

CHAPTER 4

CAPITAL BUDGET AND THREE-YEAR CAPITAL PLAN

Stanford's Capital Budget and three-year Capital Plan are based on a projection of the major capital projects that the university will pursue in support of the academic mission. The Capital Budget represents the anticipated capital expenditures in the first year of the rolling three-year Capital Plan. The Capital Plan includes projects that are in progress or are expected to commence during that three-year period. Both the Capital Budget and the Capital Plan are subject to change based on funding availability, budget affordability, and university priorities.

The university has been in the midst of the largest construction program in its history, addressing the need to replace and upgrade many aging facilities for science, medicine, and engineering. The 2010/11 – 2012/13 Capital Plan includes the Knight Management Center and the repurposing of the old Graduate School of Business (GSB) buildings, a new Bioengineering/Chemical Engineering building, a new concert hall, a new building for the arts, a Law School clinics and faculty office building, a scientific computing center, and several housing projects.

Though the \$1.5 billion Capital Plan is still substantial, it is 46% lower than the \$2.8 billion plan submitted two years ago. This is due to both the completion of many major facilities projects and the delay and suspension of construction as a result of the economic downturn. Stanford anticipates this declining trend to continue with the planned completion of \$529.5 million of capital projects in 2010/11.

The Capital Plan reflects the significant investment that Stanford is making in its facilities, driven by the academic priorities for teaching, research, and related activities described in Chapter 2, and the initiatives of the administrative and auxiliary units that support the academic mission, described in Chapter 3. This chapter includes a discussion of the 2010/11 Capital Budget, provides an overview of the capital planning process, describes forthcoming strategic initiatives, and presents the 2010/11 – 2012/13 Capital Plan and its constraints.

THE CAPITAL BUDGET, 2010/11

The 2010/11 Capital Budget at \$368.2 million reflects the university's significant capital initiatives including GSB's Knight Management Center, the Bioengineering/Chemical Engineering building, Bing Concert Hall, William H. Neukom Building (formerly known as the Law School Clinics and Faculty Office Building), Olmsted Terrace Faculty Homes, Jill and John Freidenrich Center for Translational Research, East Campus Dining Commons, laboratory fit-ups in the Nanoscale Science and Engineering and the Jen-Hsun Huang Engineering centers, Olmsted Road Staff Rental Housing, Cognitive and Neurobiological Imaging (CNI) Center, Stanford Center in China at Peking University, Madera Grove Children's Center/Mulberry House, and various infrastructure projects and programs. The projected 2010/11 expenditures reflect only a portion of the total costs of the capital projects, as most projects span more than one year. The following table highlights the major capital projects in the plan, the project costs that will be incurred in the 2010/11 Capital Budget, as well as the percentage of the project that is expected to be complete by the end of 2010/11.

MAJOR CAPITAL PROJECTS PERCENT OF COMPLETION 2010/11 ¹

[IN MILLIONS OF DOLLARS]

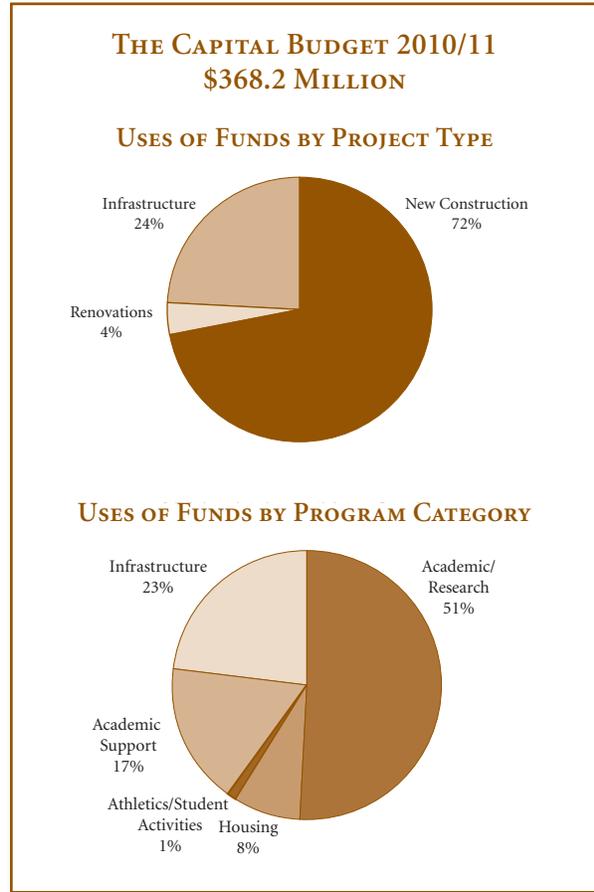
	Capital Budget 2010/11	Estimated Project Cost	Estimated Percent Complete 2010/11
Knight Management Center and Parking Structure (PS7)	122.1	345.3	100%
Bing Concert Hall	48.9	111.9	63%
William H. Neukom Building	22.5	63.9	100%
East Campus Dining Commons	17.6	20.3	100%
Bioengineering/Chemical Engineering	16.2	136.9	30%
Jill and John Freidenrich Center for Translational Research	10.0	24.0	53%
Total Major Projects	237.3	702.3	

¹ Includes projects scheduled to be in construction and with forecasted expenditures greater than \$10 million in 2010/11.

The magnitude of the Capital Budget is based on the assumption that funding availability will align with approved project schedules. The Capital Budget has historically been substantially higher than actual spending due to project deferrals caused by funding gaps. In fact, actual expenditures have averaged only 68% of the budget over the past nine years. This has been less of a factor in recent years as most of the projects in the last two Capital Budgets have had funding identified, staff assigned, and have received preliminary Board of Trustees approval. Actual expenditures in 2008/09 were 81% of the Capital Budget and expectations are that expenditures in 2010/11 will be close to the budget.

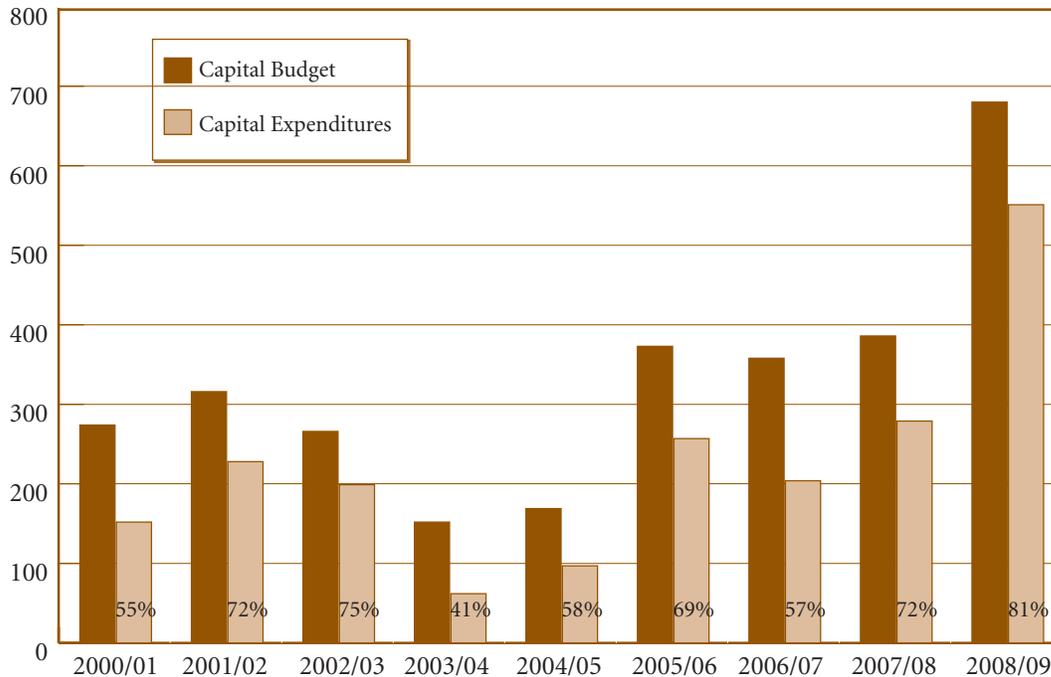
SOURCES AND USES

Sources of funds for the Capital Budget will be a combination of Current Funds (which include the Capital Facilities Fund, fund balances, and a subvention from the Hoover Institution), gifts, and debt. The university typically uses debt on projects if no other funding is available. The mix of project funding will be impacted by the timing of gift receipts, which may be bridge financed with medium term debt.



CAPITAL BUDGET VS. EXPENDITURES
2000/01 to 2008/09

[IN MILLIONS OF DOLLARS]



Of the \$368.2 million in the overall Capital Budget, 51% will be spent on Academic/Research projects (as shown in the lower pie chart on the facing page). Infrastructure, Academic Support, Housing, and Athletics/Student Activities will represent 23%, 17%, 8%, and 1%, respectively. Looking at the upper pie chart, an estimated 72% of the budget will be spent on new construction projects. The majority of these expenditures are for Knight Management Center and Parking Structure 7, the Bioengineering/Chemical Engineering building, Bing Concert Hall, William H. Neukom Building, Jill and John Freidenrich Center for Translational Research, and East Campus Dining Commons. Approximately 24% will be spent on infrastructure projects and programs including the Investment in Plant Maintenance Program, R&DE Capital Improvement Program, Capital Utilities Program (CUP), and GUP Mitigation Program. The remaining 4% will be spent on renovations including the CNI Center and the Forsythe Data Center Phase 3 Expansion.

Capital Facilities Fund

A crucial source of funds for capital projects is the Capital Facilities Fund (CFF). In June 2007, the Board of Trustees approved an increase in the target endowment payout rate from 5.0% to 5.5%. The additional payout releases unrestricted funds, which have been sequestered in the CFF to support major facilities projects.

Transfers to the CFF will be \$43.3 million in 2009/10 (net of the EFP shortfall) and \$85.9 million in 2010/11, with commitments of \$93.8 million in 2009/10 and \$29.6 million in 2010/11, as shown in the following table.

Non-formula CFF funds are allocated for projects that are difficult to support through restricted sources, and thus reduce the call for debt serviced by general funds. Among other uses, non-formula CFF is funding \$35.7 million for the Bing Concert Hall, internal loans on both the Olmsted Terrace Faculty Homes and East Campus Dining Commons, and enhanced sustainability features for the Bioengineering/Chemical Engineering building.

The formula units determine uses of their CFF funds according to their highest priority.

CAPITAL FACILITIES FUND (CFF)

Funding Sources and Committed Uses of Funding

[IN MILLIONS OF DOLLARS]

	2009/10	2010/11
Sources of Funding		
Formula Units		
School of Medicine	13.1	11.3
Graduate School of Business	0.0	0.0
Hoover Institution	4.2	3.6
President's Funds	15.0	12.8
Non-formula	11.0	58.2
Total Funding	43.3	85.9
Committed Uses of Funding		
Various Projects Funded by		
President's Funds	15.0	12.8
Bioengineering/Chemical Engineering		5.0
Jill and John Freidenrich Center for Translational Research	3.0	3.5
Various School of Medicine Projects	7.2	3.3
Emergency Power and Management Programs	3.4	2.7
Lorry I. Lokey Stem Cell Research Building	1.5	2.0
Li Ka Shing Center for Learning and Knowledge	2.9	0.3
Bing Concert Hall	35.7	
Porter Drive Improvement	9.5	
Olmsted Terrace Faculty Home Loans	5.2	
East Campus Dining Commons Loan	4.5	
Jerry Yang and Akiko Yamazaki Environment and Energy Building	3.6	
Access Control Enterprise System (ACES) Phase 2	1.2	
Madera Grove Children's Center/Mulberry House	0.7	
Center for Nanoscale Science and Engineering Fit-up	0.5	
Total Commitments	93.8	29.6
Annual Uncommitted Balance	(50.5)	56.3
Balance at Beginning of Year	147.0	96.5
Uncommitted Balance	96.5	152.8

CAPITAL BUDGET IMPACT ON 2010/11 OPERATIONS

The 2010/11 Consolidated Budget for Operations includes incremental debt service and O&M expenses for projects completing in 2010/11. Additionally, this budget includes an incremental increase in debt service and O&M expenses for projects completing in 2009/10 that were operational for less than 12 months.

Capital projects that require debt are funded from internal loans that are amortized over the asset life in equal installments (principal and interest). The budgeted interest rate (BIR) used to calculate internal debt service is a blended rate of interest expense on debt issued for capital projects, bond issuance costs, and administrative costs. The BIR is reset annually. The projected BIR for 2010/11 is 4.85%.

The projected incremental internal debt service funded by unrestricted funds, including formula units, in 2010/11 is \$10.6 million. This amount includes the additional debt service on the Center for Nanoscale Science and Engineering (Nano), Lorry I. Lokey Stem Cell Research Building, School of Medicine Connective Elements, Knight Management Center, William H. Neukom Building, and other smaller capital projects and programs. It also includes interest on medium term debt required to bridge finance gifts receipts for the Huang Engineering Center, Nano, Knight Management Center, Li Ka Shing Center for Learning and Knowledge, Lorry I. Lokey Stem Cell Research Building, and Neukom Building. This additional debt service brings the total annual internal debt service borne by the unrestricted university budget to \$53.6 million.

Consolidated internal debt service, including that borne by formula units, auxiliaries, service centers, Faculty Staff Housing, and real estate investments is projected to increase from \$158.4 million to \$170.6 million. In addition, annual lease payments are projected at \$19.9 million.

The university will incur additional O&M costs in 2010/11 of approximately \$11.2 million, of which \$3.2 million will be funded by the Graduate School of Business and \$5.2 million by the School of Medicine. The incremental costs are due to those facilities that will be ready for occupancy in 2010/11, offset by projected savings on the demolition of the Terman and Ginzton buildings.

CAPITAL PLANNING OVERVIEW

CAPITAL PLANNING AT STANFORD

Stanford's Capital Plan is a three-year rolling plan with budget commitments made for the first year and then only for projects with fully identified and approved funding. Cash flow expenditure forecasts for these projects extend beyond the three-year period, with budget impacts for operations, maintenance, and debt service commencing at construction completion. The plan includes tables forecasting both cash flow and budget impacts by year, demonstrating the impact of projects beyond the three-year plan.

The Capital Plan is set in the context of a longer-term capital forecast for the university. The details of this longer-term forecast, particularly funding sources and schedules, are less clear than those of the three-year plan, as the needs and funding sources that may emerge over the long-term horizon are difficult to anticipate. Over the longer-term forecast, plans tend to evolve as various projects prove more feasible than others based upon shifting funding realities and academic priorities.

In the 2009/10 – 2011/12 Capital Plan, the university delayed or suspended \$1.1 billion in planned capital projects due to the impact of the global financial crisis. The delayed or suspended projects were reviewed in the 2010/11 – 2012/13 plan to determine feasibility and funding changes. As a result of this review, the plan includes the reactivation of \$73 million in projects, as detailed in the table on the following page. The remaining delayed or suspended projects will be reevaluated annually as part of the capital planning process.

The economic downturn impacted the university's ability to fund incremental operations and maintenance (O&M) and debt service on both new and renovated buildings as they are occupied. O&M expenses include planned and reactive/preventive maintenance, utilities, contracts, grounds, and outdoor lighting. For the delayed or suspended projects, estimated deferrals of debt service and O&M are \$29.7 million and \$17.4 million, respectively.

STRATEGIC INITIATIVES

The following university strategic initiatives are integral to this year's Capital Plan and are detailed below:

- Science, Engineering, and Medical Campus (SEMC)
- Sustainability and Energy Management (SEM) / Central Energy Plant Optimization Project

PROJECTS REACTIVATED, DELAYED AND SUSPENDED

[IN MILLIONS OF DOLLARS]

	School/ Department	Estimated Project Cost	Debt Service	Operations & Maintenance
Reactivated Projects				
Art Building	H&S	64.6		1.4
Madera Grove Children's Center/Mulberry House	PRES/PROV	4.6		0.1
Access Control Enterprise System (ACES) – Phase 2	PRES/PROV	3.8		
Total – Reactivated Projects		73.0		1.5
Delayed Projects				
Foundations in Medicine (FIM) 1	SOM	157.6	1.0	1.5
Biology including teaching laboratories (SEMC project)	H&S	108.3	4.5	2.4
Encina Renovation	DOR/H&S	67.2	2.7	
Meyer Replacement	SUL	46.1		
Cummings Replacement	HOOVER	45.6		1.5
Panama Mall Renovations	SOE	20.8		0.1
Buildings 02-520 and 02-524 Renovations (\$12 million)				
Durand Phase 4 (\$6.8 million)				
Building 02-560 (\$2 million)				
Public Safety Building	PRES/PROV	16.6		0.4
Mechanical Engineering (Building 630 Replacement)	SOE	14.9		0.4
Stanford Auxiliary Libraries (SAL) 3 – Phase 2	SUL	14.0		0.5
Green Dorm (47 beds)	SOE	12.7		0.1
Golf Club House, Pro Shop, Cart Barn	DAPER	10.1		0.1
Multiple Non-Board of Trustee Level Projects	Multiple	15.9	0.2	0.1
Subtotal – Delayed Projects		529.7	8.4	7.2
Suspended Projects				
Redwood City Campus Master Plan Phase 1	PRES/PROV	379.0	18.5	8.9
Memorial Auditorium Renovation	PRES/PROV	63.2		
Old Chemistry	H&S	47.7	2.8	1.1
Maples Parking Structure	LBRE	40.0		0.2
Subtotal – Suspended Projects		529.9	21.3	10.2
Total – Delayed and Suspended Projects		1,059.6	29.7	17.4

Science, Engineering, and Medical Campus

Over the course of the SEMC initiative, the university has invested in the upgrade of aging facilities for the science, engineering, and medical programs.

The SEMC consists of eight new buildings, six of which are now completed and one of which is delayed:

- ◆ Astrophysics (completed in 2006)
- ◆ Jerry Yang and Akiko Yamazaki Environment and Energy Building (Y2E2) (completed in 2007)
- ◆ Lorry I. Lokey Stem Cell Research Building (SIM 1) (completed in 2010)

- ◆ Jen-Hsun Huang Engineering Center (completed in 2010)
- ◆ Center for Nanoscale Science and Engineering (completed in 2010)
- ◆ Li Ka Shing Center for Learning and Knowledge (LKSC) (completed in 2010)
- ◆ Bioengineering/Chemical Engineering (BioE/ChemE) (in planning)
- ◆ Biology (delayed)

This year's Capital Plan includes the Bioengineering/Chemical Engineering building, one of the two

remaining SEMC projects. At \$136.9 million, the Bioengineering/Chemical Engineering building is the final component of the Science and Engineering Quad 2 (SEQ 2). This building and its associated connective elements will facilitate interdisciplinary study through the placement of two related programs - Bioengineering and Chemical Engineering - in one location. The building will be predominantly comprised of wet laboratories and associated support spaces designed for intensive research for each of the departments. Included in the building scope are classrooms, faculty offices and conference spaces.

The 158,000 gross square foot (gsf) Bioengineering/Chemical Engineering building will match the architectural character of the neighboring Y2E2, Jen-Hsun Huang Engineering Center, and the Center for Nanoscale Science and Engineering. The Ginzton Laboratory will be demolished to clear the site. Mass excavation of the site will commence in late 2010, with expected completion by 2013.

SUSTAINABILITY AND ENERGY MANAGEMENT / CENTRAL ENERGY PLANT OPTIMIZATION PROJECT

Stanford is committed to advancing sustainability in the design, construction, and operation of campus facilities. The reduction of overall energy consumption and the use of cleaner energy sources are integral to creating a sustainable campus. Stanford continues a decade-long commitment to energy conservation and efficiency.

Current energy-saving strategies are expected to decrease energy consumption through 2011. In 2012, additional demand from new buildings may require enhanced conservation efforts. While Stanford produces energy from the Cardinal Cogeneration plant, an efficient natural gas-fired combined heat and power plant, the university is exploring renewable energy solutions through the Central Energy Plant Optimization Project.

The Central Energy Plant Optimization Project (\$250 million) is the result of a year-long planning effort. This capital utilities project will transition the university from reliance on the third-party owned and operated Cardinal Cogeneration plant, which contractually ends in 2015. The project will replace the combined heating and power “cogeneration” plant with a combined heating and cooling “regeneration” plant

that reuses waste heat from our campus wide central cooling system to satisfy most of our campus heating and hot water needs. Included in the project scope will be replacement of our steam distribution system with a hot water distribution system; modification of approximately 125 buildings to accept a lower temperature heat source; and an upgrade of the electrical infrastructure to support campus growth and added central plant load.

This new plant will provide the university with an energy supply that is projected to reduce the university’s long-term energy cost by an estimated 20% (with estimated payback in 16 years), greenhouse gas emissions by 30%, and water use by 25% between 2015 and 2050. Additionally, the Central Energy Plant Optimization Project will achieve increased cost stability by reducing reliance on fossil fuel.

Stanford is also pursuing approaches to reduce the use of non-renewable resources and minimize environmental impacts. Under the university’s sustainability standards, new buildings are required to use 30% less energy and 25% less water than building codes require. This is achieved through a combination of building orientation relative to the sun, adept space use planning and building operation scheduling, use of efficient electrical and mechanical equipment, use of native drought-tolerant landscaping and non-potable or reclaimed water for irrigation and other suitable applications, education and training of building occupants, and other measures. Existing buildings that have been identified as the largest energy-intensive facilities on campus are being renovated to meet the sustainable standards through the Whole Building Energy Retrofit Program (please see the discussion on page 70 for further information). Minor capital and operations improvements are funded through the Energy Retrofit Program (ERP), the Energy Conservation Incentive Program (ECIP), and other capital retrofit projects. ECIP provides incentives for schools and other units to decrease energy use.

Across the university, Sustainable Working Teams are also collaborating to advance sustainable approaches to operations in other areas such as green purchasing, food service, recycling, and transportation. Revised long-term master plans for increased sustainability efforts in the areas of campus water use and transportation are in draft form and under review within Sustainability and Energy Management (SEM) at this time.

THE CAPITAL PLAN, 2010/11 – 2012/13

Stanford's central campus, including the Medical School but excluding the hospitals, has more than 700 buildings providing more than 14.2 million gross square feet of physical space. The physical plant has a historical cost of \$5.8 billion and an estimated replacement cost in excess of \$7 billion.

The Capital Plan includes a forecast of Stanford's annual programs designed to restore, maintain, and improve campus facilities for teaching, research, housing, and related activities. The plan also outlines Stanford's needs for new facilities. The Capital Plan is compiled, reviewed, and approved in a coordinated manner across the university. The plan carefully balances institutional needs for new and renovated facilities with the challenging constraints of limited development entitlements, available funding, and budget affordability.

Projects listed in the Capital Plan are those approved by the provost. Many of the projects are under the purview of the Board of Trustees. Criteria established for the Board of Trustee-level approval are any of the following:

- Total project cost of \$10 million and above
- New building construction
- Projects that use 5,000 or more new square feet within the Academic Growth Boundary
- Changes in land use
- Projects with major exterior design changes

Expenditures in the 2010/11 – 2012/13 Capital Plan, which include major construction projects in various stages of development and numerous infrastructure projects and programs, total \$1.5 billion. The table below provides a comparison of the last three Capital Plans.

COMPARATIVE CAPITAL PLANS

[IN MILLIONS OF DOLLARS]

	2008/09	2009/10	2010/11
Design/ Construction	2,068.3	1,427.0	795.9
Forecasted Projects	420.0	79.6	221.8
Infrastructure	280.0	294.0	498.0
Total	2,768.3	1,800.6	1,515.7

Projects in Design and Construction

Projects in Design and Construction represent \$795.9 million (52% of the plan). Construction of these projects is contingent on fundraising of \$21.3 million (3%). Thirteen projects are listed in this category, as shown in the related table on page 76.

The cost of projects in Design and Construction has decreased by \$631.1 million from 2009/10 due to the completion of the Lorry I. Lokey Stem Cell Research Building (\$202.9 million), Jen-Hsun Huang Engineering and Nanoscale Science and Engineering centers (\$194.6 million), Li Ka Shing Center for Learning and Knowledge (\$144.2 million), John A. and Cynthia Fry Gunn (SIEPR) Building (\$32 million), Crothers Hall and Crothers Memorial Hall Renovation (\$22 million), and School of Education Building Seismic Renovation Phase 1 (\$6.5 million). Offsetting these decreases is \$31.5 million in projects previously in the Forecasted Projects section, including the Jill and John Freidenrich Center for Translational Research (\$24 million) and the CNI Center (\$7.5 million). A project which was reactivated from the Delayed and Suspended Projects table is the Madera Grove Children's Center/Mulberry House (\$4.6 million).

Forecasted Projects

Forecasted Projects are those anticipated to receive Board of Trustees approval over the next three years. These projects total \$221.8 million (15% of the plan) and are listed on page 77. As with the projects in Design and Construction described above, these projects are contingent upon funding. For this group of projects, a total of \$34.5 million, or 15%, remains to be fundraised.

Project costs within this category have increased by \$142.2 million from 2009/10, as a number of new and existing projects have either been added to the plan or moved into the Forecasted Projects category. New to the Forecasted Projects section of the 2010/11 Capital Plan are the GSB Complex Repurposing (\$71 million), Art Building (\$64.6 million), Manzanita Undergraduate Housing (\$20 million), School of Education Building Seismic Renovation Phase 2 (\$8.6 million), Forsythe Data Center Phase 3 Expansion (\$6.4 million), Access Control Enterprise System (ACES) Phase 2 (\$3.8 million), and Escondido Village Conversions Phase 2 (\$3.4 million). The availability of the existing GSB complex after the School relocates to the Knight Management Center creates an opportunity to repur-

pose these three buildings for use by other academic and support functions.

As noted above, the Jill and John Freidenrich Center for Translational Research and the Cognitive and Neurobiological Imaging (CNI) Center projects are now included in Design and Construction.

Infrastructure

Stanford's ongoing efforts to renew its infrastructure are reflected in a budget of \$498 million (33% of the plan). Infrastructure costs have increased from last year's Capital Plan by \$204 million. Infrastructure programs include the Central Energy Plant Optimization Project, Investment in Plant (Planned Maintenance) Program, R&DE's Capital Improvement Program (CIP), Capital Utilities Program (CUP), GUP Mitigation Program, Whole Building Energy Retrofit Program Group 2, Stanford Infrastructure Program (SIP), Information Technology & Communications Systems, Emergency Generators, Lagunita Diversion Facility Remediation, and Storm Drain projects. GUP mitigation and SIP projects are funded through construction project surcharges. The other categories of projects are funded by central funds or debt.

Central Energy Plant Optimization Project

The Infrastructure costs increase is largely due to the inclusion of the Central Energy Plant Optimization Project (\$250 million). In the fall of 2009, Stanford approved further study of a conversion of the campus energy supply system from a third-party owned and operated gas-fired Cardinal Cogeneration plant to an innovative Stanford owned and operated heat recovery plant. See the preceding Sustainability and Energy Management/Central Energy Plant Optimization Project section for further discussion.

Investment in Plant – Planned Maintenance Program

Annual Investment in Plant assets represent the maintenance funds planned to be "invested" to preserve and optimize Stanford's existing facilities. These projections are based on the life cycle planning methodology, the key concept being that life expectancies of facility subsystems are known and, as a result, maintenance schedules can be predicted. This program includes deferred and planned maintenance for building subsystems. The planned costs and funding total \$91 million and are detailed by area on page 78.

R&DE Capital Improvement Program

The Residential & Dining Enterprises Capital Improvement Program (CIP) is intended to address health and safety issues, seismic upgrades, code compliance, energy conservation and sustainability measures, and major programmatic improvements in the student housing and dining physical plant. CIP projects anticipated over the next three years total \$60 million. The plan includes continuation of the code compliance upgrades of various Row Houses, repairs to the Escondido Village slab heating system and infrastructure, as well as bathroom and kitchen renovations. Upon completion of CIP building renovations, the facilities are maintained through the Stanford Housing Asset Renewal Program (SHARP) and the Dining Asset Renewal Program (DARP). The East Campus Dining Commons (\$20.3 million) is in addition to these CIP totals and is listed on the Projects in Design and Construction table at the end of this chapter.

Capital Utilities Program

The three-year plan allocates a total of \$37.6 million to the Capital Utilities Program (CUP) to improve electrical, steam, water, chilled water, and wastewater utility systems. The annual CUP program covers the areas of system expansion and system replacement.

Of the total \$37.6 million CUP allocation, the three-year plan carries \$25.1 million for the anticipated system replacement portion of the program. The university annually proposes the replacement of systems that are nearing the end of their useful life. Included in the replacement process are distribution pipes, conduits, switchgear, and Central Energy Facility (CEF) production equipment.

CUP projects are subject to revision as the Central Energy Plant Optimization Project is further developed.

GUP Mitigation

Stanford reached agreement with Santa Clara County on the implementation of the required trails in the County and other jurisdictions. Santa Clara County segments were permitted for construction and began in 2005. Construction was suspended when the Committee for Green Foothills sued the County and Stanford over the adequacy of the EIR. The litigation was resolved on February 11, 2010 by a California Supreme Court ruling in favor of Stanford University and Santa Clara County to proceed with development

of the trails located in the foothills along Page Mill Road. The Capital Plan provides for \$12.6 million in capital expenditures for this project and mitigation. Funding is generated by an internal fee levied on capital projects that increase school/department campus space allocations.

Whole Building Energy Retrofit Program Group 2

Stanford's first phase of a comprehensive energy reduction program is near completion. In this phase, Stanford's largest energy-intensive buildings were analyzed to identify potential for decreased energy use. The buildings selected for retrofit represented \$15.9 million of energy expenses per year, or nearly 36% of the total campus energy expense. The retrofit program aims to reduce energy consumption through a range of recommendations with varying costs and benefits. The large-scale projects are in varying stages of completion and constitute a capital investment of approximately \$16 million.

The table on the following page summarizes the status of these projects, expected annual savings, and early results. It should be noted that early results may not be indicative of expected long-term improvements due to the imprecise nature of estimating potential energy savings from major renovations as well as the time needed for the changes to take full effect. Some projects will return higher than expected savings and some less than expected due both to the nature of the work and potential changes in expected building occupancy and use, equipment, tenant improvements, operating schedules, or weather patterns. Where results vary significantly from expectations (more than $\pm 5\%$) and after at least one full annual building cycle has passed, troubleshooting will continue until any identified problems are fixed and expectations are met or exceeded. This troubleshooting will be undertaken unless unforeseen building changes or weather patterns, though unlikely, materially affect the design intent of the retrofit. Note that the Herrin Hall-Biology retrofit was cancelled due to the limited expected life of this building.

A second group of 12 buildings has been identified for the energy retrofit studies and implementation program. These 12 buildings together consume \$7.6 million in energy each year, or an additional 14% of Stanford's total energy usage. The estimated capital investment for this group of buildings is \$15 million.

These buildings include the Bing Wing (Green Library West), Green Earth Sciences, Clark Center, Psychiatry Academic and Clinic Building, Packard Electrical Engineering, Mitchell Earth Sciences, Jordan Hall, Varian Physics Laboratory, Mechanical Engineering Laboratory, Arrillaga Alumni Center, Green Library East, and Sweet Hall.

Stanford Infrastructure Program (SIP)

The SIP consists of planning and transportation projects and programs for the improvement and general support of the university's academic community, hospitals, and physical plant. SIP expenditures are expected to total \$12.1 million over the next three years. SIP projects include the construction of campus transit improvements, parking lot infrastructure improvements, site improvements, landscape design and enhancements, bicycle, cart and pedestrian paths, lighting, signage, and outdoor art.

Information Technology and Communication Systems

The university's communications and networking systems provide voice, data, and video services to all buildings on campus. Over time, these systems must be replaced and/or improved so that a consistently high level of service can be maintained. Additionally, new technologies are implemented that provide more efficient, faster, and/or more cost effective solutions. A total of \$9.6 million has been allocated for upgrades to network and communication systems.

Emergency Generators

The comprehensive emergency preparedness planning includes the installation of emergency generators at strategic locations throughout the campus. The planned locations are focusing on housing facilities and the associated equipment maintenance. In the 2010/11 – 2012/13 Capital Plan, the emergency generators program cost is \$4 million.

Lagunita Diversion Facility Remediation

The Lagunita Diversion Facility on San Francisquito Creek consists of a dam and fish ladder to allow passage primarily for steelhead. As the current facility is not code compliant, the State of California is requiring that the university meet current requirements for steelhead passage. The university is investigating solutions and estimates the project cost will be \$1.5 million.

WHOLE BUILDING ENERGY RETROFIT PROGRAM — 12 BUILDING ENERGY STUDY

Project	Retrofit Status	Expected Annual Savings	Early Results
Stauffer I – Chemistry	Complete	38%	46%
Gordon & Betty Moore Materials Research ¹	Complete	32%	10%
Paul Allen Center for Integrated Systems (CIS)	Complete	15%	14%
Forsythe (George) Hall ²	Complete	8%	0%
Stauffer II - Physical Chemistry	Complete	38%	43%
Gates Computer Science	Complete	29%	27%
Beckman Center for Molecular and Genetic Medicine	Construction	43%	
Gilbert Biological Sciences	Construction	34%	
Cantor Center for Visual Arts	Program/Design	TBD	
Lucas Center	Program/Design	TBD	
Center for Clinical Sciences Research (CCSR)	Delayed to 2014/15	TBD	
Herrin Hall – Biology ³	Cancelled		

¹ Construction scope reduced from original survey.

² Additional work in the server area in progress to improve consumption savings results.

³ Limited life expectancy on Herrin Hall.

Storm Drains

The ongoing storm drainage program includes projects for improving and expanding the capacity of the campus storm drainage system, replacing deteriorated pipes, and improving drainage around buildings. In addition, increasingly stringent storm water quality regulations are necessitating new storm water treatment facilities, such as bioswales, bioretention, and storm water capture, to minimize contamination conveyed to natural water bodies from small storms. These storm runoff treatment facilities throughout the campus will supplement new onsite storm water design features that will be incorporated on new building sites by those projects, where feasible.

Other Stanford Entities

In an effort to present a comprehensive view of university planned construction, the capital planning process has included real estate investments, the Stanford Hospital and Clinics (SHC), Lucile Packard Children's Hospital (LPCH), and the SLAC National Accelerator Laboratory. Although the Capital Plan tables at the end of this chapter do not include these other entities, brief descriptions of their capital programs follow:

Real Estate Investments

While insulated to a degree by its premier location and branding, the Stanford Research Park is by no means immune to impacts from the global recession. The market conditions during the last 12 months have resulted in decreased leasing activity and a slowly rising vacancy rate, from 7.7% last year to the current 9%. That said, the Research Park continues to be a desirable location for a variety of corporations, creating a relatively stable environment.

Under an approved land use development agreement with the City of Palo Alto, known as the Mayfield Agreement, the Real Estate division will be master planning the conversion of some commercial sites on the edges of the Research Park to residential sites by the year 2014, when the underlying ground leases expire.

Stanford Hospital and Clinics and Lucile Packard Children's Hospital

The Stanford University Medical Center (SUMC) is requesting entitlements in Palo Alto to create a new hospital zone, which would allow development of approximately 1.3 million square feet of net new hospital, clinic, and medical office space. Approval of

the SUMC entitlements would permit the renovation and expansion of Stanford Hospital and Clinics, the Lucile Packard Children's Hospital and the building of new medical school facilities. In addition, the new zone would allow for an increase in the height limit from 50 feet to 130 feet. The estimated project costs of the Stanford Hospital and Clinics and the Lucile Packard Children's Hospital are \$2 billion and \$1.1 billion, respectively.

Since the fall of 2006, representatives from the two hospitals, the School of Medicine, and university administration (including Land, Buildings and Real Estate (LBRE), Public Affairs, and the Office of the General Counsel) have worked together to manage the entitlement process. The formal project application was submitted in August 2007. The City Council hearing on the final Environmental Impact Report (EIR) and approval of the Development Agreement are now targeted for mid-2010. The ability to meet targeted environmental review and ultimate entitlement dates will be a significant challenge given the discretionary nature of this process.

SLAC National Accelerator Laboratory

Currently, the SLAC National Accelerator Laboratory is updating its Long-Range Development Plan with a vision to consolidate research activities, upgrade infrastructure, and/or demolish and renovate facilities. In 2010/11, the Research Support Building (RSB) and Infrastructure Modernization project, totaling approximately \$97 million funded by the Department of Energy (DOE), will begin at the SLAC National Accelerator Laboratory campus and is scheduled for completion by 2014. These projects include the construction of a new 64,000 gross square foot building to house accelerator research staff at the RSB, renovation of three mission-support buildings, and the demolition of 57,000 square feet of substandard buildings and trailers.

SLAC National Accelerator Laboratory received funding from the DOE Office of Science through the American Recovery and Reinvestment Act (ARRA) to modernize and seismically upgrade the SLAC electrical substation and enhance existing infrastructure systems. Additionally, an 11,750 gross square foot renovation of the Stanford Institute for Materials and Energy Science (SIMES) facility will commence during the 2010/11-2012/13 Capital Plan period to provide new laboratory, conference and administrative spaces.

Overall Summary

A summary table of the 2010/11 – 2012/13 three-year Capital Plan appears on the next page. Included are projects and programs in Design and Construction, Forecasted, and Infrastructure that are anticipated to commence in the next three years.

To differentiate between the estimated costs of the three-year Capital Plan and the forecasted spending to complete its projects and programs, an additional table (Capital Plan Cash Flows) is included along with the Capital Plan Summary. This table forecasts the expenditure outflow of the Capital Plan based on project and program schedules. These cash expenditures are anticipated to be spent over a period extending beyond 2012/13.

Operating (including utilities), maintenance, and debt service costs will impact the operating budget once the construction is substantially complete. Although the Capital Plan Summary shows the full budget impact of all completed projects, it is important to note that this impact aligns with the project completion schedule and will be absorbed by the university budget over a period beyond the three-year plan based on actual project completion dates. A table entitled Capital Plan Impact on Budget is included with the Capital Plan Summary and Capital Plan Cash Flows table to forecast the budget impact by area of responsibility (e.g., general funds, formula schools, etc.).

The tables at the end of this chapter provide a detailed list of the projects included in the Capital Plan. The accompanying text summarizes these projects in order to present a comprehensive view of all planned construction on Stanford lands.

The following sections address the Capital Plan funding sources and uses, along with resource constraints.

CAPITAL PLAN FUNDING SOURCES

As the chart on the following page shows, Stanford's Capital Plan relies on several funding sources including Current Funds (which include the Capital Facilities Fund, fund balances, and a subvention from the Hoover Institution), gifts, and debt. Depending upon fundraising realities and time frames, some projects will prove more difficult than others to complete. As a result, it is possible that additional projects on the Capital Plan—beyond those already delayed or sus-

SUMMARY OF THREE-YEAR CAPITAL PLAN 2010/11–2012/13

[IN MILLIONS OF DOLLARS]

	Project Funding Source								Annual Continuing Costs	
	Estimated Project Cost	Capital Budget 2010/11	Current Funds ¹	Gifts		University Debt		Resources To Be Identified ²		
				In Hand or Pledged	To Be Raised	Service Center/Auxiliary Debt	Academic Debt			
Projects in Design & Construction	795.9	265.1	153.7	507.3	21.3	8.6	105.0		7.2	14.3
Forecasted Projects	221.8	15.9	35.8	30.1	34.5	6.4	44.0	71.0	3.2	6.9
Total Construction Plan	1,017.7	281.0	189.5	537.4	55.8	15.0	149.0	71.0	10.4	21.2
Infrastructure Programs	498.0	87.2	114.4			352.1	22.5	9.0	25.1	0.3
Total Three-Year Capital Plan 2010/11–2012/13	1,515.7	368.2	303.9	537.4	55.8	367.1	171.5	80.0	35.5	21.5

¹ Includes funds from university and school reserves and the GUP and SIP programs. Also includes the \$20 million Hoover subvention for the Art Building.

² Anticipated funding for this category is through a combination of school, department, and university reserves yet to be identified.

³ Operations & Maintenance includes: planned and reactive/preventative maintenance, zone management, utilities, contracts, grounds and outdoor lighting.

CAPITAL PLAN CASH FLOWS

[IN MILLIONS OF DOLLARS]

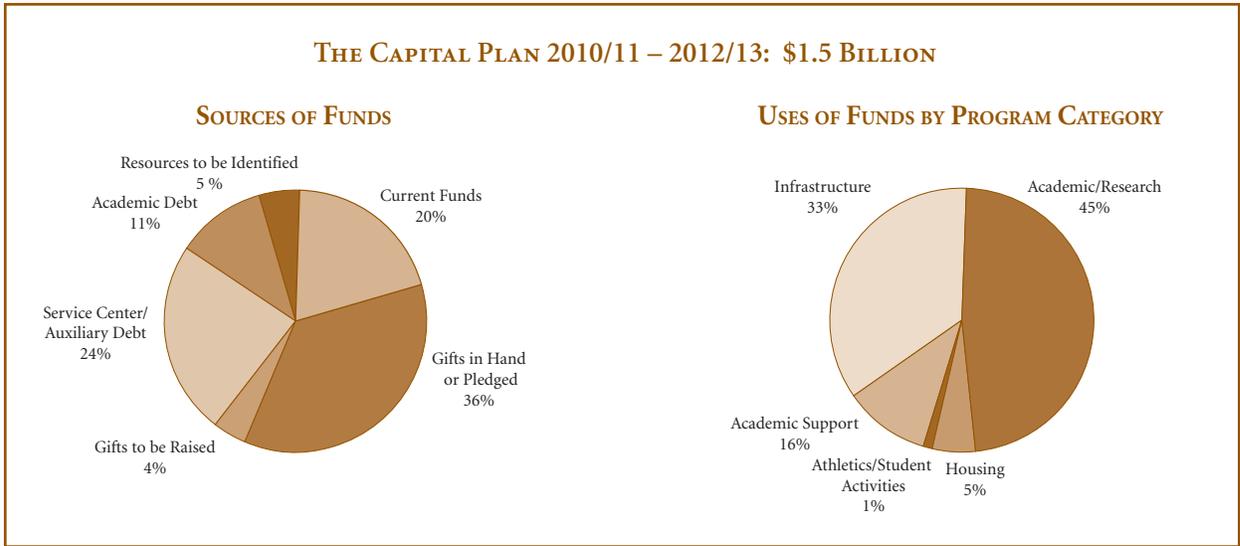
	2009/10 & Prior	2010/11	2011/12	2012/13	2013/14 & Thereafter	Total
Projects in Design & Construction	355.0	265.1	99.5	59.9	16.3	795.9
Forecasted Projects	0.7	15.9	54.3	73.9	77.0	221.8
Total Construction Plan	355.7	281.0	153.8	133.8	93.3	1,017.7
Infrastructure Programs	1.0	87.2	97.6	125.5	186.7	498.0
Total Three-Year Capital Plan 2010/11–2012/13	356.7	368.2	251.4	259.3	280.0	1,515.7

CAPITAL PLAN IMPACT ON BUDGET

[IN MILLIONS OF DOLLARS]

	2011/12	2012/13	2013/14 & Thereafter	Total
Debt Service				
General Funds	0.6	0.9	5.6	7.1
Formula and Other Schools ¹	4.7			4.7
Auxiliary	2.0	1.2	1.6	4.8
Service Center	1.2	0.7	16.9	18.8
Total Debt Service	8.5	2.8	24.1	35.5
Operations and Maintenance				
General Funds	0.4	2.4	11.0	13.8
Formula Schools	6.7			6.7
Auxiliary	0.5		0.3	0.8
Service Center	0.2			0.2
Total Operations and Maintenance	7.8	2.4	11.3	21.5

¹ Including Law School



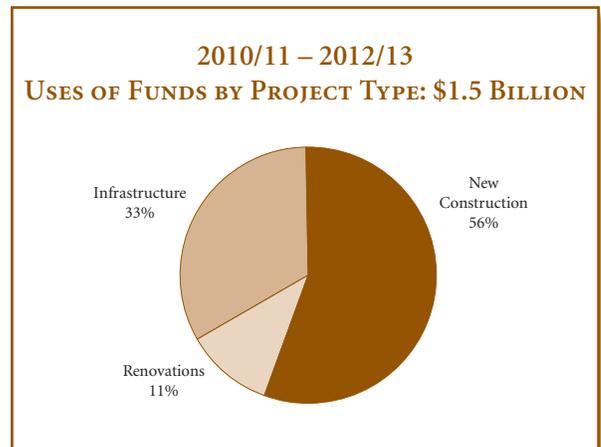
pending—will have to be cancelled, delayed, or scaled back in scope. As illustrated in the chart above, 36% of the plan is anticipated to be funded from gifts in hand or pledged and 4% is from gifts to be raised, for a total of 40%. This is comparable to last year’s total, where 49% of the plan came from these fundraising categories.

Last year, 7% of the Capital Plan was dependent on Gifts to be Raised, compared to just 4% this year. Less than 1% of last year’s Capital Plan was dependent on Resources to be Identified, compared to 5% this year. For any projects relying on gifts to be raised, the Office of Development has determined that fundraising plans are feasible, although the time frames for the receipt of gifts are subject to change. Resources to be Identified includes funds yet to be fully identified, with the expectation that funds will come from a combination of gifts and/or school, department, and university reserves.

USES OF FUNDS BY PROGRAM CATEGORY AND PROJECT TYPE

The chart above divides the Capital Plan activity into program categories—Academic/Research, Infrastructure, Academic Support, Housing, and Athletics/Student Activities—with the largest category being Academic/Research at 45% of the Plan. The chart at the right breaks out the same activity into project types—New Construction, Infrastructure, and

Renovations—with New Construction being the largest type at 56% of the Plan. Notably, because of the completion of several major projects during 2009/10, both Academic/Research and New Construction are relatively smaller portions of activity compared to last year’s Capital Plan (Academic/Research declines from 69% to 45% of the Plan; New Construction declines from 82% to 56%). Conversely, the Infrastructure portion of the plan—whether viewed as a program category or a project type—will increase from 16% of last year’s Plan to become 33% of this year’s Plan due to the inclusion of the Central Energy Plant Optimization Project.



CAPITAL PLAN CONSTRAINTS

Affordability

The incremental internal debt service expected at the completion of all projects commencing in the three-year plan period (completion dates range from 2010/11 to 2014/15) totals \$35.5 million annually (excluding debt service for medium term debt bridge financing the receipt of gifts). Of this amount, \$7.1 million will be serviced by general funds, \$23.7 million by auxiliary or service center operations, and \$4.7 million by formula schools (the GSB and the SoM and Law).

The additional O&M costs expected at the completion of all projects commencing in the three-year period total \$21.5 million per year. Of this amount, \$13.8 million will be serviced by general funds, \$1.0 million by auxiliary and service center operations, and \$6.7 million by the formula schools. O&M and debt service on capital projects compete directly with other academic program initiatives.

The university has recently issued \$250 million of long-term tax-exempt bonds to refinance \$131 million commercial paper outstanding and finance projects under construction. As of May 15, 2010 debt available to finance capital projects and faculty mortgages is estimated at \$571 million, including \$239 million of taxable commercial paper, \$213 million of tax-exempt commercial paper, and \$119 million of unexpended tax-exempt bond proceeds. In addition, through fiscal year-end 2010/11, \$89 million from internal amortization will become available for internal lending. Forecasted pledge payments of \$92 million will retire debt issued to bridge finance the receipt of gifts.

The Capital Plan will require a total of \$636 million of debt:

- \$243 million to complete projects already approved or under construction,
- \$145 million for projects forecast to be approved in 2010/11,
- \$248 million to bridge finance the receipt of gift pledges for projects under construction, and

Projects commencing after 2010/11 will require an additional \$332 million in permanent debt. Debt for these projects has not been committed, and allocations will be evaluated in the context of debt capacity,

affordability, viability of the funding plan, and GUP limitations.

Additional debt will be required to finance the Faculty Staff Housing program. As of April 30, 2010 the portfolio of debt-subsidized mortgages had increased by \$8 million to \$370 million.

Entitlements

The Stanford campus comprises 8,180 acres, which fall within six jurisdictions. Of this total, 4,017 acres, including most of the central campus, are within unincorporated Santa Clara County.

In December 2000, Santa Clara County approved a General Use Permit (GUP) that allows Stanford to construct up to 2,035,000 additional gross square feet of academic-related buildings on the core campus. The GUP also allows the construction of up to 2,000 new student housing units and over 1,000 units of housing for postdoctoral fellows, medical residents, faculty, and staff.

Conditions of approval included the following:

- The creation of an academic growth boundary to limit the buildable area to the core campus.
- The approval of a sustainable development study (SDS) before new construction is developed beyond one million gross square feet. (The SDS was approved by Santa Clara County in April 2009.)
- The construction of 605 units of housing for each 500,000 gross square feet of new academic building.

Given the stringent requirements imposed by the GUP and the increasingly difficult entitlement environment, Stanford carefully manages the allocation of new growth. The total GUP square footage allocation was originally projected to be expended over 15 years at an average rate of approximately 135,000 gross square feet per year. Subsequent experience has lengthened this projection.

The 2010/11 – 2012/13 Capital Plan includes 634,271 gross square feet of GUP square feet currently in Design and Construction and 19,707 net GUP square feet in Forecasted Projects. In addition, 7,027 GUP square feet is shown in the Infrastructure category for the Central Energy Plant Optimization Project. This square footage, along with gross square feet previously

allocated, brings the total GUP 2000 gross square feet expended or planned to over one million. Given the university's longer-term capital forecast, coupled with funding and affordability challenges and ongoing scrutiny of expansion, the current GUP allocation may endure until 2025.

As for the housing requirement, with the completion of the Olmsted Road Staff Rental Housing project, Olmsted Terrace Faculty Homes, and Escondido Village Conversion housing projects, Stanford will have added 1,442 net new housing linkage units since approval of

the GUP. The completion of these units will enable the university to construct up to 1,499,999 gross square feet of new academic space under the GUP.

CAPITAL PLAN PROJECT DETAIL

The tables on the following three pages show projects grouped within three categories: Projects in Design and Construction, Forecasted Construction Projects, and Infrastructure Projects and Programs.

2010/11 – 2012/13 CAPITAL PLAN
FORECASTED CONSTRUCTION PROJECTS
 [IN MILLIONS OF DOLLARS]

	School/ Department	Fiscal Year Project Schedule	Estimated Project Cost	Capital Budget 2010/11	Project Funding Source				Annual Continuing Costs			
					Current Funds ¹	Gifts		University Debt		Resources to be Identified ²	Debt Service	Operations & Maintenance ³
						In Hand or Pledged	To Be Raised	Service Center/ Auxiliary Debt	Academic Debt			
Graduate School of Business (GSB) Complex Repurposing	PRES/PROV	2011-13	71.0	3.8							5.2	
Art Building	H&S	2011-14	64.6	3.4	30.1	14.5					1.4	
Scientific Research Computing Facility	DOR/ITS	2013-15	44.0	0.1				44.0			2.8	
Manzanita Undergraduate Housing (100-125 units)	R&DE	2011-13	20.0	1.1		20.0						0.3
School of Education Building Seismic Renovation Phase 2	SUSE	2013-15	8.6									
Forsythe Data Center Phase 3 Expansion	ITS/AS	2011-11	6.4	5.3				6.4			0.4	
Access Control Enterprise System (ACES) Phase 2	PRES/PROV	2010-15	3.8	0.6								
Escondido Village Conversions Phase 2	R&DE	2011-12	3.4	1.6								
Subtotal – Forecasted Projects			221.8	15.9	30.1	34.5	6.4	44.0	71.0		3.2	6.9
Subtotal – Construction Plan			1,017.7	281.0	537.4	55.8	15.0	149.0	71.0		10.4	21.2

¹ Includes funds from university and school reserves and the GUP and SIP programs. Also includes the \$20M Hoover subvention for the Art Building.

² Anticipated funding for this category is through a combination of school, department, and university reserves yet to be identified.

³ Operations & Maintenance includes: planned and reactive/preventative maintenance, zone management, utilities, contracts, grounds and outdoor lighting.

2010/11 – 2012/13 CAPITAL PLAN
INFRASTRUCTURE PROJECTS & PROGRAMS

[IN MILLIONS OF DOLLARS]

	School/ Department	Fiscal Year Project Schedule	Estimated Project Cost	Capital Budget 2010/11	Current Funds ¹	Project Funding Source				Annual Continuing Costs	
						In Hand or Pledged	To Be Raised	Service Center/ Auxiliary Debt	University Debt Academic Debt		Resources to be Identified ²
Capital Utilities Projects											
Central Energy Plant Optimization Project	LBRE	2011-21	250.0	1.5		250.0		250.0		16.3	16.3
Subtotal-Capital Utilities Projects				250.0	1.5			250.0			16.3
Investment in Plant (Planned Maintenance)											
Non-Formula/Admin	LBRE	2011-13	43.0	13.0	43.0						
Formula	SOM	2011-13	20.3	5.4	20.3						
R&DE (SHARP/DARP) ⁴	R&DE	2011-13	16.5	4.7	16.5						
DAPER	DAPER	2011-13	9.0	0.6					9.0		
Utilities ⁵	LBRE	2011-13	2.2	0.5	2.2						
Roads	LBRE	2011-13	2.2	0.5	2.2						
Subtotal-Investment in Plant (Planned Maintenance)			91.0	24.2	82.0			60.0	9.0	3.9	
R&DE Capital Improvement Program ⁴	R&DE	2011-13	60.0	16.1							
Capital Utilities Program (CUP)	LBRE	2011-13	25.1	10.8				25.1		1.6	
System Replacement	LBRE	2011-13	12.5	6.6				12.5		0.8	0.2
System Expansion			37.6	17.4				37.6		2.4	0.2
Subtotal-CUP											
GUP Mitigation Program	LBRE	2005-12	12.6	12.6	12.6						
Trails	LBRE	2011-13	3.7	1.1	3.7						
Water-Related Program											
Subtotal-GUP Mitigation Programs			16.3	13.7	16.3						
Whole Building Energy Retrofit Program Group 2	Various	2011-13	15.0	6.0						1.4	
Stanford Infrastructure Program (SIP)	LBRE	2011-13	12.1	4.0	12.1				15.0		
Information Technology & Communications Systems	ITS	2011-13	9.6					4.5	5.1	0.9	
Emergency Generators	EHS	2011-13	4.0	2.5	4.0						
Lagunita Diversion Facility Remediation	LBRE	2011-11	1.5	1.5					1.5	0.1	
Storm Drains	LBRE	2011-13	0.9	0.3					0.9	0.1	0.1
Subtotal – Infrastructure Projects & Programs			498.0	87.2	114.4			352.1	22.5	25.1	0.3
TOTAL CAPITAL PLAN			1,515.7	368.2	303.9	537.4	55.8	367.1	171.5	35.5	21.5

¹ Includes funds from university and school reserves and the GUP and SIP programs.

² Anticipated funding for this category is through a combination of school, department and university reserves yet to be identified.

³ Operations & Maintenance includes: planned and reactive/preventive maintenance, zone management, utilities, contracts, grounds and outdoor lighting.

⁴ R&DE Capital Improvement Program generally includes program and code upgrades vs. Planned Maintenance which includes subsystem replacement.

⁵ Included under CUP – System Replacement below.