California Institute of Technology

Financial Statements

For the Years Ended September 30, 2018 and 2017

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Report of Independent Auditors

To the Board of Trustees of the California Institute of Technology

We have audited the accompanying financial statements of the California Institute of Technology (the "Institute"), which comprise the balance sheets as of September 30, 2018 and 2017, and the related statements of activities and of cash flows for the years then ended.

Management's Responsibility for the Financial Statements

Management is responsible for the preparation and fair presentation of the financial statements in accordance with accounting principles generally accepted in the United States of America; this includes the design, implementation, and maintenance of internal control relevant to the preparation and fair presentation of financial statements that are free from material misstatement, whether due to fraud or error.

Auditors' Responsibility

Our responsibility is to express an opinion on the financial statements based on our audits. We conducted our audits in accordance with auditing standards generally accepted in the United States of America. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free from material misstatement.

An audit involves performing procedures to obtain audit evidence about the amounts and disclosures in the financial statements. The procedures selected depend on our judgment, including the assessment of the risks of material misstatement of the financial statements, whether due to fraud or error. In making those risk assessments, we consider internal control relevant to the Institute's preparation and fair presentation of the financial statements in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the Institute's internal control. Accordingly, we express no such opinion. An audit also includes evaluating the appropriateness of accounting policies used and the reasonableness of significant accounting estimates made by management, as well as evaluating the overall presentation of the financial statements. We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our audit opinion.

Opinion

In our opinion, the financial statements referred to above present fairly, in all material respects, the financial position of the California Institute of Technology as of September 30, 2018 and 2017, and the changes in its net assets and its cash flows for the years then ended in accordance with accounting principles generally accepted in the United States of America.

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Emphasis of Matter

As discussed in Note B to the financial statements, the Institute early adopted Accounting Standards Update 2016-14 and as a result changed the manner in which it presents net assets and reports certain aspects of its financial statements as a not-for-profit entity in 2018. Our opinion is not modified with respect to this matter.

PricewaterhouseCoopers LLP

Los Angeles, California
January 30, 2019

California Institute of Technology
Balance Sheets
At September 30, 2018 and 2017
(Dollars in Thousands)

	2018	2017
ASSETS		
Cash and cash equivalents (Notes B and D)	$ 6,174	$ 6,603
Accounts and notes receivable, net		
United States government	337,684	299,634
Other	61,010	15,856
Contributions receivable, net	192,228	254,240
Investments	3,494,529	3,398,068
Prepaid expenses and other assets	181,432	182,475
Deferred United States government billings	316,819	347,521
Property, plant, and equipment, net	1,004,120	912,604
Total assets	$ 5,593,996	$ 5,417,001
LIABILITIES and NET ASSETS		
Liabilities:		
Accounts payable and accrued expenses	$ 404,707	$ 378,469
Accrued compensation and benefits	257,302	228,486
Deferred revenue and refundable advances	35,065	34,474
Annuities, trust agreements, and agency funds	91,750	92,035
Bonds and notes payable, net	1,241,610	1,248,898
Accumulated postretirement benefit obligation	357,532	394,130
Total liabilities	2,387,966	2,376,492
Net assets:		
Without donor restrictions	583,369	574,202
With donor restrictions:		
Time or purpose	907,350	839,150
Perpetual	1,715,311	1,627,157
Total net assets with donor restrictions	2,622,661	2,466,307
Total net assets	3,206,030	3,040,509
Total liabilities and net assets	$ 5,593,996	$ 5,417,001

The accompanying notes are an integral part of these financial statements.

California Institute of Technology
Statement of Activities
For the Year Ended September 30, 2018
(with summarized financial information for the year ended September 30, 2017)
(Dollars in Thousands)

	Without Donor Restrictions	With Donor Restrictions	2018 Total	2017 Total
Operating revenues:				
Tuition and fees, net of student financial aid	$ 42,152	$ -	$ 42,152	$ 41,342
Endowment spending, distributed	32,982	105,655	138,637	129,344
Gifts and pledges	31,996	17,675	49,671	38,706
Grants and contracts:				
Jet Propulsion Laboratory operations	2,664,521	-	2,664,521	2,284,060
United States government, Campus - direct	175,807	-	175,807	179,691
Other Campus - direct	33,497	-	33,497	31,026
Recovery of indirect costs and allowances	131,814	-	131,814	125,083
Auxiliary enterprises	30,487	-	30,487	30,109
Other	36,468	-	36,468	35,199
Net assets released from restrictions	129,584	(129,584)	-	-
Total operating revenues and other support	3,309,308	(6,254)	3,303,054	2,894,560
Operating expenses:				
Compensation and benefits	380,976	-	380,976	373,418
Supplies and services	140,429	-	140,429	124,837
Subcontracts	30,723	-	30,723	30,474
Graduate fellowships	21,197	-	21,197	19,652
Depreciation, accretion, and amortization	69,173	-	69,173	67,167
Utilities	15,276	-	15,276	14,931
Interest	26,259	-	26,259	23,291
Jet Propulsion Laboratory operations	2,664,521	-	2,664,521	2,284,060
Total operating expenses	3,348,554	-	3,348,554	2,937,830
Results of operations	(39,246)	(6,254)	(45,500)	(43,270)
Non-operating changes:				
Investment return in excess of endowment spending	61,395	82,217	143,612	260,214
Endowment spending, undistributed	2,468	8,983	11,451	11,914
Net assets released from restrictions	801	(801)	-	-
Gifts and pledges	1,010	71,676	72,686	211,875
Changes in fair value of interest rate swap	15,419	-	15,419	20,116
Non periodic changes in benefit obligations	772	-	772	(6,972)
Interest expense	(20,694)	-	(20,694)	(23,609)
Redesignations, reclassifications and other	(12,758)	533	(12,225)	(17,403)
Total non-operating activities	48,413	162,608	211,021	456,135
Increase in net assets	9,167	156,354	165,521	412,865
Net assets at beginning of year	574,202	2,466,307	3,040,509	2,627,644
Net assets at end of year	$ 583,369	$ 2,622,661	$ 3,206,030	$ 3,040,509

The accompanying notes are an integral part of these financial statements.

California Institute of Technology
Statement of Activities
For the Year Ended September 30, 2017
(Dollars in Thousands)

	Without Donor Restrictions	With Donor Restrictions	2017 Total
Operating revenues:			
Tuition and fees, net of student financial aid	$ 41,342	$ -	$ 41,342
Endowment spending, distributed	34,295	95,049	129,344
Gifts and pledges	27,190	11,516	38,706
Grants and contracts:			
Jet Propulsion Laboratory operations	2,284,060	-	2,284,060
United States government, Campus - direct	179,691	-	179,691
Other Campus - direct	31,026	-	31,026
Recovery of indirect costs and allowances	125,083	-	125,083
Auxiliary enterprises	30,109	-	30,109
Other	35,199	-	35,199
Net assets released from restrictions	160,577	(160,577)	-
Total operating revenues and other support	2,948,572	(54,012)	2,894,560
Operating expenses:			
Compensation and benefits	373,418	-	373,418
Supplies and services	124,837	-	124,837
Subcontracts	30,474	-	30,474
Graduate fellowships	19,652	-	19,652
Depreciation, accretion, and amortization	67,167	-	67,167
Utilities	14,931	-	14,931
Interest	23,291	-	23,291
Jet Propulsion Laboratory operations	2,284,060	-	2,284,060
Total operating expenses	2,937,830	-	2,937,830
Results of operations	10,742	(54,012)	(43,270)
Non-operating changes:			
Investment return in excess of endowment spending	103,535	156,679	260,214
Endowment spending, undistributed	1,234	10,680	11,914
Net assets released from restrictions	135	(135)	-
Gifts and pledges	13,227	198,648	211,875
Changes in fair value of interest rate swap	20,116	-	20,116
Non periodic changes in benefit obligations	(6,972)	-	(6,972)
Interest expense	(23,609)	-	(23,609)
Redesignations, reclassifications and other	(9,480)	(7,923)	(17,403)
Total non-operating activities	98,186	357,949	456,135
Increase in net assets	108,928	303,937	412,865
Net assets, beginning of year, as originally reported	424,153	2,203,491	2,627,644
Adjustment for retrospective application of new accounting principle (Note B)	41,121	(41,121)	-
Net assets, beginning of year, as adjusted	465,274	2,162,370	2,627,644
Net assets, end of year	$ 574,202	$ 2,466,307	$ 3,040,509

The accompanying notes are an integral part of these financial statements.

California Institute of Technology
Statements of Cash Flows
For the Years Ended September 30, 2018 and 2017
(Dollars in Thousands)

	2018	2017
Cash flows from operating activities:		
Increase in net assets	$ 165,521	$ 412,865
Adjustments to reconcile change in net assets to net cash used in operating activities:		
Depreciation, accretion, and amortization	69,173	67,167
Changes in postemployment benefit obligations	(772)	6,972
Contributions restricted for long-term investment and capital projects	(68,526)	(182,984)
Realized and unrealized gains on investments and swap	(249,557)	(369,135)
Other non-cash items	(4,494)	(5,342)
Changes in assets and liabilities:		
Accounts and notes receivable, net	(38,497)	(68,007)
Contributions receivable, net	7,557	10,570
Prepaid expenses and other assets	(1,562)	(18,901)
Deferred United States government billings	30,702	23,857
Accounts payable and accrued expenses	31,081	62,913
Accrued compensation and benefits	28,816	19,021
Deferred revenue, refundable advances, and agency funds	2,178	2,807
Accumulated postretirement benefit obligation	(35,826)	(28,552)
Net cash used in operating activities	(64,206)	(66,749)
Cash flows from investing activities:		
Purchases of investments	(743,515)	(739,186)
Proceeds from sales and maturities of investments	834,964	781,345
Purchases of property, plant, and equipment	(150,973)	(105,721)
Proceeds from sale of property, plant, and equipment	3,500	3,175
Net cash used in investing activities	(56,024)	(60,387)
Cash flows from financing activities:		
Contributions restricted for long-term investment and capital projects	129,754	133,389
Investment return restricted for long-term investment and capital projects	606	914
Cash received under annuity and trust agreements	3,558	6,258
Cash payments made under annuity and trust agreements	(6,637)	(6,396)
Net repayments of short-term debt	(7,480)	(6,800)
Net cash provided by financing activities	119,801	127,365
Net change in cash and cash equivalents	(429)	229
Cash and cash equivalents at beginning of year	6,603	6,374
Cash and cash equivalents at end of year	$ 6,174	$ 6,603

The accompanying notes are an integral part of these financial statements.

A. Description of California Institute of Technology

California Institute of Technology (the "Institute") is a private, not-for-profit institution of higher education based in Pasadena, California. Founded in 1891, the Institute provides education and training services, primarily for students at the undergraduate, graduate, and postdoctoral levels, and performs research, training, and other services under grants, contracts, and similar agreements with sponsoring organizations, primarily departments and agencies of the government of the United States of America.

B. Summary of Significant Accounting Policies

Basis of Presentation

The accompanying financial statements include the accounts of the Institute's main campus and satellite facilities ("Campus"), as well as the Jet Propulsion Laboratory ("JPL"), a Federally Funded Research and Development Center managed by the Institute for the National Aeronautics and Space Administration ("NASA").

The Institute manages JPL under a cost-reimbursable contract with NASA. JPL's land, buildings, and equipment are owned by the United States government and are excluded from the Institute's financial statements. Receivables and liabilities arising from JPL's operations are reflected in the Institute's balance sheets. The direct costs of JPL's operations and the related reimbursement of those costs are reflected separately in the statements of activities. The Institute receives an annual reimbursement in lieu of indirect costs ("lump sum") and an annual fixed performance fee for managing JPL, which totaled $43,093 and $38,596 for the years ended September 30, 2018 and 2017, respectively, and are included in recovery of indirect costs and allowances in the statements of activities.

The Institute's financial statements have been prepared on the accrual basis of accounting, in accordance with accounting principles generally accepted in the United States of America ("GAAP").

Net Assets

Under GAAP, the Institute classifies its resources for reporting purposes in two categories based on the existence or absence of donor-imposed restrictions. Those categories, and descriptions of the types of transactions affecting each category, follow:

- The financial statement line item "net assets without donor restrictions" are those net assets not subject to donor-imposed restrictions. Activities that affect this category generally consist of fees for service and related expenses associated with the Institute's operating activities, as well as activities related to funds functioning as endowment and certain philanthropic support. Contributions not subject to donor-imposed restrictions and donor-restricted contributions that are received and either spent, or deemed spent, for the restricted purpose within the same year are reported as increases to net assets without donor restrictions.

  Net assets without donor restrictions include certain funds that are board-designated as functioning as endowment. There are no other board-designated funds.

- The financial statement line item "net assets with donor restrictions" includes both net assets that are subject to donor-imposed time or purpose restrictions that are expected to be met and those subject to donor-imposed perpetual restrictions. Net assets with donor-imposed restrictions that are expected to be met include endowment investment returns that have not yet been appropriated for expenditures, certain funds restricted for capital projects, and certain life income and annuity funds. The Institute meets such donor restrictions through the passage of time, the appropriation of endowment earnings, placing gift-funded capital projects into service, and/or the Institute's incurrence of expenditures or other payments. When such restrictions are met, the related net assets are released to net assets without donor restrictions.

  Net assets with donor restrictions that are subject to perpetual restrictions include endowment gifts, related contributions receivable, and certain charitable life income and annuity funds for which donors have stipulated that the original value of their contributions and, if applicable, certain subsequent accumulations, be held in perpetuity.

For additional disclosures of the Institute's net assets, refer to Note H.

Use of Estimates
The preparation of financial statements in conformity with accounting principles generally accepted in the United States of America requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities and disclosure of contingent assets and liabilities at the date of the financial statements and the reported amounts of revenues and expenses during the reporting period. Actual results could differ from those estimates.

Reclassifications
Certain prior year amounts for the year ended September 30, 2017 have been reclassified to conform to the current year presentation.

Cash and Cash Equivalents
Cash and cash equivalents include bank account balances, investments in money market funds, and direct short-term investments that have remaining maturities of three months or less when purchased. Bank account balances at September 30, 2018 and 2017 were $6,174 and $6,603, respectively. The Institute classifies all cash and cash equivalents held as part of the investment portfolios as short-term investments. At September 30, 2018 and 2017, short-term investments, as disclosed in Note D, included $188,811 and $273,654, respectively, in cash and cash equivalents. Carrying amounts of cash and cash equivalents approximate fair value due to the relatively short maturities of these instruments.

Under the Institute's cash management system, checks issued by the Institute but not yet cashed by recipients may result in overdraft balances for accounting purposes and are included in accounts payable and accrued expenses in the balance sheets if an overdraft situation exists. There were no overdrafts at September 30, 2018 and 2017.

Accounts and Notes Receivable
Accounts receivable under contracts and grants are carried at cost, less an immaterial allowance for doubtful accounts. Net accounts receivable under contracts and grants totaled $345,253 and $306,191

at September 30, 2018 and 2017, respectively. Activity in the allowance accounts was not significant during the years ended September 30, 2018 and 2017. The carrying value of net accounts receivable approximates fair value.

At September 30, 2018 and 2017, the Institute held aggregate accounts receivable from students and employees of $2,654 and $2,940, respectively, and loans receivable from students of $5,732 and $6,011, respectively. Both accounts and loans receivable are carried at cost, and only minor amounts of these receivables are expected to become uncollectible.

Investments
Investments are carried at fair value as discussed in Note K. Purchases and sales of securities are recorded on trade dates, and realized gains and losses are determined based on the average cost of securities sold. Accounts receivable included $45,055 and $348 related to outstanding sales and accounts payable included $2,148 and $3,211 related to outstanding purchases of investments at September 30, 2018 and 2017, respectively.

Short-term investments included $18,219 and $33,899 held by the counterparty to the Institute's interest rate swap at September 30, 2018 and 2017, respectively, as collateral in accordance with the terms of the swap agreement.

Derivatives
The Institute uses an interest rate swap to manage the interest rate exposure of a portion of its variable rate debt. The swap is recorded at fair value, which is the estimated amount that the Institute would receive or pay to terminate the agreement, taking into account current interest rates. Costs of regular settlements with the counterparty of $3,880 and $4,819 during the years ended September 30, 2018 and 2017, respectively, are included in interest expense in the statements of activities. Changes in the swap's fair value during the years ended September 30, 2018 and 2017, resulted in unrealized losses of $15,419 and of $20,116, respectively, which are included in non-operating changes in net assets in the statements of activities. The fair value of the swap was a liability of $34,986 and $50,405 at September 30, 2018 and 2017, respectively, and is included in accounts payable and accrued expenses in the balance sheets.

The Institute also directly transacts in options to manage equity risks of certain investments. The fair value of options is included in investments in the balance sheets and is classified as derivatives in disclosures of investments. Changes in the fair value of options are reported in investment return (loss). The Institute does not designate any derivative instruments as hedging instruments under GAAP. Further disclosure of the fair value of derivatives is reported in Note K.

Property, Plant, and Equipment
Property, plant, and equipment is recorded at the cost of construction, acquisition, or fair value of contributed assets at the date of gift. Interest costs related to debt used for construction of assets are capitalized and included in the cost of construction. Depreciation on all assets subject to depreciation is calculated over the estimated useful lives as defined for each class of depreciable asset, which range from three to fifty years, using the straight-line method. Depreciation on buildings and building improvements is calculated based on the useful lives of each major building component. The Institute provides for the renewal and replacement of assets from various sources set aside for this purpose.

The Institute routinely acquires or constructs equipment under federally and non-federally funded research awards. The costs of such assets for which title does not ultimately transfer to the Institute are charged to expense.

The Institute's conditional asset retirement obligations are primarily related to removal and disposal of asbestos and removal of buildings and improvements from leased property. Asset retirement cost, net of accumulated depreciation, was $11,490 and $12,398 at September 30, 2018 and 2017, respectively, and is included in property, plant, and equipment in the balance sheets. Conditional asset retirement obligations were $26,176 and $26,076 at September 30, 2018 and 2017, respectively, and are included in accounts payable and accrued expenses in the balance sheets.

Annuities, Trust Agreements, and Agency Funds
The Institute's split-interest agreements with donors consist primarily of charitable gift annuities and charitable remainder trusts for which the Institute serves as trustee. For irrevocable agreements, assets contributed are included in investments at fair value and totaled $114,170 and $117,807 at September 30, 2018 and 2017, respectively. Contribution revenue is recognized at the date each trust is established after recording liabilities for the actuarially-determined present value of the estimated future payments to be made to beneficiaries. Actuarial liabilities are discounted at an appropriate credit risk-adjusted rate determined at the inception of each agreement. Discount rates on split-interest agreements range from 1.2% to 11.2% per annum. The liabilities are adjusted during the terms of the agreements for changes in the fair value of the assets, accretion of discounts, and other changes in the estimates of future benefits. The 2012 Individual Annuity Reserving (IAR) table was used for the years ended September 30, 2018 and 2017. Split-interest agreement liabilities totaled $67,108 and $69,117 at September 30, 2018 and 2017, respectively, and are included in liabilities for annuities, trust agreements, and agency funds in the balance sheets and classified in Level 3 of the valuation hierarchy described in Note K.

The Institute is also the trustee for certain revocable agreements. Assets contributed are included in Institute investments at fair value, and amounts equal to the value of assets are included in liabilities for annuities, trust agreements, and agency funds in the balance sheets. Total assets and liabilities for revocable agreements were $8,587 and $8,450 at September 30, 2018 and 2017, respectively.

The Institute held assets totaling $16,055 and $14,468 in agency funds on behalf of other entities at September 30, 2018 and 2017, respectively. The assets held are primarily included in investments in the balance sheets. The corresponding liability, which is equal to assets held, is included in annuities, trust agreements, and agency funds in the balance sheets.

Beneficial Interests
The Institute is the beneficiary of both charitable remainder and perpetual trusts held and administered by others and interests in certain estates bequeathed by donors. The fair value of the Institute's interests in charitable and perpetual trusts is estimated by multiplying the Institute's percentage interest by the fair value of trust assets at the time that receipt of such interests is both probable and reasonably estimable. The value of the Institute's interests in such trusts is adjusted for changes in the fair values of the underlying assets. Distributions from perpetual trusts are recorded as revenue when contributed by the trustee. Interests in estates are recognized based on estimates of cash flows from estate settlements at the time such cash flows are probable and reasonably estimable.

Beneficial interests totaled $32,114 and $48,038 at September 30, 2018 and 2017, respectively, and are included in prepaid expenses and other assets in the balance sheets.

Compensated Absences

Institute employees are entitled to paid vacation based upon length of service and other factors. Certain employees also accrue benefits related to sick leave. The Institute records a liability for these benefits that employees have earned but not yet taken. At September 30, 2018 and 2017, accrued compensated absences of $94,122 and $88,984, respectively, are included in accrued compensation and benefits in the balance sheets. Other compensated absences do not accumulate and are treated as current-period costs.

Workers' Compensation Insurance

The Institute provides workers' compensation insurance to its employees. Liabilities for the Institute's retained risk related to such coverage are determined by an actuary and are included in accrued compensation and benefits in the balance sheets. At September 30, 2018 and 2017, the liabilities for workers' compensation were $11,527 and $10,064, respectively.

Revenue Recognition

The Institute's revenue recognition policies are as follows:

- *Tuition and fees* - Student tuition and fees are recorded as revenues during the year the related academic services are rendered and are displayed net of financial aid on the statements of activities. Tuition and fees totaled $109,050 and $103,963 for the years ended September 30, 2018 and 2017, respectively. Student financial aid totaled $66,898 and $62,621 for the years ended September 30, 2018 and 2017, respectively. Student tuition and fees received in advance of services to be rendered, net of applicable financial aid, are recorded as deferred revenue.

- *Investment return (loss)* - Investment transactions are recorded on the trade date. Investment income and realized and unrealized gains and losses, net of investment management fees, are reported as increases or decreases to the appropriate net asset category.

- *Gifts* - Unconditional promises to give are recorded as revenues in the year received. Non-cash gifts are recorded at fair value using quoted market prices, market prices for similar assets, independent appraisals, or as estimated by Institute management. Gift revenue from contributions to be collected in the form of securities or other investments is adjusted at each year end to reflect the year-end value of securities and/or investments to be contributed.

  Conditional promises to give are not recorded until donor-imposed conditions, which are future and uncertain events whose occurrence or failure to occur give donors a right of return of assets they have transferred or release such donors from an obligation to transfer assets, have occurred or failed to occur. Conditional promises to give, undiscounted, totaled $70,890 and $65,588 at September 30, 2018 and 2017, respectively. Substantially all such conditional promises were for educational and research programs. Payments received related to conditional promises totaled $10,038 and $5,609 at September 30, 2018 and 2017, respectively, and are included in deferred revenue and refundable advances in the balance sheets.

- *Grants and contracts* - Revenues from grants and contracts generally are recognized as allowable expenditures are incurred under such agreements. Amounts received in excess of expenditures are recorded as deferred revenue. At September 30, 2018 and 2017, deferred revenue related to grants and contracts was $9,640 and $11,207, respectively. Substantially all United States government grants and contracts awarded to the Campus provide for the reimbursement of indirect facilities and administrative costs based on rates negotiated with the Office of Naval Research, the Campus' federal cognizant agency for the negotiation and approval of facilities and administrative and other indirect cost rates.

- *Auxiliary enterprises* - Revenues from supporting services, such as dining facilities, faculty and student housing, and retail stores are recorded at the time of delivery of products or services. Amounts received in advance of deliveries of products or services are recorded as deferred revenue.

(Dollars in Thousands)

Expenses

Campus expenses are reported in the statements of activities by natural classification. Institute expenses by functional classification were as follows for the years ended September 30, 2018 and 2017:

	Campus Program Activities					
September 30, 2018	**Instruction and Academic Support**	**Organized Research**	**Auxiliary Enterprises**	**Institutional Support**	**JPL Operations**	**Total**
Operating expenses:						
Compensation and benefits	$ 192,505	$ 116,108	$ 11,422	$ 60,941	$ 1,127,756	$ 1,508,732
Supplies and services	59,350	49,202	15,090	16,787	409,322	549,751
Subcontracts	712	30,011	-	-	1,115,076	1,145,799
Graduate fellowships	12,212	8,985	-	-	-	21,197
Depreciation and amortization	25,068	34,515	5,689	3,901	-	69,173
Utilities	6,091	7,971	639	575	12,367	27,643
Interest	8,299	9,704	7,600	656	-	26,259
Total functional expenses	$ 304,237	$ 256,496	$ 40,440	$ 82,860	$ 2,664,521	$ 3,348,554
Non-operating expenses:						
Interest				$ 20,694		$ 20,694

	Campus Program Activities					
September 30, 2017	**Instruction and Academic Support**	**Organized Research**	**Auxiliary Enterprises**	**Institutional Support**	**JPL Operations**	**Total**
Operating expenses:						
Compensation and benefits	$ 188,994	$ 113,821	$ 10,606	$ 59,997	$ 1,057,430	$ 1,430,848
Supplies and services	52,437	46,335	13,890	12,174	350,975	475,812
Subcontracts	1,367	29,107	-	-	864,305	894,779
Graduate fellowships	10,941	8,711	-	-	-	19,652
Depreciation and amortization	23,379	35,609	4,339	3,840	-	67,167
Utilities	5,752	7,854	747	578	11,350	26,282
Interest	7,352	8,570	6,804	566	-	23,292
Total functional expenses	$ 290,222	$ 250,007	$ 36,386	$ 77,155	$ 2,284,060	$ 2,937,830
Non-operating expenses:						
Interest				$ 23,609		$ 23,609

Institutional Support expenses include certain costs related to the administration of the Institute's contract with NASA for the operation of JPL. NASA reimbursed Caltech $22,093 and $17,596, respectively for the years ended September 30, 2018 and 2017, related to such costs. These amounts represent the annual negotiated reimbursement in lieu of indirect costs ("lump sum") as described in the NASA Contract.

Facilities operation and maintenance costs incurred centrally are allocated back to the functional expense classifications as follows: Depreciation related to buildings and improvements and other central facilities' operating costs are allocated based on square footage occupancy of Institute facilities, equipment depreciation is allocated based on average equipment purchases attributed to each classification, and interest expense on external debt, net of amounts capitalized, is allocated to categories that benefit from the proceeds of such debt based on occupancy.

Operating and Non-operating Activities

The statements of activities report the changes in net assets from the Institute's operating and non-operating activities. Operating activities exclude investment returns/losses in excess/deficit of endowment spending, endowment spending available but not distributed to operations, revenues and releases from restrictions related to gifts for construction, endowments, and annuity and trust agreements, changes in postemployment benefit obligations that are not otherwise recognized in net periodic benefit cost, changes in fair value of interest rate swaps, interest expense related to any bonds issued for which the proceeds have not yet been used for capital projects, to refund other bonds or for operating purposes, net gains or losses on nonrecurring transactions, actuarial adjustments related to annuity and trust agreements, losses on retirement of indebtedness, and donor redesignations or other reclassifications of net assets.

Tax Status

The Institute is generally exempt from federal taxes on income related to its charitable purpose under the provisions of IRC Section 501(c)(3) and from California and other state income taxes under corresponding state laws. The Institute is subject to both federal and state income taxes on income from certain activities not substantially related to its exempt purpose. At September 30, 2018 and 2017, the Institute maintained a full valuation allowance on its deferred tax assets, which are primarily due to tax losses from certain investment activities. Based on its analysis of the uncertainties surrounding both the timing and amounts of potential future net taxable income, the Institute has assumed that it is more likely than not that the Institute will not realize the deferred tax assets. The Institute has not provided for any uncertain tax positions at September 30, 2018 and 2017.

The Federal Tax Cuts and Jobs Act ("TCJA") was signed into law in December 2017. The TCJA includes several provisions which may impact the Institute, including an excise tax on net investment income and revised methods for calculating unrelated business income, both of which will be effective in the Institute's fiscal year ending September 30, 2019. The overall impact of the TCJA remains uncertain and the full impact of the TCJA will not be known until further regulatory guidance is provided to assist the Institute with calculating potential income tax and excise tax liabilities and expenses. Based on its understanding of the TCJA and available guidance, the Institute had no material deferred tax liabilities or income taxes payable at September 30, 2018.

(Dollars in Thousands)

Related Party Transactions
Members of the Institute's Board of Trustees and senior management may, from time to time, be associated, either directly or indirectly, with entities doing business with the Institute. These transactions are conducted in the normal course of business and in accordance with the Institute's policies and procedures governing potential conflicts of interest.

Accounting Pronouncements Adopted
During the year ended September 30, 2018, the Institute adopted Accounting Standards Update ("ASU") 2017-02, which clarifies the model used by not-for-profit entities to evaluate the possible consolidation of investments in limited partnerships (and limited liability companies that are similar to limited partnerships). There was no material impact to the financial statements as a result of adoption.

The Institute also early adopted ASU 2016-14 regarding presentation of financial statements of not-for-profit organizations. Among other requirements, ASU 2016-14 requires additional disclosures regarding the classification of expenses and the liquidity and availability of funds and modifies the reporting of net assets. The standard does not affect the recognition of financial statement elements.

ASU 2016-14 was adopted on a retrospective basis and resulted in the following changes to amounts reported for the year ended September 30, 2017:

	Without Donor Restrictions	With Donor Restrictions	Total Net Assets
Net assets, beginning of year, as originally reported:			
Unrestricted	$ 424,153	$ -	$ 424,153
Temporarily restricted	-	766,388	766,388
Permanently restricted	-	1,437,103	1,437,103
Total net assets, beginning of year	$ 424,153	$ 2,203,491	$ 2,627,644

As part of the retrospective adoption of ASU 2016-14, $41,121 related to endowments that had fair values in deficit of historical values, known as "underwater" endowments, was reclassified from net assets without donor restrictions to net assets with donor restrictions.

New Accounting Pronouncements
In May 2014, FASB issued ASU 2014-09 regarding the recognition of revenue from contracts with customers. ASU 2014-09 outlines a single comprehensive standard for revenue recognition across all industries and supersedes most existing revenue recognition guidance. The Institute expects to make additional disclosures regarding tuition and certain auxiliary and other revenues and related assets due to the adoption of ASU 2014-09, but does not expect the adoption of the standard to result in material changes to its net assets or to its revenues. ASU 2014-09 is effective for the Institute's fiscal year ending September 30, 2019.

In February 2016, FASB issued ASU 2016-02 regarding accounting for leases. ASU 2016-02 requires recognition of rights and obligations arising from lease contracts as assets and liabilities on the balance sheets. ASU 2016-02 is effective for the Institute’s fiscal year ending September 30, 2020. The Institute is evaluating the impact this standard will have on its financial statements and disclosures.

In August 2016, FASB issued ASU 2016-15 regarding the classification of certain transactions within the statement of cash flows. ASU 2016-15 is effective for the Institute’s fiscal year ending September 30, 2020. The Institute is evaluating the impact this standard may have on its financial statements and disclosures.

In March 2017, FASB issued ASU 2017-07. The standard requires bifurcation of net periodic cost related to postretirement benefits into service cost, which may be included in operations, and other components, which must be reported outside of operations. ASU 2017-07 is effective for the Institute’s fiscal year ending September 30, 2020. The Institute is evaluating the impact this standard may have on its financial statements and disclosures.

In June 2018, FASB issued ASU 2018-08. The standard clarifies the scope and accounting guidance for contributions, and, in particular, the definition of donor-imposed conditions. Under the new standard, revenue from many sponsored research awards will be accounted for as conditional contributions, rather than exchange transactions. The Institute does not expect the adoption of ASU 2018-08 to result in material changes to its net assets or revenues from sponsored awards. Additional disclosure of conditional contributions from sponsored awards will be required. ASU 2018-08 is effective for the Institute's fiscal year ending September 30, 2019.

C. Contributions Receivable, net

Contributions receivable consists of unconditional promises to give to the Institute in the future. Individual contributions receivable are initially recorded at fair value, including discounts to present values of the future cash flows at appropriate credit risk-adjusted rates, and are classified in Level 3 of the valuation hierarchy described in Note K. Discount rates on outstanding contributions receivable at September 30, 2018 and 2017 range from 0.74% to 4.56%.

(Dollars in Thousands)

Collections of contributions receivable were expected as follows at September 30, 2018 and 2017:

	2018	2017
Within one year	$ 69,740	$ 83,132
Between one year and five years	98,656	139,142
More than five years	31,853	42,156
Gross contributions receivable	200,249	264,430
Less:		
Unamortized discounts	7,911	9,978
Allowance for uncollectible contributions	110	212
Net contributions receivable	$ 192,228	$ 254,240

Net contributions receivable carried the following donor-imposed restrictions at September 30, 2018 and 2017:

	2018	2017
Endowment	$ 129,566	$ 183,954
Other purpose and/or time restrictions	62,662	70,286
Net contributions receivable	$ 192,228	$ 254,240

At September 30, 2018 and 2017, net promises totaling $125,793 and $150,151, respectively, were due from board members, their estates, and charitable entities founded by board members.

(Dollars in Thousands)

D. Investments

Investments consisted of the following at September 30, 2018 and 2017:

	2018	2017
Short-term investments	$ 188,811	$ 273,900
Fixed-income securities	162,116	177,928
Equity securities	1,365,675	1,360,432
Alternative investments:		
Alternative securities	918,528	812,409
Private equity	444,369	359,458
Real assets	411,560	417,157
Derivatives, net	3,470	(3,216)
Total investments	$ 3,494,529	$ 3,398,068

The Institute engages a number of outside investment managers to manage portions of its investment portfolios, which include an investment pool and other separately managed portfolios.

Below is a description of the holdings included within each investment classification:

- *Short-term investments* consist primarily of cash and cash equivalents invested in prime, U.S. government, and government agency money-market funds, as well as deposits with financial institutions.

- *Fixed-income securities* consist primarily of debt instruments issued by corporate or sovereign entities in both U.S. and foreign markets and investments in funds that hold such instruments.

- *Equity securities* consist primarily of investments in publicly traded corporate equities in globally diversified public markets including domestic, developed international, emerging markets and investments in funds that hold such investments. Investment managers invest according to each manager's particular investment strategy.

- *Alternative securities* consist primarily of investments in funds other than private equity and real assets in which redemption options and/or distributions are determined by the respective investment managers. Alternative securities managers pursue returns through a variety of strategies, such as high yield and distressed credit, long/short equity, event-driven, and relative value. Managers invest and trade in various securities and financial instruments, including publicly traded and privately issued common and preferred shares of domestic and foreign companies, corporate debt, bonds, swaps, options, futures contracts and commodities.

(Dollars in Thousands)

- *Private equity* consists of investments in limited partnership interests that invest primarily in the securities of privately held companies. Investment managers utilize leveraged buyout and venture capital strategies in a wide variety of industries and company sizes. Distributions from these investments are made either in-kind as distributions of publicly tradeable equity securities after initial public offerings, or in cash after liquidation of the underlying securities by the investment manager.

- *Real assets* consist primarily of investments in limited partnerships that invest in foreign and/or domestic real estate and/or energy sectors and/or domestic timber industries. Real estate consists primarily of illiquid investments in residential and commercial real estate assets, projects or land, and notes receivable secured by real estate. Such holdings are either held directly or in partnership funds. Energy holdings consist primarily of illiquid investments in oil and gas exploration and production or materials mining businesses, as well as related oil and gas services businesses, held in limited partnerships. Timber holdings consist primarily of illiquid investments in timber land and harvesting businesses held in limited partnerships.

- *Derivatives, net* consist of options in which the Institute directly transacts to manage equity and foreign exchange risks of certain investments and interest and currency futures.

Investments were held as follows at September 30, 2018 and 2017:

	2018	2017
Investment pool	$ 2,885,142	$ 2,613,272
Separately invested endowments	41,174	44,306
Trusts, annuities, and other	568,213	740,490
Total investments	$ 3,494,529	$ 3,398,068

At September 30, 2018 and 2017, endowment investments were $2,907,002 and $2,641,050, respectively. At September 30, 2018, and 2017, other investments included $7,120 and $10,396, respectively, held in separately invested accounts as required by donors and/or sponsors.

Investment return, which consists of interest and dividend income and net realized and unrealized gains and losses, net of fees, was $293,700 and $401,472 for the years ended September 30, 2018 and 2017.

E. Deferred United States Government Billings

The Institute's contract with NASA provides for the reimbursement of certain employee benefit costs incurred but not yet billed to the JPL contract. Therefore, the Institute has recorded deferred United States government billings related to the unfunded postretirement benefit obligation, accrued vacation, and workers' compensation liabilities attributable to JPL, as the Institute is able to recover these amounts through future charges to JPL contracts. Although these deferred billing amounts may not be currently funded, and therefore may need to be funded as part of future NASA budgets, the

(Dollars in Thousands)

Institute has the contractual right to require that such funding be made available at the time these employee benefit liabilities become payable by the Institute.

Deferred United States government billings related to deferred reimbursements of the following liabilities at September 30, 2018 and 2017:

	2018	**2017**
Unfunded postretirement benefit obligation	$ 236,293	$ 272,131
Accrued vacation	76,610	71,814
Accrued worker's compensation expense	3,916	3,576
Total deferred United States government billings	$ 316,819	$ 347,521

F. Property, Plant, and Equipment, net

Property, plant, and equipment consisted of the following at September 30, 2018 and 2017:

	2018	**2017**
Land and land improvements	$ 70,719	$ 70,923
Buildings and building improvements	1,155,408	1,115,284
Equipment	577,410	560,188
Construction in progress	205,337	112,503
Less: accumulated depreciation	(1,004,754)	(946,294)
Total property, plant, and equipment, net	$ 1,004,120	$ 912,604

Depreciation expense for the years ended September 30, 2018 and 2017 was $67,866 and $66,276, respectively.

(Dollars in Thousands)

G. Bonds and Notes Payable

Bonds and notes payable are uncollateralized, general obligations of the Institute and consisted of the following at September 30, 2018 and 2017:

	Maximum	Maturity	Interest rate 2018 / 2017	Outstanding 2018	Outstanding 2017
Bonds payable:					
Taxable bonds:					
Series 2016		2116	4.28%	$ 150,000	$ 150,000
Series 2015		2045	4.32%	400,000	400,000
Series 2011		2111	4.70%	350,000	350,000
California Educational Facilities Authority (CEFA) tax-exempt revenue bonds, with variable rates (prior to being synthetically fixed through swap agreements, where applicable):					
2006 Series A		2036	1.31% / 0.92%	82,500	82,500
2006 Series B		2036	1.22% / 0.85%	82,500	82,500
Series 1994		2024	1.22% / 0.85%	30,000	30,000
Total bonds payable, gross				1,095,000	1,095,000
Unamortized original issue premiums/discounts and issuance costs, net				(10,743)	(10,935)
Total bonds payable, net				1,084,257	1,084,065
Notes payable:					
Variable rate facilities:					
General working capital and capital projects:					
Bank of America revolving bank credit facility	$ 100,000	2017	- / 1.55%	-	75,000
Bank of New York Mellon money market loan program	50,000	None	-	-	-
JPMorgan Chase revolving bank credit facility	100,000	2021	2.52% / 1.57%	64,000	6,200
U.S. Bank revolving bank credit facility	100,000	2020	2.75% / 1.45%	75,400	50,000
Wells Fargo revolving bank credit facility	50,000	2020	2.61% / 1.59%	17,953	33,633
Supplemental liquidity for variable rate debt:					
Northern Trust revolving bank credit facility	50,000	2020	-	-	-
Northern Trust revolving bank credit facility	50,000	2018	-	-	-
Wells Fargo revolving bank credit facility	50,000	2020	-	-	-
Total notes payable				157,353	164,833
Total bonds and notes payable, net				$1,241,610	$1,248,898

(Dollars in Thousands)

As of September 30, 2018, the Institute had seven unsecured revolving lines of credit available (collectively, the "Lines of Credit"), consisting of six unsecured revolving bank credit facilities and one unsecured revolving money market loan program. At September 30, 2018 and 2017, the Institute had internally-mandated aggregate borrowing limits for the Lines of Credit as follows: $100,000 for borrowings to finance working capital, $100,000 for borrowings to finance acquisitions of real estate and temporary funding for capital projects, and $200,000 for borrowings secured to preserve liquidity.

The line of credit from Bank of New York Mellon is uncommitted. Maturity dates for individual advances made under this line of credit are determined at the time advances are made.

A Bank of America revolving bank credit facility with a permitted maximum draw of $100,000 was terminated effective November 30, 2017. There was no outstanding balance at September 30, 2018.

Subsequent to September 30, 2018, the Institute extended its $50,000 revolving credit facility with Northern Trust originally maturing in 2018 to mature in 2019, and extended its $50,000 revolving credit facility with Northern Trust originally maturing in 2020 to mature in 2021.

The Institute is required to comply with financial covenants in certain line of credit agreements, including maintaining minimum ratios of unrestricted cash and investments to total adjusted debt outstanding. As of September 30, 2018, the Institute was in compliance with all of its required financial covenants.

Under certain circumstances, the CEFA Series 1994, 2006 Series A, and 2006 Series B variable rate revenue bonds, which have contractual maturities commencing in 2024, could fail to be remarketed, requiring the Institute to repurchase the outstanding bonds totaling approximately $195,000. Therefore, those bonds have been classified as repayable in the year ending September 30, 2019 in the following table.

Future principal repayments on bonds and notes payable were as follows at September 30, 2018:

Year Ending September 30	**Amount**
2019	$ 352,353
2020	-
2021	-
2022	-
2023	-
Thereafter	900,000
Total	$ 1,252,353

As disclosed in Note B, the Institute uses an interest rate swap to manage the interest rate exposure of the 2006 Series A and B variable rate revenue bonds. Under the terms of the agreement, which expires October 1, 2036, the Institute pays the counterparty a fixed interest rate of 3.549% and receives a variable rate, indexed at 67% of one-month LIBOR (resulting in a rate of 1.51% at September 30, 2018), on a $165,000 underlying notional principal amount.

(Dollars in Thousands)

H. Net Assets

Net Assets with Donor Restrictions

The Institute's net assets with donor restrictions were held as follows at September 30, 2018 and 2017:

	2018	2017
Time or purpose:		
Endowment	$ 704,413	$ 631,856
Contributions receivable	62,662	70,286
Education and research funds	108,902	106,745
Life income and annuity funds	31,373	30,263
Total net assets with time or purpose restrictions	$ 907,350	$ 839,150
Perpetual:		
Endowment	$ 1,523,107	$ 1,369,863
Contributions receivable	129,566	183,954
Life income and annuity funds	44,065	54,617
Student loan funds	18,573	18,723
Total net assets with perpetual restrictions	$ 1,715,311	$ 1,627,157
Total net assets with donor restrictions	$ 2,622,661	$ 2,466,307

Endowment Net Assets

Endowment net assets constitute the largest component of the Institute's net assets and are comprised of more than 1,000 donor-restricted and board-designated funds held for long-term investment that support educational, research, and general operating activities of the Institute. All endowment assets are held in the investment pool unless special considerations or donor stipulations require that they be invested separately. Gift annuities, beneficial interests, contributions receivable, and unexpended endowment distributions are not considered endowment net assets.

Pursuant to its interpretation of the Uniform Prudent Management of Institutional Funds Act ("UPMIFA") as enacted in California, the Institute classifies the following as net assets with donor restrictions that are perpetual in nature: the original value of initial gifts to permanent endowments, the original value of subsequent gifts to permanent endowments, and the value of accumulations to permanent endowments made in accordance with the applicable donor gift instrument at the time the accumulation is added to the fund. The remaining portions of donor-restricted endowment funds that are not subject to donor restrictions that are perpetual in nature, which consist primarily of accumulated investment return, are considered donor-restricted as to purpose until those amounts are appropriated for expenditure by the Institute in a manner consistent with the standard of prudence prescribed by UPMIFA and Institute policies and expended accordingly.

The Institute's endowment spending policy includes a Board of Trustees-approved endowment spending formula that takes into consideration the prior year's allowed formulaic spending, inflation factors, and endowment growth. In addition, in accordance with UPMIFA, when determining the annual amount to be made available for distribution to the operating budget each year, the Board of Trustees also considers the following factors:

- The purposes of donor-restricted endowment funds
- The duration and preservation of such funds
- General economic conditions
- Possible effects of inflation and deflation
- The expected total return from investment income and the appreciation of investments
- Other resources of the Institute
- The investment policies of the Institute

Any excess of endowment spending over current-year investment income and gains/(losses) is funded by prior years' accumulated investment return. The Institute appropriates endowment funds for expenditures based on authorized spending rates and, if applicable, the incurrence of specific expenditures in accordance with donor-imposed purpose restrictions.

The Institute invests endowment assets targeted to earn an average annual total return that exceeds inflation by at least the amount required to support the endowment spending. Total return includes both capital appreciation/depreciation (realized and unrealized gains/losses) and investment income (including interest, dividends, and royalties). The Institute targets a diversified asset allocation, including, but not limited to, investments in public markets, private equity, real assets, and alternative investments, within risk constraints deemed to be prudent.

The portion of endowment available for spending that is transferred to operating accounts each year is shown as endowment spending distributed in the statements of activities. Any endowment spending available for expenditure but not distributed remains invested in the Institute's endowment and is included in non-operating changes to net assets in the statements of activities.

(Dollars in Thousands)

Endowment net assets consisted of the following at September 30, 2018 and 2017:

	Without Donor Restrictions	With Donor Restrictions	Total
September 30, 2018			
Donor-restricted endowment funds	$ -	$ 2,219,926	$ 2,219,926
Board-designated endowment funds	678,678	7,594	686,272
Total endowment net assets	$ 678,678	$ 2,227,520	$ 2,906,198
September 30, 2017			
Donor-restricted endowment funds	$ -	$ 1,982,753	$ 1,982,753
Board-designated endowment funds	636,457	18,966	655,423
Total endowment net assets	$ 636,457	$ 2,001,719	$ 2,638,176

Changes in endowment net assets for the years ended September 30, 2018 and 2017 were as follows:

	Without Donor Retrictions	With Donor Restrictions	Total
October 1, 2016	$ 576,183	$ 1,675,237	$ 2,251,420
Investment return, net	78,020	265,159	343,179
Contributions and pledge payments	-	154,223	154,223
Additions to board-designated endowments	24,800	12,000	36,800
Available for expenditure	(35,529)	(105,729)	(141,258)
Redesignations, reclassifications, and other	(7,017)	829	(6,188)
September 30, 2017	$ 636,457	$ 2,001,719	$ 2,638,176
Investment return, net	60,937	196,433	257,370
Contributions and pledge payments	-	133,761	133,761
Additions to board-designated endowments	25,252	400	25,652
Available for expenditure	(35,450)	(114,638)	(150,088)
Redesignations, reclassifications, and other	(8,518)	9,845	1,327
September 30, 2018	$ 678,678	$ 2,227,520	$ 2,906,198

The line item "redesignations, reclassifications, and other" includes the effects of changes in donor-imposed restrictions or Institute designations and certain endowment management costs.

Under Accounting Standards Codification 958, for accounting purposes the Institute must maintain the historical values of underwater donor-restricted endowment funds as net assets subject to donor restrictions that are perpetual in nature. Deficiencies in fair value of such funds relative to their historical values reduce the portion of net assets with donor restrictions that is subject to time and/or purpose restrictions, and diminish with fair value appreciation. The aggregate deficiencies in fair value relative to historical cost for underwater endowments at September 30, 2018 and 2017 were as follows:

(Dollars in Thousands)

	2018	2017
Aggregate historical value	$ 184,027	$ 234,648
Aggregate fair value	174,614	218,402
Aggregate deficiency	$ (9,413)	$ (16,246)

The Institute's endowment spending policy and applicable laws permit the appropriation of endowment spending from underwater funds unless prohibited by donor-imposed restrictions. During the years ended September 30, 2018 and 2017, the Institute appropriated spending of $9,347 and $12,267, respectively, from certain underwater funds in accordance with the policy, so as not to suspend certain Institute programs. The policy requires the Institute's management to monitor and approve spending from underwater funds annually on a fund-by-fund basis and to report annually to the Board of Trustees regarding underwater funds.

I. Postretirement and Postemployment Benefits

Postretirement Health and Life Insurance

The Institute provides postretirement health and life insurance benefit plans to eligible retirees and their dependents. The Institute's obligation related to these benefits is actuarially determined based on a September 30 measurement date. The Institute also provides defined contribution retirement plans, which are described at the end of this note.

Components of the funded status of postretirement benefits reported in the Institute's balance sheets and changes therein were as follows for the years ended September 30, 2018 and 2017. Additional detail regarding the JPL and Campus-related portions of the funded status of postretirement benefits is provided at the end of this note.

(Dollars in Thousands)

	2018	2017
Change in the accumulated postretirement benefit obligation:		
Benefit obligation at beginning of year	$ 466,696	$ 460,339
Service cost	12,956	12,486
Interest cost	18,299	17,147
Benefits paid	(17,855)	(14,373)
Actuarial (gain)/loss	(24,266)	(8,903)
Benefit obligation at end of year	455,830	466,696
Changes in plan assets:		
Fair value of plan assets at beginning of year	72,566	44,629
Return on plan assets	8,454	6,631
Employer contributions	35,133	35,679
Benefits paid	(17,855)	(14,373)
Fair value of plan assets at end of year	98,298	72,566
Funded status	$ (357,532)	$ (394,130)

Benefits for campus retirees and their dependents are funded on a pay-as-you-go basis. Benefits for JPL retirees and their dependents are funded by NASA according to an accrual accounting approach based on the Federal Acquisition Regulation. JPL-related contributions in excess of benefits paid are held in a trust for the benefit of JPL retirees and are invested according to the related plan's investment policies. At September 30, 2018 and 2017, trust investments consisted of short-term investments and non-publicly traded collective trust funds and mutual funds. Short-term investments are classified in level 1 of the valuation hierarchy described in Note K, and the collective trust funds and mutual funds, which have readily determinable fair values, are classified within level 2 of that hierarchy.

Trust investments were held as follows at September 30, 2018 and 2017:

	2018	2017
Short-term investments	$ 454	$ 366
Collective trust funds	29,023	21,873
Mutual funds	68,821	50,327
Total investments	$ 98,298	$ 72,566

(Dollars in Thousands)

Net periodic postretirement benefit cost was as follows for the years ended September 30, 2018 and 2017:

	2018	2017
Components of net periodic postretirement benefit cost:		
Service cost	$ 12,956	$ 12,486
Interest cost	18,299	17,147
Expected return on plan assets	(4,517)	(3,131)
Amortization of prior year service credit	(26,305)	(26,305)
Amortization of loss	5,531	6,958
Net periodic benefit cost	$ 5,964	$ 7,155

The statements of activities include the effects of changes in funded status that are not otherwise recognized in net periodic postretirement benefit cost. The effect related to JPL for the years ended September 30, 2018 and 2017 was a decrease of $6,657 and $28, respectively, in both JPL direct expense and revenue and in deferred U.S. government billings, as any cost associated with this adjustment related to JPL is contractually recoverable from NASA. The effect of those changes for the Campus was a decrease of $772 and an increase of $6,972 in net assets without donor restrictions for the years ended September 30, 2018 and 2017, respectively, and is recorded in non-operating changes in net assets in the statements of activities.

At September 30, 2018 and 2017, the differences recognized in net assets without donor restrictions between cumulative net periodic postretirement benefit cost, less cumulative contributions, and funded status were as follows:

	2018	2017
Prior service credit	$ (31,630)	$ (38,007)
Net loss	23,101	30,250
Cumulative amounts recognized in net assets without donor restrictions	$ (8,529)	$ (7,757)

Any actuarial deferrals resulting from changes in the accumulated postretirement benefit obligation are amortized over the average future working lifetime of Institute employees. An estimated prior service credit of $26,305 and actuarial loss of $3,132 will be amortized into net periodic benefit cost during the year ending September 30, 2019.

(Dollars in Thousands)

The following weighted-average assumptions were used to determine the Institute's net periodic benefit cost under the plans for the years ended September 30, 2018 and 2017:

	2018	**2017**
Discount rate	4.00%	3.80%
Discount rate for service cost	4.10%	4.10%
Expected return on plan assets	5.50%	5.75%
Health care cost trend rate	7.25%	7.50%

To develop the expected long-term rates of return on assets noted above, the Institute considers the historical returns and future expectations for each asset class, as well as the asset allocation of the retirement plan's investment portfolio. Estimated future returns were based on expected returns for various asset categories. The evaluation of the historical and future returns resulted in the selection of 5.50% for the expected return on plan assets.

The following weighted-average assumptions were used to determine the Institute's obligation under the plans at September 30, 2018 and 2017:

	2018	**2017**
Discount rate	4.40%	4.00%
Discount rate for service cost	4.40%	4.10%
Health care cost trend rate	7.25%	7.25%

The Institute's postretirement medical benefit plans provide a substantial portion of the Institute's retirees and their eligible dependents annual awards of defined-dollar credits that are available to be used by retirees for medical premiums and other eligible medical expenses. The defined-dollar credits may be changed in future years at the Institute's discretion. Certain grandfathered retirees and eligible dependents remain eligible for future medical benefits at no cost through an Institute-sponsored plan. The cost of these benefits is expected to increase in the future according to health care cost trend rates. The assumed health care cost trend rate is 7.25% in 2019, and annual rates are assumed to decrease approximately 0.25% per year until 2030, after which healthcare cost is assumed to increase 4.25% in all future years. The effects of changes in these rates are not expected to be material to the benefit obligation or to related amounts recoverable from NASA.

(Dollars in Thousands)

At September 30, 2018, the estimated future benefit payments are as follows:

Year Ending September 30	Campus	JPL	Total
2019	$ 5,046	$ 14,483	$ 19,529
2020	5,258	14,750	20,008
2021	5,542	15,281	20,823
2022	5,865	15,894	21,759
2023	5,789	15,653	21,442
2024-2028	33,196	85,555	118,751

Additional detail regarding the JPL and Campus-related portions of the funded status of postretirement benefits and changes therein for the years ended September 30, 2018 and 2017 is as follows:

	Campus	JPL	Total
September 30, 2018			
Benefit obligation at end of year	$ 121,239	$ 334,591	$ 455,830
Fair value of plan assets at end of year	-	98,298	98,298
Funded status	$ (121,239)	$ (236,293)	$ (357,532)
September 30, 2017			
Benefit obligation at end of year	$ 121,998	$ 344,698	$ 466,696
Fair value of plan assets at end of year	-	72,566	72,566
Funded status	$ (121,998)	$ (272,132)	$ (394,130)

Defined Contribution Program

The Institute provides a defined contribution retirement program for eligible academic and administrative employees. Contributions to Internal Revenue Code “IRC” Section 403(b) defined contribution plans for the years ended September 30, 2018 and 2017 were $26,279 and $25,637, respectively, for the Campus and $93,288 and $84,911, respectively, for JPL. The Institute has no assets or liabilities related to these plans.

At September 30, 2018 and 2017, respectively, prepaid expenses and other assets included $96,599 and $86,885 in assets held pursuant to IRC section 457 defined contribution retirement plans. These assets are invested with external investment managers and are stated at fair value. The Institute’s liabilities related to these funds were $96,039 and $86,368 at September 30, 2018 and 2017, respectively, and are included in accrued compensation and benefits in the balance sheets.

J. Liquidity and Funds Available for General Expenditure

The Institute manages its financial assets and liquidity resources in order to provide cash for payment of general expenditures, such as operating expenses, construction costs, and principal payments on debt. Financial assets classified below as available for general expenditure within one year, computed in accordance with Accounting Standards Codification 958, are those that are considered both convertible to cash and free of donor-imposed and/or contractual restrictions that would limit or prevent the use of such cash to fund general expenditures.

(Dollars in Thousands)

At September 30, 2018, the Institute's financial assets and liquidity resources available for general expenditure within one year were as follows:

	2018
Financial assets available within one year:	
Cash and cash equivalents	$ 6,174
Accounts and notes receivable, net	386,774
Expected pledge payments available for operations	6,823
Other investments	355,740
Investments and gains subject to fiscal 2019 endowment spending	153,430
Total	908,941
Liquidity resources:	
Committed lines of credit	$ 400,000
Less: current borrowings under lines of credit	(157,353)
Total	242,647
Total financial assets and liquidity resources available within one year	$ 1,151,588

As detailed in Note G, the Institute maintains certain internally-imposed limits on the use of its lines of credit for operating, liquidity, and construction purposes. Those limits may be changed with the concurrence of the Institute's Board of Trustees, and, therefore, such internally-imposed limits have been omitted from the Institute's determination of available liquidity resources.

Under the Institute's cash management policies, cash received from endowment spending related to either funds functioning as endowment or donor-restricted endowments is available for general expenditure. Endowment spending distributed from donor-restricted endowments is reflected in the Institute's records as net assets with donor restrictions until the expenditures actually are incurred; such expenditures are funded by available financial assets and/or liquidity resources at the time they are paid.

Although the Institute does not generally intend to use endowment resources in excess of amounts appropriated annually according to its endowment spending policy, at September 30, 2018, the Institute had $678,678 in funds functioning as endowment and included in net assets without donor restrictions that were available for general expenditure, subject to the concurrence of the Board of Trustees. Various redemption restrictions on underlying endowment investments could reduce the amount of cash immediately available from a redemption of a significant amount of funds functioning as endowment.

As noted in Note L, the Institute was committed to fund certain construction and services contracts from available financial assets and liquidity resources in the amount of $269,642 at September 30, 2018.

K. Fair Value

Fair value is defined as the price that the Institute would receive upon selling an asset or would pay to settle a liability in an orderly transaction between market participants. The Institute evaluates the fair value of financial instruments using an established hierarchy that ranks the inputs to valuation techniques used to measure fair value. Inputs refer broadly to the assumptions that market participants would use in such fair value determinations, including assumptions regarding various risks. A financial instrument's level within the fair value hierarchy is based on the least-transparent level of any input that is significant to the fair value measurement. The classification of financial instruments within the hierarchy is based upon the transparency of the inputs to valuation techniques used to measure fair value and does not necessarily correspond to the Institute's perceived risk of those instruments. The three levels of the fair value hierarchy are described below.

Level 1 fair value measurements are based upon unadjusted quoted prices for identical assets or liabilities in active, accessible markets. Market price data is generally obtained from exchange dealer markets.

Level 2 fair value measurements are generally based on quoted prices for similar instruments in active markets, quoted prices for identical or similar instruments in markets that are not active, and model-based valuation techniques for which all significant assumptions are observable in the market or can be corroborated by observable market data for substantially the full term of the instruments. Inputs to Level 2 measurements include, but are not limited to, interest rates, credit risk adjustments, and prices for similar instruments, and are obtained from various sources, including market participants, dealers, and brokers.

Level 3 fair value measurements are those that use significant inputs that are unobservable. Assets and liabilities included in Level 3 primarily consist of investments in real assets that are valued by investment managers or the Institute using industry-standard methodologies, independent appraisals, and Institute models. The Institute regularly monitors the adequacy of these fair value measurements. Fair value measurements derived using specific unobservable quantitative inputs developed by the Institute were not significant for the years ended September 30, 2018 and 2017.

The Institute generally uses net asset value ("NAV") as a practical expedient to determine the fair value of investments in funds that do not have readily determinable fair values and either have certain specific attributes of investment companies or prepare their financial statements consistent with the measurement principles of investment companies. For these funds, net asset values are determined by each fund's general partner or investment manager and are based on appraisals or other estimates that include considerations such as the cost of the fund's securities, prices of recent significant placements of securities of the same issuer, and subsequent developments concerning the companies to which the securities relate. The fair value of investments valued at NAV as a practical expedient are excluded from the fair value hierarchy.

(Dollars in Thousands)

The following is a summary of the fair value of the Institute's financial instruments according to fair value level or NAV at September 30, 2018 and 2017:

	Level 1	Level 2	Level 3	NAV	2018 Total
September 30, 2018					
Investments:					
Short-term investments	$ 188,811	$ -	$ -	$ -	$ 188,811
Fixed-income securities	29,562	132,554	-	-	162,116
Equity securities	621,597	177,858	35,053	531,167	1,365,675
Alternative investments:					
Alternative securities	-	-	-	918,528	918,528
Private equity	-	-	53,360	391,009	444,369
Real assets	-	17,945	164,833	228,782	411,560
Derivative assets	4,878	-	-	-	4,878
Derivative liabilities	(1,408)	-	-	-	(1,408)
Total investments	$ 843,440	$ 328,357	$ 253,246	$2,069,486	$3,494,529
Other assets and liabilities:					
Cash and cash equivalents	$ 6,174	$ -	$ -	$ -	$ 6,174
Beneficial interests	-	-	32,114	-	32,114
Defined contribution plan assets	37,718	28,260	30,621	-	96,599
Defined contribution plan liabilities	(37,230)	(28,198)	(30,611)	-	(96,039)
Interest rate swap	-	(34,986)	-	-	(34,986)

	Level 1	Level 2	Level 3	NAV	2017 Total
September 30, 2017					
Investments:					
Short-term investments	$ 273,900	$ -	$ -	$ -	$ 273,900
Fixed-income securities	30,352	147,576	-	-	177,928
Equity securities	665,295	194,536	25,118	475,483	1,360,432
Alternative investments:					
Alternative securities	-	-	-	812,409	812,409
Private equity	-	-	24,392	335,066	359,458
Real assets	-	18,158	172,656	226,343	417,157
Derivative assets	1,492	-	-	-	1,492
Derivative liabilities	(4,708)	-	-	-	(4,708)
Total investments	$ 966,331	$ 360,270	$ 222,166	$1,849,301	$3,398,068
Other assets and liabilities:					
Cash and cash equivalents	$ 6,603	$ -	$ -	$ -	$ 6,603
Beneficial interests	-	-	48,038	-	48,038
Defined contribution plan assets	33,242	25,352	28,291	-	86,885
Defined contribution plan liabilities	(32,792)	(25,295)	(28,281)	-	(86,368)
Interest rate swap	-	(50,405)	-	-	(50,405)

The fair value of assets held in trust for postretirement benefit plans, as disclosed in Note J, is excluded from the tables above.

(Dollars in Thousands)

At September 30, 2018 and 2017, additional detail regarding the Institute's investments valued using NAV by major investment category was as follows:

	Fair Value	Unfunded Commitments	Normally Allowable Redemption Frequency	Redemption Notice Period in days	Lives in years
September 30, 2018					
Equity securities					
Quarterly or less	$ 216,112	$ -	Quarterly or less	7 to 180	-
Greater than quarterly	314,539	5,308	Annually to triennially	60 to 120	-
Not actionable	516	-	Not actionable	-	-
Alternative investments:					
Alternative securities					
Quarterly or less	141,365	-	Quarterly or less	60 to 90	-
Greater than quarterly	535,845	-	Semi-annually to triennially	30 to 90	-
Not actionable	241,318	173,560	Not actionable	-	up to 17
Private equity					
Greater than quarterly	10,620	10,730	Every four years	270	-
Not actionable	380,389	185,136	Not actionable	-	up to 10
Real assets	228,782	140,275	Not actionable	-	up to 10
Total	$ 2,069,486	$ 515,009			

	Fair Value	Unfunded Commitments	Normally Allowable Redemption Frequency	Redemption Notice Period in days	Lives in years
September 30, 2017					
Equity securities					
Quarterly or less	$ 183,477	$ -	Quarterly or less	7 to 180	-
Greater than quarterly	291,490	5,308	Annually to triennially	60 to 120	-
Not actionable	516	-	Not actionable	-	-
Alternative investments:					
Alternative securities					
Quarterly or less	120,671	-	Quarterly or less	60 to 90	-
Greater than quarterly	467,718	-	Semi-annually to triennially	30 to 90	-
Not actionable	224,020	146,274	Not actionable	-	up to 17
Private equity	335,066	195,441	Not actionable	-	up to 10
Real assets	226,343	84,958	Not actionable	-	up to 10
Total	$ 1,849,301	$ 431,981			

(Dollars in Thousands)

In addition to the unfunded commitments noted above, at September 30, 2018 and 2017, the Institute was committed to invest an additional $21,573 and $62,955, respectively, in investments classified within the fair value hierarchy over approximately the next ten years. All investment commitments are expected to be funded from existing or forecasted investment assets that are not included in assets available to be used to fund general expenditures as described in Note J.

The methods described above may produce fair value calculations that may not be indicative of net realizable value or reflective of future fair values. Alternative investments may not be readily marketable or redeemable, and may contain penalties for early withdrawal from the related funds. Furthermore, while the Institute believes its valuation methods are appropriate and consistent with those of other market participants, the use of different methodologies and/or assumptions to determine fair values of certain financial instruments could result in different estimates of fair value.

The following table is a summary of changes in the fair values of the Institute's Level 3 assets for the years ended September 30, 2018 and 2017:

	Beginning Balance	Gifts and Purchases	Sales and Maturities	Realized Gain/Loss	Unrealized Gain/Loss	Ending Balance
September 30, 2018						
Investments:						
Equity securities	$ 25,118	$ 1,594	$ (1,993)	$ 1,993	$ 8,341	$ 35,053
Alternative investments:						
Private equity	24,392	16,790	(2,218)	16	14,380	53,360
Real assets	172,656	9,427	(26,543)	481	8,812	164,833
Total investments	$ 222,166	$ 27,811	$ (30,754)	$ 2,490	$ 31,533	$ 253,246
Other assets:						
Beneficial interests	$ 48,038	$ 4,506	$ (19,809)	$ -	$ (621)	$ 32,114
Defined contribution plans	28,291	5,378	(3,900)	-	852	30,621

	Beginning Balance	Gifts and Purchases	Sales and Maturities	Realized Gain/Loss	Unrealized Gain/Loss	Ending Balance
September 30, 2017						
Investments:						
Equity securities	$ 6,246	$ 17,933	$ (2,197)	$ 2,158	$ 978	$ 25,118
Alternative investments:						
Private equity	5,537	14,033	-	-	4,822	24,392
Real assets	131,597	63,325	(27,050)	(13,870)	18,654	172,656
Total investments	$ 143,380	$ 95,291	$ (29,247)	$ (11,712)	$ 24,454	$ 222,166
Other assets:						
Beneficial interests	$ 73,341	$ 19,339	$ (40,511)	$ -	$ (4,131)	$ 48,038
Defined contribution plans	26,398	5,341	(4,242)	-	794	28,291

The Institute classifies defined contribution plan liabilities in the fair value hierarchy based upon the investments of the related plan assets. Accordingly, liabilities classified within Level 3 approximate the value of plan investments that also are classified within Level 3, and increase or decrease in value according to contributions, withdrawals, vesting, and investment performance.

The Institute records transfers between levels in the current fiscal year when there is a change in circumstances that affects the liquidity of the assets and/or the ability to observe and measure the fair value. The Institute records such transfers based on the market value at the beginning of the reporting period. During the year ended September 30, 2018, the Institute reclassified an investment valued at $16,790 from investments reported at NAV to Level 3. The transfer was included in Gifts and Purchases in the table above.

During the years ended September 30, 2018 and 2017, net unrealized losses related to Level 3 assets of ($650) and of ($4,308) respectively, were recorded in non-operating gifts and pledges in the statements of activities. All other realized and unrealized gains related to Level 3 investments were recorded in non-operating investment return in excess of payout in the statement of activities. Unrealized gains included in the statements of activities related to those Level 3 assets held at September 30, 2018 and 2017 were $32,633 and $5,107, respectively.

The Institute uses an interest rate swap to manage the interest rate exposure of a portion of its variable rate debt. The value of the interest rate swap depends upon the contractual terms of, and specific risks inherent in, the instrument, as well as the availability and reliability of observable inputs. The interest rate swap is valued using observable inputs, such as quotations received from counterparties, dealers, or brokers, market prices for reference securities, credit curves, and assumptions for nonperformance risk, whenever available and considered reliable, and is therefore classified in Level 2 of the fair value hierarchy.

(Dollars in Thousands)

The Institute uses exchange-traded equity and foreign currency derivatives, including put and call options, to manage its market and currency exposures related to certain equity investments. Balances and activities related to equity and foreign currency derivatives for the years ended September 30, 2018 and 2017 were as follows:

	2018			2017
	Equity	Foreign Currency	Total	Total
Investments:				
Gross derivative assets	$ 1,612	$ 3,266	$ 4,878	$ 1,492
Gross derivative liabilities	(1,408)	-	$ (1,408)	(4,708)
Derivatives, net	$ 204	$ 3,266	$ 3,470	$ (3,216)
Notional value: assets	$ 72,591	$ 50,000	$ 122,591	$ 88,825
Notional value: liabilities	(148,429)	-	(148,429)	(182,950)
Investments pledged	80,958	-	80,958	106,658
Investment returns/(losses):				
Realized gain/(loss)	$ (6,403)	$ -	$ (6,403)	$ (6,070)
Unrealized gain/(loss)	3,646	711	4,357	(1,352)
Net investments returns/(losses)	$ (2,757)	$ 711	$ (2,046)	$ (7,422)

L. Contingencies and Commitments

Contingencies

The Institute receives funding or reimbursement from agencies of the United States government for various activities that are subject to audit, and is a defendant in various legal actions incident to the conduct of its activities. Except as specifically discussed below, management does not expect that liabilities, if any, related to these audits or legal actions will have a material impact on the Institute's financial position. However, the settlement of audits or legal actions is subject to inherent uncertainties, and it is possible that such liabilities, if any, will differ materially from management's current expectations.

In 1997, the Institute was named as a potentially responsible party ("PRP") by NASA under the Comprehensive Environmental Response, Compensation, and Liability Act, as amended. As a PRP, the Institute may be jointly liable for contribution towards clean-up costs, estimated to be in excess of $100,000, of the NASA/JPL Superfund site.

Officials of the Institute presently are not able to predict the impact, if any, that final resolution of this matter will have on the Institute's financial position or changes in its net assets. However, the Institute believes that it will have recourse to the United States government for any liabilities it may incur in connection with being named a PRP for that site.

(Dollars in Thousands)

Commitments

The Institute was committed under certain construction and services contracts in the amounts of approximately $269,642 and $130,940 at September 30, 2018 and 2017, respectively.

The Institute is a member of an international consortium that was organized to construct and operate an advanced telescope. In addition to the above, at September 30, 2018 and 2017, the Institute was committed to provide cash totaling approximately $64,000 and $69,000, respectively, to the consortium over approximately the next three years. Payments and other transfers related to this commitment are subject to certain contingencies.

The Institute's workers' compensation insurance carrier requires that the Institute maintain an unsecured letter of credit for claims that do not exceed certain deductible amounts. At September 30, 2018 and 2017, the amounts of the letter of credit facility were $7,093 and $8,800, respectively. The letter of credit was not used during the years ended September 30, 2018 and 2017, and therefore no liability has been recorded in the balance sheets.

The Institute is currently providing funding for the operation of certain local water treatment facilities, subject to reimbursement from NASA. Annual costs are not expected to exceed $9,000.

The Institute leases equipment and buildings, primarily for JPL, under operating leases expiring at various dates through 2023. Rent expense incurred under operating lease obligations was $7,720 and $10,315 for the years ended September 30, 2018 and 2017, respectively.

At September 30, 2018, future minimum payments under operating leases of greater than one year in duration were as follows:

Year Ending September 30	Amount	
2019	$	3,527
2020		1,004
2021		537
2022		18
2023		-
Total	$	5,086

Approximately $4,851 of the future minimum lease payments listed above is expected to be recoverable from JPL under the Institute's cost-reimbursable contract with NASA.

The Institute rents housing, equipment, and building space to students, faculty, and other organizations under operating leases expiring at various dates through 2023. Rental income under operating leases was $9,332 and $9,098 for the years ended September 30, 2018 and 2017, respectively.

(Dollars in Thousands)

At September 30, 2018, minimum future rentals from operating leases of greater than one year in duration were as follows:

Year Ending September 30	Amount
2019	$ 10,332
2020	7,989
2021	7,273
2022	7,237
2023	7,456
Total	$ 40,287

M. Supplemental Cash Flow Information

The following are additional supplemental disclosures related to the statements of cash flows:

	2018	2017
Cash paid during the year for interest, net of amounts capitalized	$ 47,160	$ 46,403
Non-cash investing and financing activities:		
Securities received to satisfy pledge payments	22,232	56,629
Securities and real estate received from beneficial interests	-	29,369
In-kind receipt of securities, property, plant, and equipment	43,696	3,944
Increase in accrued purchases of property, plant, and equipment	10,524	5,480
(Increase)/decrease in net amounts receivable/payable for pending investments transactions	(43,644)	47,556
Increase in conditional asset retirement costs and obligations	-	12,278

N. Subsequent Events

Subsequent events were evaluated through January 30, 2019, which is the date the financial statements were issued.