionally well positioned to exploit this recent breakthrough and create a world-leading center for cryo-EM.

The independent institutes are launching several new interdisciplinary initiatives. *Bits & Watts* is a new Precourt Institute for Energy initiative focused on innovations for the 21st-century electric grid. A new grid paradigm is needed to incorporate large amounts of clean power and a growing number of distributed energy resources, while simultaneously enabling grid reliability, resilience, security, and affordability. The Stanford Institute for Economic Policy Research (SIEPR) launched a predoctoral research fellows program for recent

graduates who are considering a PhD to work closely with one or more faculty and take one Stanford course per quarter before applying to graduate school. The Woods Institute for the Environment is hosting a Young Environmental Scholars Conference that will allow graduate students and postdoctoral scholars to present their research in a novel interdisciplinary context that brings together graduate-level researchers from all seven schools.

## CONSOLIDATED BUDGET OVERVIEW

The 2017/18 consolidated budget for DoR shows total revenues and transfers of \$237.2 million and expenses of \$234.0 million, resulting in a net operating surplus of \$3.2 million. After estimated transfers of \$3.3 million from assets, DoR projects a planned surplus of \$6.5 million.

Stanford Neurosciences Institute (SNI) received an unplanned endowment gift of \$54 million and an expendable gift of \$29 million for program support in 2016/17. If the one-time gift of \$29 million to SNI is removed as an outlier from 2016/17 revenues, the total revenue in 2017/18 is projected to increase by \$5.5 million, or 3%, from 2016/17. This is primarily due to increases in endowment payout (\$2.3 million) generated from the new endowment in SNI, gift revenue (\$1.1 million), and non-federal research (\$1.5 million), driven by the extension of the Global Climate and Energy Project activity through 2018/19 and an increase in sponsored funding for new senior fellows in SIEPR. Federal sponsored research is expected to remain at the same level (\$47.1 million), based on historical trends over the past five years.

The Titan Krios G2 equipment purchases totaling \$15 million in 2016/17, \$10 million of which was unplanned, inflated

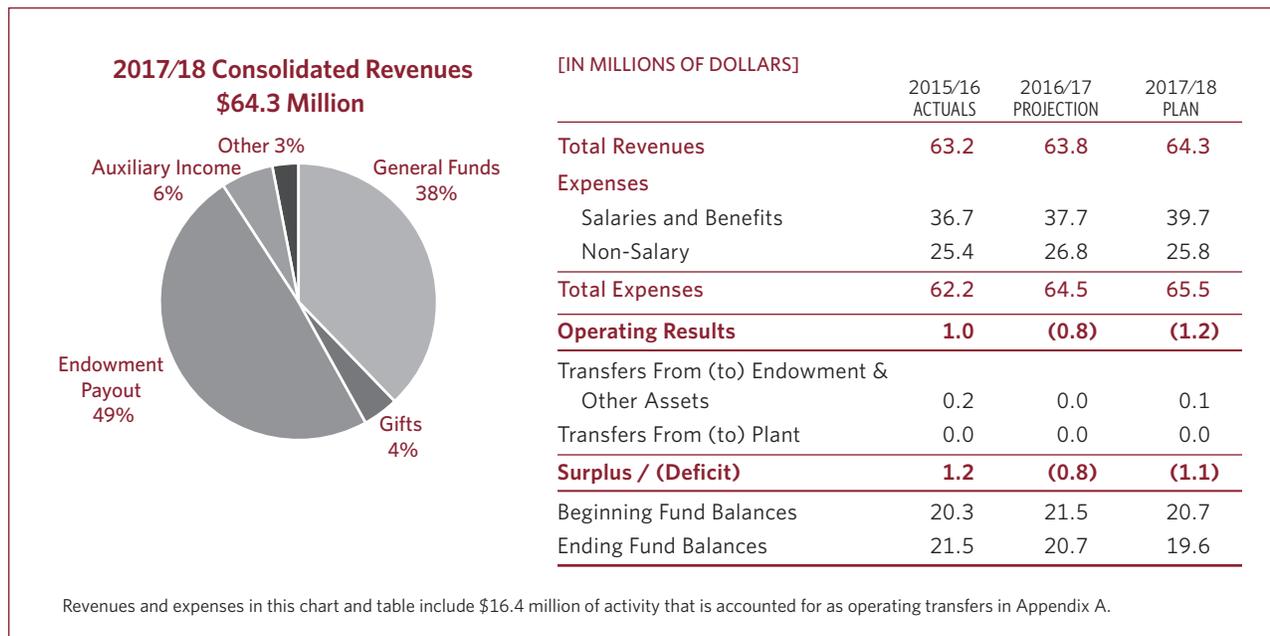
equipment expense and transfers to DoR. Equipment purchases and transfers to DoR are therefore expected to be significantly lower in 2017/18. As a result, total expenses in 2017/18 are expected to decrease overall by \$7.5 million, or 3%.

## CAPITAL PLAN

The SNI and the Chemistry, Engineering and Medicine for Human Health Institute (ChEM-H) will reside in a new 235,000-square-foot facility. This facility will be home to more than 40 laboratories, core research facilities, and meeting spaces. It is strategically located proximate to engineering, medicine, and the basic sciences. Strong connecting pathways among the Neuro/ChEM-H Research Complex, the Science and Engineering Quad, the Bass Biology Building, and Bio-X are integral to the design.

The research center will comprise two main buildings. Each building will have four floors, one below grade and three above, with laboratory, meeting, and communal spaces throughout the building. The labs are designed to be highly flexible, accommodating a wide variety of research approaches, including cell and molecular biology, electrophysiology and behavior, imaging and microscopy, human neuroscience and engineering, and theoretical and computational neuroscience. Each neighborhood of three to five labs will share a common space adjacent to lab support rooms for specialized equipment and procedures. The project cost is \$257 million and is being funded by gifts and institutional support. Construction of the buildings began in winter 2017 and is scheduled for completion in spring 2019.

## VICE PROVOST FOR UNDERGRADUATE EDUCATION



### PROGRAMMATIC DIRECTIONS

The Office of the Vice Provost for Undergraduate Education (VPUE) functions as the heart and conscience of undergraduate education at Stanford, advocating for undergraduates and partnering with faculty, staff, and students to educate knowledgeable, engaged citizens and creative, confident leaders. VPUE resources are aimed at connecting students with opportunities at Stanford, involving faculty with undergraduate education, and realizing fully the vision of a broad liberal education. VPUE's strategic planning process has coalesced around three critical themes under the broad umbrella of rethinking liberal education: transforming the pivotal first-year/sophomore experience, expanding experiential education, and reaffirming residential education.

Notably, VPUE's mission and strategic initiatives have been significantly impacted by a rapidly evolving cultural and academic environment from which the major challenges facing undergraduate education at Stanford emerge. Stanford undergraduates, gifted and capable as they are, are decidedly different from incoming classes of 5 to 10 years ago in terms of their intellectual interests, scholarly preparation, socioeconomic backgrounds, and engagement with technology.

Given these realities, the university's comprehensive and systematic process of long-range planning has the potential to

produce profound and yet-unknown changes in undergraduate education, along with a concomitant call for additional financial resources to implement these changes. Rethinking liberal education will require a willingness to shed some previously held assumptions about both what is taught and how it is taught. It will involve a commitment to develop new pedagogies that more actively capitalize on social and racial differences, and that integrate attention to student well-being and creative confidence into academic progress from the outset rather than as a concern "outside" the classroom.

In an initiative that is new this year and salient to efforts to reaffirm the residential experience, VPUE has led the Residential Cabinet through its residential programs faculty director, James Campbell. The Residential Cabinet, composed of five vice provosts, brings together university leaders operating in the residential arena to ensure broad, coherent strategic vision, consistent oversight, and a more robust faculty presence. The cabinet presented its consolidated vision to the Budget Group this past winter, demonstrating synchronicity by reallocating resources across organizational lines to achieve priorities. In 2017/18, next steps will include forming a faculty advisory board to oversee processes for creating, sustaining, and, where necessary, sunseting residential programs. In addition, a residential learning environments

working group will be created to ensure effective collaboration in designing and allocating residential spaces. Finally, VPUE will begin preparing for a second integrated learning environment—a living/learning program for first-year students—focused on issues of social justice and diversity.

VPUE's newest pilot in experiential learning, the Stanford in New York program, launched a quarter focused on media and finance this past winter. Through an intensive academic quarter of study, reflective practice, and experiential learning, students hone their intellectual skills and capacities, develop their abilities as adaptive learners, and increase their creative confidence. New York also provides unparalleled opportunities for students to engage in internships in dynamic organizations, including educational, arts, and cultural institutions; government and public agencies; social service organizations; and corporations. In 2017/18, Stanford in New York will expand to three quarters. The new spring quarter will focus on New York as a global city and will feature internships in and around issues of global development, including at the United Nations. Student response and other program evaluation measures continue to be very positive.

The class of 2017 will be the first class to graduate fulfilling the Ways of Thinking/Ways of Doing (Ways) breadth requirements. The Ways concept shifted the undergraduate program from a disciplinary breadth model to a focus on essential capacities, which may be attained outside or within the major. The Ways requirements aim to integrate general education more comprehensively with student experiences, to provide a persuasive rationale for academic exploration, and to give students the flexibility to pursue topics of interest across a broad array of course options. VPUE financially supports academic departments expanding Ways offerings, particularly in areas with capacity concerns such as Creative Expression and Ethical Reasoning. VPUE has partnered with Institutional Research & Decision Support to understand better how students fulfill their Ways requirements and the implications of these choices.

In 2016/17, the Bing Overseas Studies Program (BOSP), VPUE's flagship program in experiential learning, underwent two significant programming changes with budgetary implications. With the assistance of the provost, BOSP offered summer financial aid to undergraduates attending summer-quarter programs in Santiago and Cape Town. Summer enrollments subsequently doubled. Also in 2016/17, due to chal-

lenges in attracting students and faculty in residence as well as difficulties with academic programming, the BOSP faculty director decided to suspend the Beijing program for 2017/18. VPUE remains committed to overseas study programs in Asia and will support BOSP's exploration of new programming for next year. BOSP will reexamine Beijing and will also consider potential alternate locations such as Shanghai.

## CONSOLIDATED BUDGET OVERVIEW

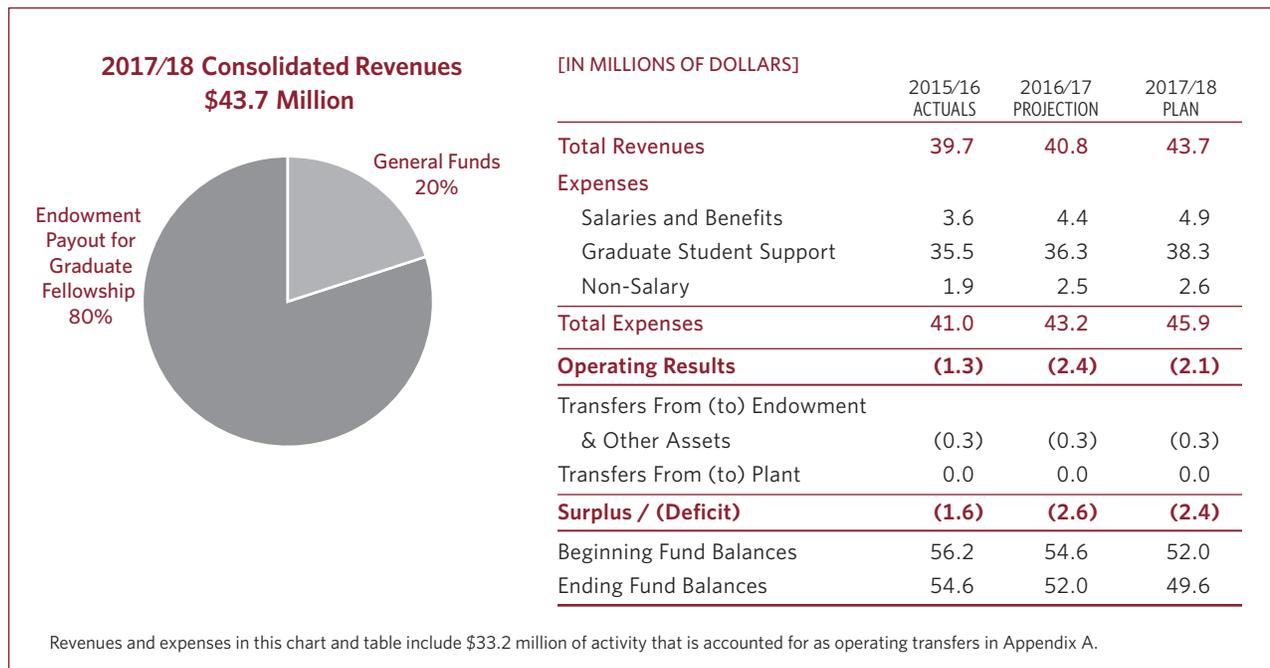
The 2017/18 consolidated budget shows total revenues and operating transfers of \$64.3 million and expenses of \$65.5 million, yielding an operating deficit of \$1.2 million. Revenues and transfers are expected to increase by \$0.5 million from 2016/17, due mainly to slight improvements in endowment payout, increases in base and one-time general funds, and the first approved increase to New Student Orientation fees in nine years. Expendable gifts are expected to decrease by \$230,000 from 2016/17 as Innovation Fund and other high-dollar pledges tail off.

Expenses are expected to grow by \$1.0 million, due primarily to operational costs related to adding a third quarter to the Stanford in New York program and increases to support undergraduate research. This year, VPUE applied results of a three-year expense category analysis to control non-compensation cost growth of continuing programs. Vice Provost Office expenses were reduced 1.6%. VPUE's other units contained their cost rise to less than 3%. Working with the Office of the Treasurer, VPUE and BOSP financial leadership took advantage of the strong dollar to lock a currency hedge early for 2017/18, resulting in \$831,000 of anticipated savings in BOSP operating expenses.

VPUE's financial strategy is to sustain base programs, to pilot new initiatives, and to assess their educational outcomes. VPUE has funded pilot programs with one-time university funds and expendable gifts and sustained core programs through endowment payout and general funds. Each year, VPUE assesses several of its pilot programs, looking at their achievement of educational aims and their cost-effectiveness. This process has led VPUE to alter, strengthen, expand, and even sunset programs.

VPUE's fund balance is expected to be \$20.7 million beginning in 2017/18, with approximately half of that unrestricted. Fund balances will absorb the deficit for 2017/18.

## VICE PROVOST FOR GRADUATE EDUCATION



### PROGRAMMATIC DIRECTIONS

The Vice Provost for Graduate Education (VPGE) plays a key leadership role, working collaboratively across the university's seven schools, in enhancing the quality of graduate education for 9,300 students pursuing degrees in more than 200 graduate degree programs and departments. VPGE addresses several critical university priorities. VPGE administers seven university-wide fellowships; fosters innovation by providing opportunities for students' professional development; and serves as a catalyst for supporting innovative initiatives within graduate programs, advancing diversity, and facilitating interdisciplinary. VPGE's programs and fellowships reach roughly 4,500 graduate students (over 800 on fellowships) annually.

The largest university-wide fellowship program 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. More than 1,500 SGFs have earned doctoral degrees so far. These prestigious three-year fellowships have encouraged creative approaches to global problems—approaches such as building highly efficient solar-powered batteries; developing a chemical catalyst to make biodegradable plastics from organic, renewable materials; and combining 3-D imaging and 3-D printing

to create realistic physical models of rocks that are difficult to access in person. The Stanford Interdisciplinary Graduate Fellowships (SIGFs) have also gained momentum with 170 fellowships awarded. These graduate students are advancing knowledge in unanticipated ways, even defining new lines of inquiry. SIGF alumni are now teaching or conducting research at institutions such as Princeton, Yale, Harvard, Duke, MIT, and Berkeley, in addition to working in industry, government, and the nonprofit sector. VPGE programs and staff support the fellows' pursuit of pioneering research interests that span disciplines and help them prepare for uncharted interdisciplinary career trajectories.

VPGE fellowship funding will increase 8% from 2016/17 to 2017/18, despite minimal growth in endowment payout. The number of SGFs will remain constant. The SIGF program, on the other hand, will be growing as pledge payments are received. The number of SIGFs will increase until the program goal of awarding 33 new fellows per year is reached. After the next few years, the number of fellowships awarded may require adjustment if endowment income does not bounce back. Fellowship stipend and tuition amounts will increase by 3.5% next year. Fund balances will cover this expected increase in graduate student support.

A top priority for VPGE is to provide innovative programs in collaboration with Stanford's seven schools to recruit students from diverse backgrounds and enhance their educational experiences while at Stanford. The Diversifying Academia, Recruiting Excellence (DARE) Doctoral Fellowship Program for advanced PhD students has become nationally known, with 166 fellows. Seventy-five percent of DARE alumni work in the academic sector; recently two have won prestigious early-career awards, and two have already become tenured faculty. In addition, VPGE has scaled up the Enhancing Diversity in Graduate Education (EDGE) Doctoral Fellowship Program, which supports incoming PhD students in five of Stanford's seven schools. 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. A new initiative awards Diversity and Inclusion Innovation Funds on a competitive basis to graduate students and postdocs across the university. This fund was a prototype for the university-wide fund just launched by the Diversity Cabinet.

This year VPGE continued to focus on developing new resources open to all graduate students under the banner of Graduate Professional Development (GPD). These resources include expanded initiatives in leadership development and preparation for faculty careers. The GPD framework itself has become a more sophisticated interactive tool, and more graduate students are using it to assess their skill levels, determine priorities for gaining proficiency, and locate resources at Stanford—many of which are provided by VPGE. The major domains are specialized content knowledge and skills, teaching, communication, leadership and management, career development, and personal development. Where possible, programs are recorded for a video archive, to be available for asynchronous use.

VPGE is in a strong financial position, leveraging and extending its reach with innovative programs and graduate student funding across the university. January 2017 marked the 10th anniversary of VPGE's founding. As VPGE takes stock and plans for the future, it will seek input widely from across the university community to learn what is most valued and what more can be done to enhance graduate education and graduate students' experiences over the next decade.

## CONSOLIDATED BUDGET OVERVIEW

VPGE projects a 2017/18 consolidated budget with total revenue and transfers of \$43.7 million and expenses of \$45.9 million, resulting in an operating deficit of \$2.1 million. After asset transfers of \$0.3 million, an overall deficit of \$2.4 million is expected.

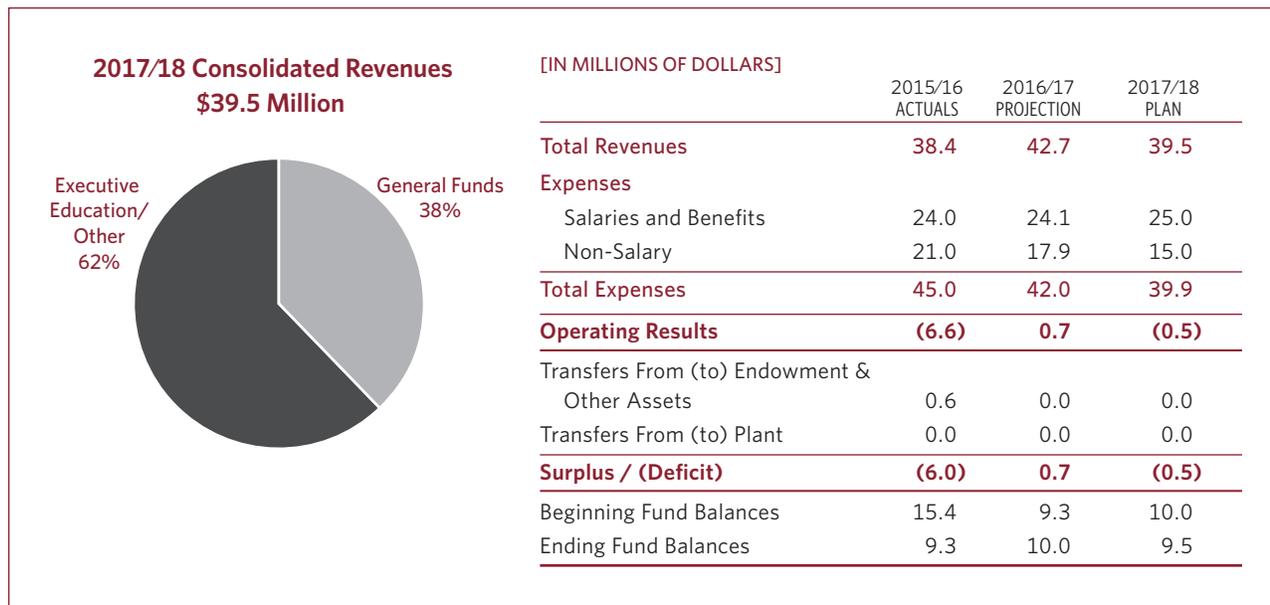
Revenues and transfers comprise mostly endowment payout and general funds. For these two majority components, endowment payout is expected to be \$35.1 million, and \$8.4 million is expected from general funds. After transfers of \$400,000 to departments for SCORE (Strengthening the Core) and SPICE (Stanford Program on International and Cross-Cultural Education) funding, revenues and transfers total \$43.7 million.

Consolidated expenses comprise 86% direct graduate student support, 10% compensation and benefits, and 4% programmatic non-compensation expenses. VPGE will provide \$38.3 million in direct graduate student funding for several fellowship programs in 2017/18, an increase of approximately 6% from \$36.3 million in 2016/17. Tuition and salary/stipend rate increases and student growth in fellowships and programs drive this increase. Compensation and non-compensation expenses are expected to increase slightly to \$4.9 million and \$2.6 million, respectively.

Most of VPGE's graduate student funding is identified as transfers from its endowment accounts to school/department operating budgets. The budget plan is to spend down the consolidated fund balance, using reserves to cover additional expenses for graduate student funding and programs as well as anticipated declines in endowment income for multiyear fellowships. This will reduce the consolidated fund balance to \$49.6 million at year-end.

VPGE's funding to graduate students and operational expenses will continue to increase as both ongoing programs and new pilot programs are selectively extended to reach more graduate students in new ways. Over the next three years, forecast models indicate consolidated deficits of \$2.5 million annually. Fund balances will be used to cover the deficits, ultimately bringing the consolidated fund balance to \$40.7 million by 2019/20. Funding commitments will continue to be determined based on how they can best meet university priorities. The use of reserves will be monitored as decisions are made about program offerings in light of feedback from long-range planning.

## VICE PROVOST FOR TEACHING AND LEARNING



The Office of the Vice Provost for Teaching and Learning (VPTL) broadly supports teaching and student learning across all of Stanford's programs. VPTL's mission in support of faculty-led programs and initiatives is to help Stanford invent the future research university by supporting teaching and learning innovation for undergraduate, graduate, professional, and lifelong learning. VPTL's activities and services draw on core competencies in pedagogy, technology, learning environments, academic business development, and cooperative action.

In 2016/17, VPTL joined forces with the Stanford Center for Professional Development (SCPD), formerly housed within the School of Engineering. This move positioned every school in the university to embark on bigger and broader educational initiatives that require a rich mix of capabilities. The year 2016/17 also marked the completion of the learning management system transition from CourseWork to Canvas, consolidation of VPTL's student services into the newly created Lathrop Learning Hub, and experimentation with a new coordinated public engagement model initially focused on the presidential elections.

### PROGRAMMATIC DIRECTIONS

Like much of the rest of the university, in 2017/18 VPTL will be engaged in Stanford's long-range planning effort. Additionally, VPTL will evolve its infrastructure to support emerging programs and seek to understand the needs of future learners.

#### Evolving VPTL's Infrastructure to Support Emerging Programs

Combining several organizations since 2015, VPTL is focused on supporting effective pedagogy in all programs and examining ways to evolve its infrastructure to gain operational efficiencies. Specifically, VPTL staff are increasing campus services around communications; evolving digital strategies, including course delivery, platforms, and modes; and visioning for the redesign of Stanford's centrally held classrooms.

In 2017/18, VPTL will embark on an infrastructure project that will enable schools to manage a catalog of offerings for lifelong learners that can be displayed both at [online.stanford.edu](http://online.stanford.edu) and at school sites. This effort will create a front door for external learners, allow Stanford's knowledge and expertise to be disseminated more broadly, engage learners around the globe, and drive website traffic to programs within schools and departments.

VPTL also has the opportunity to optimize the university's approach to course delivery using a range of media, from recorded lectures to studio- and on location-produced courses created collaboratively by faculty and VPTL's instructional designers. In doing so, VPTL proactively leverages faculty time by ensuring that their online course content reaches as many audiences as effectively as possible. VPTL will identify the most efficient combination of digital platforms to enable course delivery to the full range of online and on-campus learners.

In the future, VPTL expects that lecture classes will increasingly be complemented by classes that use other, more active and participatory learning modalities and have high levels of instructor/student and peer interaction. The classrooms that support these models require more space and more flexibility than the majority of Stanford's traditional classrooms provide. As experts in design of conventional and innovative learning spaces, VPTL staff will participate in new classroom design and renovation with the schools and Land, Buildings and Real Estate (LBRE) to ensure new learning modalities are considered in these projects. VPTL will also work with the schools and LBRE to develop a roadmap for the thoughtful redesign of strategically selected centrally managed classrooms.

### Understanding Future Learners

VPTL recognizes that each generation of learners is different. Students today are increasingly invested in personal meaning and public service. This is reflected in the Stanford 2025 slogan "Find a mission, not a major." Millennials will change jobs six times between ages 22 and 32. They grew up with 9/11, the great recession, internet connectivity, and social media. In an environment of rapid change and plentiful digital information, today's learners need critical thinking skills, the ability to reason from evidence, skill in navigating noisy sources of sometimes unreliable information, the ability to collaborate effectively with others, and interdisciplinary problem-solving skills. In 2017/18, VPTL will investigate with its campus partners what kinds of educational tools, pedagogically innovative techniques, and learning assessment Stanford should offer its students to best equip them to develop their full potential, lead fulfilling lives, and be productive citizens in tomorrow's society.

Guided by a faculty advisory board, VPTL will codify and facilitate a range of collaborative initiatives and programs around the topic of future learners. VPTL will partner with appropriate schools and academic support units to involve students, faculty, and staff in purposeful engagement around issues impacting Stanford and higher education more broadly. Programming will be designed to promote scholarly inquiry, meaningful dialogue, and thoughtful listening. It will take several forms: panel discussions, learning symposia, student-centered special projects, field trips, and more. Aspects of programming will engage the broader U.S. and international higher education community.

### CONSOLIDATED BUDGET OVERVIEW

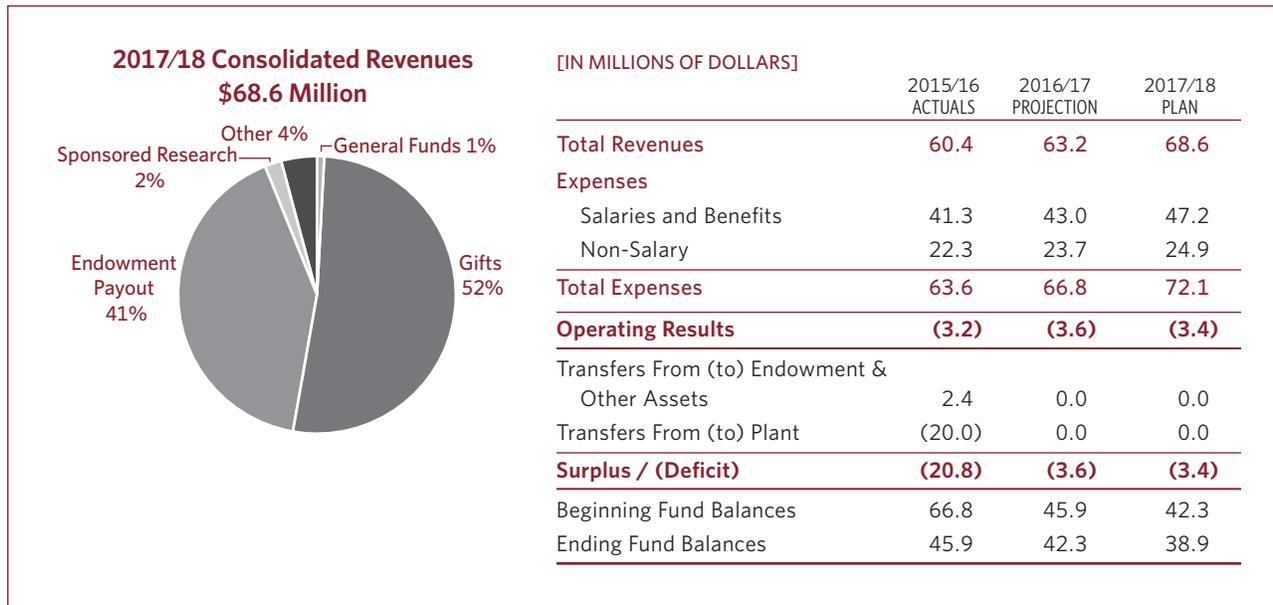
The 2017/18 consolidated budget for VPTL projects total revenues of \$39.5 million and expenses of \$39.9 million, resulting in a planned net operating deficit of \$500,000. VPTL will be in the final year of transition from presidential start-up funds to general funds at \$1 million per year.

Total revenues in 2017/18 are projected to decrease by \$3.2 million, or 7.6%, from 2016/17. This decrease is primarily due to the sunsetting of two large professional certificate programs within SCPD in 2016/17. It also reflects the \$1 million in one-time presidential support provided in 2016/17 for the 408 Panama Mall studio fit-up.

Total expenses in 2017/18 are projected to decrease by \$2.1 million, or 4.9%, from 2016/17. Compensation expenses are projected to increase by \$877,000, or 3.6%, but VPTL anticipates slightly fewer fixed-term and contingent positions in 2017/18. Non-compensation expenses are projected to decrease by \$2.9 million, or 16.4%, due primarily to the completion of the studio fit-up at 408 Panama Mall and the reduction of external partner payments related to the ending of two large programs at SCPD.

VPTL expects to have a \$9.5 million fund balance. VPTL plans to utilize this balance to support the planned deficit, program development for residential and online students, and a technology reserve to refresh its technology-rich spaces throughout campus.

## HOOVER INSTITUTION



### PROGRAMMATIC DIRECTIONS

The Hoover Institution seeks to generate ideas from its fellowship, collect knowledge in its library and archives, and communicate such knowledge and ideas to a broad audience, particularly undergraduate students at Stanford and elsewhere. A strategic planning process is currently under way to provide direction for the institution as it enters its second century. Operational plans are being developed to achieve pre-eminence for the institution as a public policy research center; a collector of materials on social, political, and economic change in the 20th and 21st centuries; and an educator on policy issues—broadly speaking, to focus on its core mission of research and education. The broad outlines of this strategic plan inform the program and budget plans for 2017/18. In the next fiscal year, the institution will see additions to the fellowship and research program, growth in the collection of archival materials, improvements in access for the library and archives, and further expansion of a broad education program. Development and consolidation of administrative services and fundraising activities will scale relative to the needs of the expanded Hoover program.

The strength of Hoover's research program lies in the exceptional ability of its scholars; thus, identifying and attracting leading academics to refresh the fellowship will be a key pri-

ority. Hoover will focus on recruiting the people necessary to advance its mission and to advance scholarship in related social science and humanities disciplines, while de-emphasizing research in areas outside the institution's core focus. To this end, Hoover will develop a more rigorous recruiting process within the next year, with the goal of adding one net new full-time senior fellow per year. For 2017/18, the budget includes one new fellow specializing in China.

Hoover continues to view the convening of scholars to tackle changes in public policy as an essential function. The primary mechanisms for gathering these teams are conferences and seminars. The institution will expand on existing efforts in this area, not only on the Stanford campus but in Hoover's Washington, D.C., offices as well. It will place renewed emphasis on producing output intended to reach and impact audiences beyond those able to attend these meetings. Program activities for scholar groups studying labor productivity, immigration reform, climate change, and structural macroeconomic modeling are in the plans for 2017/18.

Hoover plans to grow specific collecting areas in support of the mission, building on core strengths and expanding into new areas of strategic interest to scholars and policy makers. For 2017/18, Hoover will expand its collecting efforts

in the Middle East and North Africa and in Japan's modern diaspora. Technology enhancements will expand access to Hoover's collections. Hoover plans to leverage its recently implemented content management system to deliver collections to a broad online public. As a complement to this new infrastructure, Hoover is proceeding with digitization on two fronts: (1) digitizing its most important and endangered sound, video, and paper collections in house; and (2) working in partnership with international and U.S. institutions and with private-sector companies on larger-scale projects. The project currently under way to digitize 5,000 rare newspaper titles held by Hoover and Stanford University Libraries is a relevant example of these partnerships.

As education is an essential function for Hoover, the institution continues to look for opportunities to disseminate its work more broadly. The Educating Americans in Public Policy initiative is intended to translate the research of Hoover's fellows into accessible, shareable content. In 2017/18, Hoover will leverage the recently launched PolicyEd.org website to expand its offerings of short videos, edited and augmented segments of online courses, and digital communities to inform the public on matters of public policy. Locally, the David and Joan Traitel Building opening later this year will provide opportunities to engage with the broader Stanford community, especially undergraduates. This summer, Hoover will use this new facility to host an inaugural Summer Policy Bootcamp for undergraduates, a one-week intensive program led by Hoover scholars. Continuation of this bootcamp is in the budget for 2017/18. Finally, Hoover plans to expand upon its current educational programs (Cyber Bootcamp, Congressional Fellowships, Leadership Forum, Media Fellowships, and Media Roundtables) to reach new audiences.

## CONSOLIDATED BUDGET OVERVIEW

For 2017/18, Hoover projects revenues of \$68.6 million and expenses of \$72.1 million, for an operating deficit of \$3.4 million. Net of these results, end-of-year fund balances are expected to be \$38.9 million, with reductions occurring primarily in restricted reserves.

Revenues are projected to increase by \$5.4 million, or 8.6%, over 2016/17. While endowment income is expected to grow by only 2.3%, Hoover is optimistic about accelerated expendable giving growth as an offset due to recent investments in

the development function. Expendable gifts are expected to grow significantly, increasing by \$4.0 million over 2016/17.

Expense growth is expected to track with revenue growth, increasing by \$5.3 million, or 7.9%. Real growth of expenses is concentrated in areas where large restricted balances have accumulated due to past fundraising successes. Fundraising has preceded expenditures in these areas, with significant prepayment of long-range pledges building restricted reserves. The deficit between current revenues and expenses will result in drawdowns of these accumulated balances.

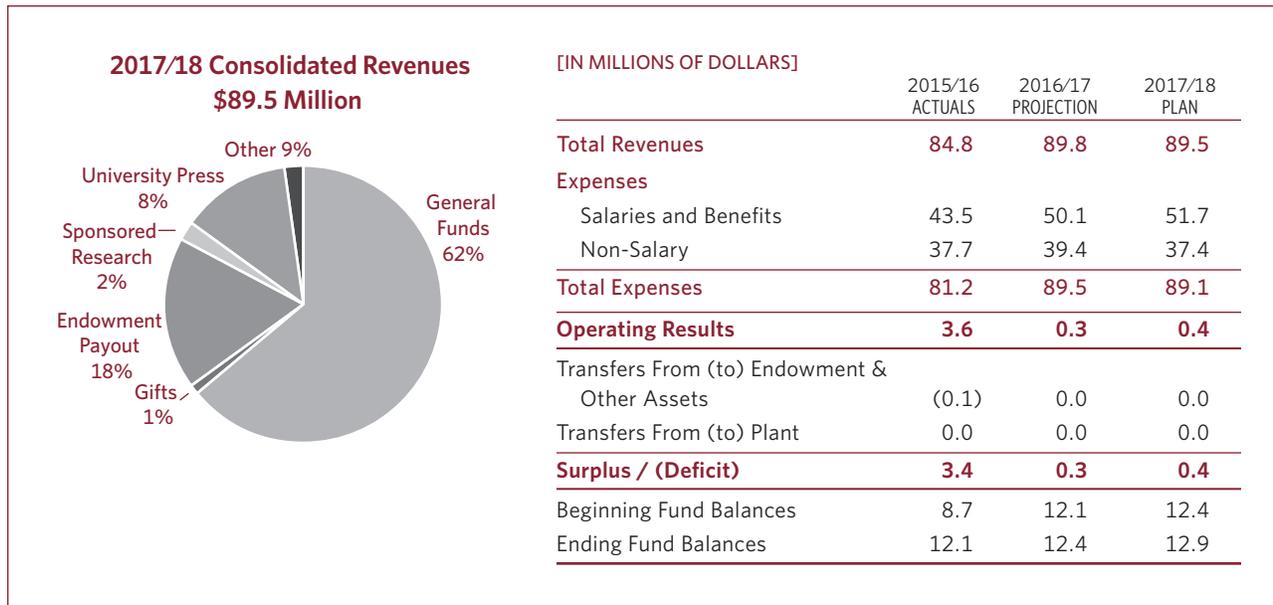
Expense growth will be limited to available revenue and is expected to occur primarily in the following areas:

- One new fellow appointment is budgeted, with the additional support staff and research funds required. In conjunction with this appointment and other recent fellow additions, research activity will increase.
- Increased expenses for professional services, scholar payments, and general program costs for the Educating Americans in Public Policy initiative will continue in 2017/18.
- The new David and Joan Traitel building will incur costs for operations and preventive and deferred maintenance. Rental income is expected to partially offset new costs.
- New staff is anticipated in the administrative and development functions to support growth in other areas.

## CAPITAL PLAN

Based on findings from a Master Plan study, Hoover determined a need to make improvements to fellow office spaces and Library and Archives facilities and storage; to create a single secure point of entry for visitors; and to better connect existing buildings. The current plan calls for renovating major interior portions of the Herbert Hoover Memorial and Lou Henry Hoover buildings, as well as select areas of Hoover Tower. The project is estimated at \$93.2 million and will be funded locally by Hoover. Due to recent planning discussions, the option of demolishing existing buildings and replacing them with new facilities is being considered, with a final determination expected later this year. A significant issue associated with the project will be the identification of alternate storage facilities for Hoover's library and archive materials.

## STANFORD UNIVERSITY LIBRARIES



### PROGRAMMATIC DIRECTIONS

The Stanford Libraries support students, faculty, and staff through an extensive set of research support services and instructional programs, as well as the continued curation of a world-class set of information resources. While collections in all their forms will always be a core focus of the libraries, the service suite that they offer is expanding to include more direct faculty engagement and interaction with the research process. In addition, the libraries are actively engaged with peer institutions to extend the breadth and impact of that service suite.

As a founding member of the International Image Interoperability Framework (IIIF) consortium, the libraries have brought together a global suite of institutions to support and enable resource sharing in a way that supports all our programs. IIIF helps ensure that the Stanford Digital Repository, which continues to expand in terms of both collections housed and use of materials, is leveraged to its fullest capacity and serves the global good. Similarly, the libraries are partnering with colleague institutions to support the development of linked data services that have the potential to dramatically improve access to research.

More locally, the libraries are partnering directly with faculty to support new pedagogical approaches. One excellent example is the Massively Multiplayer Humanities project, which allows larger classes than ever before to work hands-on with original materials from the Stanford Archives and Special Collections. Where in the past, history students might not have accessed these primary sources until their senior year, this program is allowing large freshman classes to have the experience.

Facilities are central to the libraries service portfolio, as users look to library spaces both for access to collections and as places for private study and team collaboration. The newly opened Robin Li & Melissa Ma Library in the Sapp Center is a wonderful example of both. The library brings together collections from biology, chemistry, math, and statistics in a single facility and offers a spectrum of study spaces and classrooms for students and faculty.

Returning to collections, this year the libraries have worked extensively with the university's Budget Office to review trends in pricing for library materials. For many years, prices for information resources have increased at a rate signifi-

cantly exceeding the rate of inflation. This has in large part been driven by dramatic increases in prices among for-profit journal publishers; however, significant pressure has also arisen from the need to acquire more extensive data sets and from challenges around academic use of ebooks. In the future, the libraries hope this improved understanding of cost drivers in the industry will allow more careful assessment of appropriate budget levels.

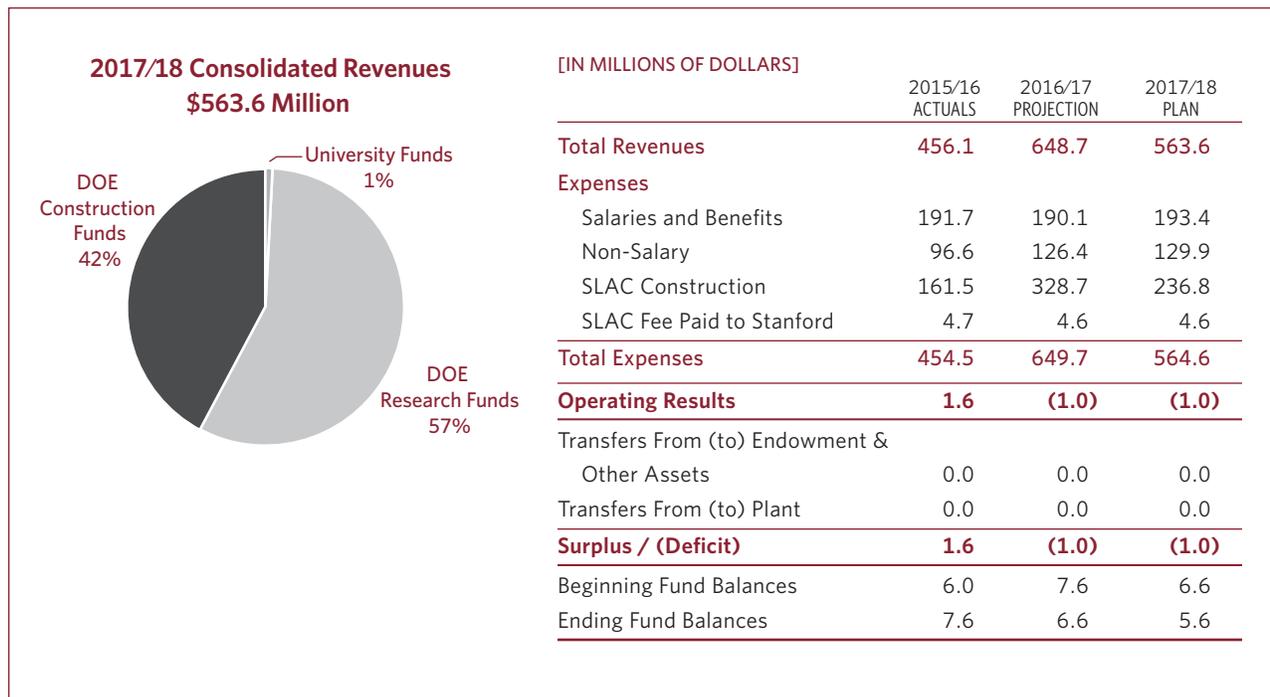
Finally, the libraries continue to face challenges in recruiting and retaining academic staff. This has been an ongoing concern for some years, and the libraries continue to seek new approaches to attract the talented and qualified staff that are needed to continue to provide the innovative services that are the hallmark of the Stanford Libraries. As the university, under its new president and provost, moves into a strategic planning phase, recruitment and retention will be a key focus.

## **CONSOLIDATED BUDGET OVERVIEW**

Consolidated revenues and transfers are expected to total \$89.5 million. They consist of \$55.2 million in general funds, \$10.5 million in auxiliary revenue and transfers, and \$23.9 million in restricted funds. Consolidated expenses are projected to total \$89.1 million, resulting in an operating surplus of approximately \$400,000. Compensation expenses are budgeted at \$51.7 million, operating expenses at \$13.7 million, and library materials acquisitions at \$23.7 million. The base budget for library material acquisition is projected to grow about 4% from the 2016/17 level.

Fund balances at the end of 2017/18 are expected to be \$12.9 million. The libraries project balances of approximately \$400,000 in the operating budget, \$1.3 million in designated funds, \$1.6 million in restricted expendable funds, \$5.3 million in restricted endowed funds, \$2.2 million in LOCKSS auxiliary reserves, and \$2.1 million in LOCKSS auxiliary operations. The \$400,000 in the operating budget will cover ongoing special projects that will conclude in 2018/19.

## SLAC NATIONAL ACCELERATOR LABORATORY



### PROGRAMMATIC DIRECTIONS

Stanford University operates SLAC for the Department of Energy (DOE) through a management and operating contract. SLAC has two primary, integrated strategic goals: innovating and operating premier accelerator-based facilities and leveraging those facilities to develop new scientific pursuits.

Stanford developed a new model contract for the management and operation of SLAC with the DOE in calendar year 2016. This new model, which is currently in the first year of a three-year pilot at SLAC, tailors DOE requirements to the circumstances and risk profile at SLAC. It also enables SLAC to take greater advantage of existing Stanford policies and systems. For example, the model allows SLAC to rely on Stanford's cyber security policies and systems. The model is expected to improve SLAC's systems and flexibility and thus contribute to SLAC's mission, and if the pilot is successful, the model could be expanded to other national laboratories. Separately, and independent of the development of this new model, the Secretary of the Department of Energy has approved a contract extension for SLAC, to be effective October 1, 2017.

### Scientific User Facilities

SLAC's user facilities draw more than 2,700 researchers from around the world annually, with Stanford users representing more than 10%. The laboratory operates two X-ray scientific user facilities: Linac Coherent Light Source (LCLS) and Stanford Synchrotron Radiation Light Source (SSRL). LCLS is the world's first hard X-ray free electron laser (FEL). This facility has transformed the field of X-ray science and positioned SLAC as a world-leading center for FEL science. In order to maintain pre-eminence, SLAC and DOE are constructing an upgrade to the facility (LCLS-II) that will expand the accelerator's range of X-ray energies, significantly enhancing SLAC's scientific capability and capacity.

SSRL provides X-ray beams and advanced instrumentation for research ranging from energy storage to drug discovery. A large number of faculty groups from four of Stanford's schools pursue research enabled by SSRL. Stanford is contributing funding towards a new Macromolecular Crystallography beamline, to be completed in 2017, which will enable structural biology research in areas of biomedical, biological, and bioenergy sciences. SSRL is also building an energy materials

beamline that will further leverage materials research programs at Stanford.

Another SLAC user facility, Facility for Advanced Accelerator Experimental Tests (FACET), completed its planned run in 2016/17 and has been successful with breakthrough science, especially in the area of plasma wakefield acceleration of electrons and positrons. FACET II, an upgrade to FACET, received DOE approval in December 2015. While the project is adversely affected by the 2016/17 continuing resolution, the lab has a mitigation strategy to keep it moving forward.

### Science Programs

SLAC recognizes that providing world-class research facilities is not enough. To ensure that SLAC carries out the best science, the laboratory must continually take a leadership role in identifying and pursuing new science opportunities. SLAC's core scientific competencies recognized by the DOE include accelerator science and technology, advanced instrumentation, chemical and molecular science, condensed matter physics and materials science, high energy density science, and particle physics. SLAC's science directorate pursues part of its research through joint Stanford-SLAC institutes, including the Photon Ultrafast Laser Science and Engineering Center (PULSE), the Stanford Institute for Materials and Energy Sciences (SIMES), and the SUNCAT Center for Sustainable Energy through Catalysis. The PULSE Ultrafast Electron Diffraction "electron camera" captures some of nature's speediest processes, revealing trillionth-of-a-second motions of electrons and atomic nuclei. SIMES is developing next-generation battery technologies, and SUNCAT is expanding carbon dioxide fuel research with a five-year, \$7.5 million grant from the DOE's Joint Center for Artificial Photosynthesis. The chemical sciences division is developing new programs in core-level X-ray spectroscopy, enabled by the capabilities of LCLS-II. SLAC also partners with Stanford to develop the following capabilities:

- **Macromolecular Structure Knowledge Center**—Seed funding from Chemistry, Engineering and Medicine for Human Health and the School of Engineering (SoE) will enable SLAC to provide scientific expertise and state-of-the-art equipment for the production, purification, and characterization of biological macromolecules.
- **Cryo-electron microscopy**—Stanford and SLAC are hiring a joint faculty member to build what will become a
- forefront capability in integrated structural biology and imaging.
- **Computer science division at SLAC**—Seed funding from SLAC, SoE, and the Dean of Research will fund faculty from Stanford's Computer Science Department to support the extreme data management needs at SLAC.
- **System prototyping facility**—SLAC and SoE capabilities will be joined to support electronic subsystem design for cutting-edge research across campus.

## CONSOLIDATED BUDGET OVERVIEW

The 2017/18 SLAC consolidated budget projects expenses of \$564.6 million, which includes \$322.6 million for direct research, \$236.8 million for major capital projects, and \$5.2 million for Stanford-related activities.

Consolidated expenses are expected to decrease 13.1% in 2017/18 from the \$649.7 million projected for 2016/17 due to the construction spend profile of LCLS-II, which begins to taper down in 2017/18. The direct research programs, however, reflect growth over the 2016/17 planned level consistent with SLAC's strategy of 2% growth by adding new sponsors to the traditional funding sources.

Included in the DOE contract is a \$4.6 million performance fee paid to the university for operations. In return, the university makes available to SLAC \$1.9 million of general funds and \$1.0 million of director discretionary funds.

## CAPITAL PLAN

SLAC's long-range development plan supports 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.

SLAC has two major federally funded construction projects ongoing. The \$1,045 million LCLS-II project builds on the success of LCLS to ensure that the United States maintains a world-leading capability for advanced research in energy, materials, biology, and chemistry. The \$168 million, 3.2-gigapixel Large Synoptic Survey Telescope (LSST) camera is the largest digital camera ever built for astronomy. It is currently under construction in Chile. The LSST will survey the entire visible southern sky every few days for a decade, providing a public archive of data that will dramatically advance our knowledge

of dark energy and dark matter, as well as galaxy formation and potentially hazardous asteroids.

Additionally, SLAC is undertaking federally funded construction to improve its infrastructure. The university-funded Photon Sciences Laboratory Building shell was completed by Stanford in December 2016, making way for the \$57 million DOE-funded outfitting of the first two floors to commence in February 2017, with tentative occupancy in 2018. This high-performance, environmentally sustainable facility will include wet labs, dry labs, a characterization suite, and cleanroom spaces, as well as office and collaboration areas to support SLAC's photon science mission. The DOE is also providing funding for improvements in SLAC's utilities infrastructure to support the new major scientific facilities.

As part of the university's major Residential & Dining Enterprises renovation plan over the next three years, expansion of the Stanford Guest House, located at SLAC, is anticipated. SLAC's desire is to have the expansion project completed by the time that LCLS-II transitions into operation in 2020.