

**California Institute of Technology**  
**EIN: 95-1643307**

**Report on Audit of the Financial Statements  
and on Federal Awards Programs in Accordance with  
the OMB Uniform Guidance  
(exclusive of the Jet Propulsion Laboratory)**

**For the Year Ended September 30, 2018**

**California Institute of Technology**  
**Index**  
**For the Year Ended September 30, 2018**

---

	<b>Page</b>
Report of Independent Auditors.....	1-2
Financial Statements and Notes to Financial Statements.....	3-39
Schedule of Expenditures of Federal Awards.....	40-54
Notes to Schedule of Expenditures of Federal Awards.....	55-56
Report of Independent Auditors on Internal Control Over Financial Reporting and on Compliance and Other Matters Based on an Audit of Financial Statements Performed in Accordance with <i>Government Auditing Standards</i> .....	57-58
Report of Independent Auditors on Compliance with Requirements That Could Have a Direct and Material Effect on Each Major Program and on Internal Control Over Compliance in Accordance with the Uniform Guidance.....	59-60
Schedule of Findings and Questioned Costs.....	61
Summary Schedule of Prior Audit Findings.....	62



## **Report of Independent Auditors**

To the Board of Trustees of the  
California Institute of Technology

### **Report on the Financial Statements**

We have audited the accompanying financial statements of the California Institute of Technology, 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, and the related notes to the financial statements.

#### ***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 and the standards applicable to financial audits contained in *Government Auditing Standards*, issued by the Comptroller General of the United States. 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.

***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.

***Other Matters***

*Other Information*

Our audit was conducted for the purpose of forming an opinion on the financial statements as a whole. The accompanying schedule of expenditures of federal awards is presented for purposes of additional analysis as required by Title 2 U.S. *Code of Federal Regulations* Part 200, *Uniform Administrative Requirements, Cost Principles, and Audit Requirements for Federal Awards* (Uniform Guidance) and is not a required part of the financial statements. As described in Note 1 to the schedule of expenditures of federal awards, the accompanying schedule of expenditures of federal awards was prepared on the cash basis, which is a comprehensive basis of accounting other than accounting principles generally accepted in the United States of America. Such information is the responsibility of management and was derived from and relates directly to the underlying accounting and other records used to prepare the financial statements. The information has been subjected to the auditing procedures applied in the audit of the financial statements and certain additional procedures, including comparing and reconciling such information directly to the underlying accounting and other records used to prepare the financial statements or to the financial statements themselves, and other additional procedures in accordance with auditing standards generally accepted in the United States of America. In our opinion, the schedule of expenditures of federal awards is fairly stated, in all material respects, on the basis of accounting described in Note 1, in relation to the financial statements as a whole.

***Other Reporting Required by Government Auditing Standards***

In accordance with *Government Auditing Standards*, we have also issued our report dated January 30, 2019 on our consideration of the Institute's internal control over financial reporting and on our tests of its compliance with certain provisions of laws, regulations, contracts and grant agreements and other matters. The purpose of that report is solely to describe the scope of our testing of internal control over financial reporting and compliance and the results of that testing and not to provide an opinion on the effectiveness of internal control over financial reporting or on compliance. That report is an integral part of an audit performed in accordance with *Government Auditing Standards* in considering the Institute's internal control over financial reporting and compliance.

*PricewaterhouseCoopers LLP*

Los Angeles, California  
January 30, 2019

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

---

	<b>2018</b>	<b>2017</b>
<b>ASSETS</b>		
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	<u>1,004,120</u>	<u>912,604</u>
<b>Total assets</b>	<u>\$ 5,593,996</u>	<u>\$ 5,417,001</u>
<b>LIABILITIES and NET ASSETS</b>		
<b>Liabilities:</b>		
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	<u>357,532</u>	<u>394,130</u>
<b>Total liabilities</b>	<u>2,387,966</u>	<u>2,376,492</u>
<b>Net assets:</b>		
Without donor restrictions	583,369	574,202
With donor restrictions:		
Time or purpose	907,350	839,150
Perpetual	<u>1,715,311</u>	<u>1,627,157</u>
Total net assets with donor restrictions	<u>2,622,661</u>	<u>2,466,307</u>
<b>Total net assets</b>	<u>3,206,030</u>	<u>3,040,509</u>
<b>Total liabilities and net assets</b>	<u>\$ 5,593,996</u>	<u>\$ 5,417,001</u>

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)**

	<b>Without Donor Restrictions</b>	<b>With Donor Restrictions</b>	<b>2018 Total</b>	<b>2017 Total</b>
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)	-	-
<b>Total operating revenues and other support</b>	<b>3,309,308</b>	<b>(6,254)</b>	<b>3,303,054</b>	<b>2,894,560</b>
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
<b>Total operating expenses</b>	<b>3,348,554</b>	<b>-</b>	<b>3,348,554</b>	<b>2,937,830</b>
<b>Results of operations</b>	<b>(39,246)</b>	<b>(6,254)</b>	<b>(45,500)</b>	<b>(43,270)</b>
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)
<b>Total non-operating activities</b>	<b>48,413</b>	<b>162,608</b>	<b>211,021</b>	<b>456,135</b>
<b>Increase in net assets</b>	<b>9,167</b>	<b>156,354</b>	<b>165,521</b>	<b>412,865</b>
Net assets at beginning of year	574,202	2,466,307	3,040,509	2,627,644
Net assets at end of year	<b>\$ 583,369</b>	<b>\$ 2,622,661</b>	<b>\$ 3,206,030</b>	<b>\$ 3,040,509</b>

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)**

	<b>Without Donor Restrictions</b>	<b>With Donor Restrictions</b>	<b>2017 Total</b>
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)	-
<b>Total operating revenues and other support</b>	<b>2,948,572</b>	<b>(54,012)</b>	<b>2,894,560</b>
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
<b>Total operating expenses</b>	<b>2,937,830</b>	<b>-</b>	<b>2,937,830</b>
<b>Results of operations</b>	<b>10,742</b>	<b>(54,012)</b>	<b>(43,270)</b>
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)
<b>Total non-operating activities</b>	<b>98,186</b>	<b>357,949</b>	<b>456,135</b>
<b>Increase in net assets</b>	<b>108,928</b>	<b>303,937</b>	<b>412,865</b>
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	<b>\$ 574,202</b>	<b>\$ 2,466,307</b>	<b>\$ 3,040,509</b>

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)**

	<b>2018</b>	<b>2017</b>
<b>Cash flows from operating activities:</b>		
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)
	<u>(64,206)</u>	<u>(66,749)</u>
<b>Net cash used in operating activities</b>	<b>(64,206)</b>	<b>(66,749)</b>
<b>Cash flows from investing activities:</b>		
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
	<u>(56,024)</u>	<u>(60,387)</u>
<b>Net cash used in investing activities</b>	<b>(56,024)</b>	<b>(60,387)</b>
<b>Cash flows from financing activities:</b>		
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)
	<u>119,801</u>	<u>127,365</u>
<b>Net cash provided by financing activities</b>	<b>119,801</b>	<b>127,365</b>
<b>Net change in cash and cash equivalents</b>	<b>(429)</b>	<b>229</b>
Cash and cash equivalents at beginning of year	6,603	6,374
	<u>6,603</u>	<u>6,374</u>
<b>Cash and cash equivalents at end of year</b>	<b>\$ 6,174</b>	<b>\$ 6,603</b>

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

**California Institute of Technology**  
**Notes to Financial Statements**  
**September 30, 2018 and 2017**  
**(Dollars in Thousands)**

---

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.

**California Institute of Technology**  
**Notes to Financial Statements**  
**September 30, 2018 and 2017**  
**(Dollars in Thousands)**

---

- *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.

**California Institute of Technology**  
**Notes to Financial Statements**  
**September 30, 2018 and 2017**  
**(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:

	<u>Campus Program Activities</u>					
	<u>Instruction and</u>					
	<u>Academic Support</u>	<u>Organized Research</u>	<u>Auxiliary Enterprises</u>	<u>Institutional Support</u>	<u>JPL Operations</u>	<u>Total</u>
<b>September 30, 2018</b>						
<b>Operating expenses:</b>						
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
<b>Total functional expenses</b>	<b>\$ 304,237</b>	<b>\$ 256,496</b>	<b>\$ 40,440</b>	<b>\$ 82,860</b>	<b>\$ 2,664,521</b>	<b>\$ 3,348,554</b>

**Non-operating expenses:**

Interest				\$ 20,694		\$ 20,694
----------	--	--	--	-----------	--	-----------

	<u>Campus Program Activities</u>					
	<u>Instruction and</u>					
	<u>Academic Support</u>	<u>Organized Research</u>	<u>Auxiliary Enterprises</u>	<u>Institutional Support</u>	<u>JPL Operations</u>	<u>Total</u>
<b>September 30, 2017</b>						
<b>Operating expenses:</b>						
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
<b>Total functional expenses</b>	<b>\$ 290,222</b>	<b>\$ 250,007</b>	<b>\$ 36,386</b>	<b>\$ 77,155</b>	<b>\$ 2,284,060</b>	<b>\$ 2,937,830</b>

**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.



**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:

	<b>Without Donor Restrictions</b>	<b>With Donor Restrictions</b>	<b>Total Net Assets</b>
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
	<hr/>	<hr/>	<hr/>
<b>Total net assets, beginning of year</b>	<b>\$ 424,153</b>	<b>\$ 2,203,491</b>	<b>\$ 2,627,644</b>

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%.

**California Institute of Technology**  
**Notes to Financial Statements**  
**September 30, 2018 and 2017**  
**(Dollars in Thousands)**

---

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

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

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

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

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.

**California Institute of Technology**  
**Notes to Financial Statements**  
**September 30, 2018 and 2017**  
**(Dollars in Thousands)**

---

**D. Investments**

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

	<b>2018</b>	<b>2017</b>
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	<u>3,470</u>	<u>(3,216)</u>
<b>Total investments</b>	<b><u>\$ 3,494,529</u></b>	<b><u>\$ 3,398,068</u></b>

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.

**California Institute of Technology**  
**Notes to Financial Statements**  
**September 30, 2018 and 2017**  
**(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:

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

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

**California Institute of Technology**  
**Notes to Financial Statements**  
**September 30, 2018 and 2017**  
**(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:

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

**F. Property, Plant, and Equipment, net**

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

	<b>2018</b>	<b>2017</b>
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)
<b>Total property, plant, and equipment, net</b>	<b><u>\$ 1,004,120</u></b>	<b><u>\$ 912,604</u></b>

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

**California Institute of Technology**  
**Notes to Financial Statements**  
**September 30, 2018 and 2017**  
**(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:

	<b>Maturity</b>	<b>Interest rate 2018 / 2017</b>	<b>Outstanding</b>	
			<b>2018</b>	<b>2017</b>
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%	<u>30,000</u>	<u>30,000</u>
Total bonds payable, gross			1,095,000	1,095,000
Unamortized original issue premiums/discounts and issuance costs, net			<u>(10,743)</u>	<u>(10,935)</u>
Total bonds payable, net			1,084,257	1,084,065
Notes payable:				
	<b>Maximum</b>			
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
U.S. Bank revolving bank credit facility	100,000	2020	2.75% / 1.45%	75,400
Wells Fargo revolving bank credit facility	50,000	2020	2.61% / 1.59%	17,953
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			<u>157,353</u>	<u>164,833</u>
<b>Total bonds and notes payable, net</b>			<u>\$ 1,241,610</u>	<u>\$ 1,248,898</u>

**California Institute of Technology**  
**Notes to Financial Statements**  
**September 30, 2018 and 2017**  
**(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:

<b>Year Ending September 30</b>	<b>Amount</b>
2019	\$ 352,353
2020	-
2021	-
2022	-
2023	-
Thereafter	900,000
<b>Total</b>	<u>\$ 1,252,353</u>

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.



**California Institute of Technology**  
**Notes to Financial Statements**  
**September 30, 2018 and 2017**  
**(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:

	<b>2018</b>	<b>2017</b>
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
<b>Total net assets with time or purpose restrictions</b>	<u>\$ 907,350</u>	<u>\$ 839,150</u>
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
<b>Total net assets with perpetual restrictions</b>	<u>\$ 1,715,311</u>	<u>\$ 1,627,157</u>
<b>Total net assets with donor restrictions</b>	<u>\$ 2,622,661</u>	<u>\$ 2,466,307</u>

**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.

**California Institute of Technology**  
**Notes to Financial Statements**  
**September 30, 2018 and 2017**  
(Dollars in Thousands)

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

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

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

	<b>Without Donor Restrictions</b>	<b>With Donor Restrictions</b>	<b>Total</b>
<b>October 1, 2016</b>			
	\$ 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)
<b>September 30, 2017</b>	<b>\$ 636,457</b>	<b>\$ 2,001,719</b>	<b>\$ 2,638,176</b>
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
<b>September 30, 2018</b>	<b>\$ 678,678</b>	<b>\$ 2,227,520</b>	<b>\$ 2,906,198</b>

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

**California Institute of Technology**  
**Notes to Financial Statements**  
**September 30, 2018 and 2017**  
**(Dollars in Thousands)**

---

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:

	<b>2018</b>	<b>2017</b>
Aggregate historical value	\$ 184,027	\$ 234,648
Aggregate fair value	174,614	218,402
<b>Aggregate deficiency</b>	<u>\$ (9,413)</u>	<u>\$ (16,246)</u>

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.

**California Institute of Technology**  
**Notes to Financial Statements**  
**September 30, 2018 and 2017**  
**(Dollars in Thousands)**

---

	<b>2018</b>	<b>2017</b>
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	<u>455,830</u>	<u>466,696</u>
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	<u>98,298</u>	<u>72,566</u>
<b>Funded status</b>	<u>\$ (357,532)</u>	<u>\$ (394,130)</u>

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:

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

**California Institute of Technology**  
**Notes to Financial Statements**  
**September 30, 2018 and 2017**  
**(Dollars in Thousands)**

---

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

	<b>2018</b>	<b>2017</b>
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
<b>Net periodic benefit cost</b>	<u>\$ 5,964</u>	<u>\$ 7,155</u>

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:

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

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.

**California Institute of Technology**  
**Notes to Financial Statements**  
**September 30, 2018 and 2017**  
**(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:

	<b>2018</b>	<b>2017</b>
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:

	<b>2018</b>	<b>2017</b>
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.

**California Institute of Technology**  
**Notes to Financial Statements**  
**September 30, 2018 and 2017**  
**(Dollars in Thousands)**

---

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

<b>Year Ending September 30</b>	<b>Campus</b>	<b>JPL</b>	<b>Total</b>
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:

	<b>Campus</b>	<b>JPL</b>	<b>Total</b>
<b>September 30, 2018</b>			
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
<b>Funded status</b>	<u>\$ (121,239)</u>	<u>\$ (236,293)</u>	<u>\$ (357,532)</u>
<b>September 30, 2017</b>			
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
<b>Funded status</b>	<u>\$ (121,998)</u>	<u>\$ (272,132)</u>	<u>\$ (394,130)</u>

**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



**California Institute of Technology**  
**Notes to Financial Statements**  
**September 30, 2018 and 2017**  
**(Dollars in Thousands)**

---

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.

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

	<b>2018</b>
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	<u>908,941</u>
Liquidity resources:	
Committed lines of credit	\$ 400,000
Less: current borrowings under lines of credit	<u>(157,353)</u>
Total	242,647
<b>Total financial assets and liquidity resources available within one year</b>	<b><u>\$ 1,151,588</u></b>

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.

**California Institute of Technology**  
**Notes to Financial Statements**  
**September 30, 2018 and 2017**  
**(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:

	<b>Level 1</b>	<b>Level 2</b>	<b>Level 3</b>	<b>NAV</b>	<b>2018 Total</b>
<b>September 30, 2018</b>					
<b>Investments:</b>					
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)
<b>Total investments</b>	<b>\$ 843,440</b>	<b>\$ 328,357</b>	<b>\$ 253,246</b>	<b>\$2,069,486</b>	<b>\$3,494,529</b>
<b>Other assets and liabilities:</b>					
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)
<b>September 30, 2017</b>					
<b>Investments:</b>					
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)
<b>Total investments</b>	<b>\$ 966,331</b>	<b>\$ 360,270</b>	<b>\$ 222,166</b>	<b>\$1,849,301</b>	<b>\$3,398,068</b>
<b>Other assets and liabilities:</b>					
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.

**California Institute of Technology**  
**Notes to Financial Statements**  
**September 30, 2018 and 2017**  
**(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
<b>September 30, 2018</b>					
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
<b>Total</b>	<u>\$ 2,069,486</u>	<u>\$ 515,009</u>			

	Fair Value	Unfunded Commitments	Normally Allowable Redemption Frequency	Redemption Notice Period in days	Lives in years
<b>September 30, 2017</b>					
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
<b>Total</b>	<u>\$ 1,849,301</u>	<u>\$ 431,981</u>			

**California Institute of Technology**  
**Notes to Financial Statements**  
**September 30, 2018 and 2017**  
**(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:

	<b>Beginning Balance</b>	<b>Gifts and Purchases</b>	<b>Sales and Maturities</b>	<b>Realized Gain/Loss</b>	<b>Unrealized Gain/Loss</b>	<b>Ending Balance</b>
<b>September 30, 2018</b>						
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
<b>Total investments</b>	<b>\$ 222,166</b>	<b>\$ 27,811</b>	<b>\$ (30,754)</b>	<b>\$ 2,490</b>	<b>\$ 31,533</b>	<b>\$ 253,246</b>
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
<b>September 30, 2017</b>						
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
<b>Total investments</b>	<b>\$ 143,380</b>	<b>\$ 95,291</b>	<b>\$ (29,247)</b>	<b>\$ (11,712)</b>	<b>\$ 24,454</b>	<b>\$ 222,166</b>
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.

**California Institute of Technology**  
**Notes to Financial Statements**  
**September 30, 2018 and 2017**  
**(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	
Investments:				
Gross derivative assets	\$ 1,612	\$ 3,266	\$ 4,878	\$ 1,492
Gross derivative liabilities	(1,408)	-	\$ (1,408)	(4,708)
<b>Derivatives, net</b>	<u>\$ 204</u>	<u>\$ 3,266</u>	<u>\$ 3,470</u>	<u>\$ (3,216)</u>
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)
<b>Net investments returns/(losses)</b>	<u>\$ (2,757)</u>	<u>\$ 711</u>	<u>\$ (2,046)</u>	<u>\$ (7,422)</u>

**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.

**California Institute of Technology**  
**Notes to Financial Statements**  
**September 30, 2018 and 2017**  
**(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:

<b>Year Ending September 30</b>	<b>Amount</b>
2019	\$ 3,527
2020	1,004
2021	537
2022	18
2023	-
<b>Total</b>	<u>\$ 5,086</u>

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.



**California Institute of Technology**  
**Notes to Financial Statements**  
**September 30, 2018 and 2017**  
**(Dollars in Thousands)**

---

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

<b>Year Ending September 30</b>	<b>Amount</b>
2019	\$ 10,332
2020	7,989
2021	7,273
2022	7,237
2023	7,456
<b>Total</b>	<u>\$ 40,287</u>

**M. Supplemental Cash Flow Information**

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

	<b>2018</b>	<b>2017</b>
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.

**California Institute of Technology**  
**Schedule of Expenditures of Federal Awards**  
**(exclusive of the Jet Propulsion Laboratory)**  
**For the Year Ended September 30, 2018**

---

Federal Grantor/Pass-Through Grantor/Program Title	Federal CFDA Number	Grant/Contract or Pass-Through Number	Total Federal Expenditures	Pass-Through to Subrecipients
<b>Research and Development Cluster</b>				
<b>Direct Funds</b>				
<b>Department of Defense</b>				
Air Force	12.800		\$ 4,315,957	\$ 1,226,589
Army	12.420		448,602	42,086
Army	12.431		3,947,450	1,328,393
Army	12.910		18,666	58,411
Defense Advanced Research Project Agency	12.RD	HR0011-15-C-0093	29,469	-
Defense Advanced Research Project Agency	12.RD	IPA #0249	140,911	-
Defense Advanced Research Project Agency	12.910		6,273,433	400,356
Defense Threat Reduction Agency	12.351		6,862	-
Navy	12.300		5,378,738	86,672
Space and Naval Warfare System	12.910		274,349	-
Total Department of Defense			<u>20,834,437</u>	<u>3,142,507</u>
<b>Department of Energy</b>				
Department of Energy	81.RD	IPA FLOOD	(1,775)	-
Department of Energy	81.RD	IPA FLOOD2	95,896	-
Department of Energy	81.049		17,500,561	3,045,106
Department of Energy	81.087		252,354	-
Department of Energy	81.112		586,474	304,063
Department of Energy	81.117		74,865	-
Department of Energy	81.135		1,215,840	364,931
Total Department of Energy			<u>19,724,215</u>	<u>3,714,100</u>

See the accompanying notes to Schedule of Expenditures of Federal Awards

**California Institute of Technology**  
**Schedule of Expenditures of Federal Awards**  
**(exclusive of the Jet Propulsion Laboratory)**  
**For the Year Ended September 30, 2018**

---

Federal Grantor/Pass-Through Grantor/Program Title	Federal CFDA Number	Grant/Contract or Pass-Through Number	Total Federal Expenditures	Pass-Through to Subrecipients
<b>Research and Development Cluster (Continued)</b>				
<b>Direct Funds (Continued)</b>				
<b>Department of Health and Human Services</b>				
National Institutes of Health	93.077		\$ 557,482	\$ -
National Institutes of Health	93.121		949,885	-
National Institutes of Health	93.172		7,763,583	4,025,634
National Institutes of Health	93.173		152,390	152,826
National Institutes of Health	93.242		8,220,628	626,248
National Institutes of Health	93.279		1,769,222	368,177
National Institutes of Health	93.286		197,699	-
National Institutes of Health	93.310		2,841,874	666,373
National Institutes of Health	93.394		54,103	-
National Institutes of Health	93.396		129,234	101,182
National Institutes of Health	93.397		884,248	478,454
National Institutes of Health	93.398		65,588	-
National Institutes of Health	93.837		61,664	-
National Institutes of Health	93.838		725,680	-
National Institutes of Health	93.839		541,565	85,024
National Institutes of Health	93.847		1,761,845	47,659
National Institutes of Health	93.853		12,687,055	2,168,087
National Institutes of Health	93.855		3,589,286	615,117
National Institutes of Health	93.859		16,524,174	661,538
National Institutes of Health	93.865		3,183,815	557,616
National Institutes of Health	93.866		358,143	-
National Institutes of Health	93.867		974,889	102,898
National Institutes of Health	93.879		432,480	14,401
National Institutes of Health	93.989		4,156	-
Total Department of Health and Human Services			64,430,688	10,671,234

See the accompanying notes to Schedule of Expenditures of Federal Awards

**California Institute of Technology**  
**Schedule of Expenditures of Federal Awards**  
**(exclusive of the Jet Propulsion Laboratory)**  
**For the Year Ended September 30, 2018**

---

Federal Grantor/Pass-Through Grantor/Program Title	Federal CFDA Number	Grant/Contract or Pass-Through Number	Total Federal Expenditures	Pass-Through to Subrecipients
<b>Research and Development Cluster (Continued)</b>				
<b>Direct Funds (Continued)</b>				
<b>Department of the Interior</b>				
United States Geological Survey	15.RD	4500047679	\$ (40)	\$ -
United States Geological Survey	15.RD	4500072148	74,712	-
United States Geological Survey	15.RD	IPA BUNN	131,849	-
United States Geological Survey	15.RD	IPA GOOD	65,056	-
United States Geological Survey	15.RD	IPA HARTMAN	29,544	-
United States Geological Survey	15.807		2,590,730	-
United States Geological Survey	15.808		532,122	-
Total Department of the Interior			3,423,973	-
<b>National Aeronautics and Space Administration (NASA)</b>				
NASA	43.RD	80GSFC18C0011	291,961	-
NASA	43.RD	JSCNNJ13ZA01P	165,550	-
NASA	43.RD	NNG08FD60C	2,745,686	947,447
NASA	43.RD	NNH14IA13P	239,163	-
NASA	43.RD	NNH15IA26P	(104)	-
NASA	43.RD	NNH17IA19P	175,638	-
NASA	43.RD	NNH18IA01P	161,749	-
NASA	43.RD	NNX16AQ81G	119,425	4,754
NASA	43.001		12,625,041	1,116,215
NASA	43.007		182,257	-
NASA	43.012		725,036	-
Total NASA			17,431,402	2,068,416

See the accompanying notes to Schedule of Expenditures of Federal Awards

**California Institute of Technology**  
**Schedule of Expenditures of Federal Awards**  
**(exclusive of the Jet Propulsion Laboratory)**  
**For the Year Ended September 30, 2018**

---

Federal Grantor/Pass-Through Grantor/Program Title	Federal CFDA Number	Grant/Contract or Pass-Through Number	Total Federal Expenditures	Pass-Through to Subrecipients
<b>Research and Development Cluster (Continued)</b>				
<b>Direct Funds (Continued)</b>				
<b>National Science of Foundation</b>				
National Science Foundation	47.041		\$ 1,238,377	\$ 403,552
National Science Foundation	47.049		61,091,081	4,133,614
National Science Foundation	47.050		4,893,724	104,626
National Science Foundation	47.070		3,883,026	-
National Science Foundation	47.074		1,209,280	-
National Science Foundation	47.075		1,316,028	-
National Science Foundation	47.076		4,244,484	-
National Science Foundation	47.079		<u>1,099,212</u>	<u>113,651</u>
 Total National Science Foundation			 <u>78,975,212</u>	 <u>4,755,443</u>
 Total Research and Development - Direct Funds			 <u>204,819,927</u>	 <u>24,351,700</u>
 <b>Pass-Through Funds</b>				
<b>Department of Agriculture</b>				
Citrus Research and Development Foundation, Inc	10.309	13-009NU-788	82,353	47,171
Tanner Research, Inc	10.212	CTSub-USDA 17-00500	<u>3,634</u>	<u>-</u>
 Total Department of Agriculture Pass-Through			 <u>85,987</u>	 <u>47,171</u>

See the accompanying notes to Schedule of Expenditures of Federal Awards

**California Institute of Technology**  
**Schedule of Expenditures of Federal Awards**  
**(exclusive of the Jet Propulsion Laboratory)**  
**For the Year Ended September 30, 2018**

Federal Grantor/Pass-Through Grantor/Program Title	Federal CFDA Number	Grant/Contract or Pass-Through Number	Total Federal Expenditures	Pass-Through to Subrecipients
<b>Research and Development Cluster (Continued)</b>				
<b>Pass-Through Funds (Continued)</b>				
<b>Department of Defense</b>				
<b>Air Force</b>				
Brown University	12.800	00000553	\$ (31,670)	\$ -
Carnegie Mellon University	12.800	1150119-294707	18,138	-
Cornell University	12.800	80776-11006	68,703	-
Global Aerospace Corporation	12.RD	631-17-C-0071	179,296	-
Massachusetts Institute of Technology	12.800	5710003606	242,968	-
The Ohio State University	12.800	60059575	76,166	-
The University of Chicago	12.800	FP057123-A	160,286	-
University of Arizona	12.RD	416306	7,651	-
University of California Los Angeles	12.800	0205GSA600	(913)	-
University of Colorado at Boulder	12.800	1552227	278,072	-
University of Illinois	12.800	088337-16355	106,487	-
University of Maryland	12.800	42700-Z8183001	382,177	-
Total Air Force Pass-Through			1,487,361	-
<b>Army</b>				
Applied Optronics	12.RD	W911NF-0003	62,070	-
Johns Hopkins University	12.630	2001515018	1,359,354	-
Synvitrobio	12.RD	SVB-CIT-1-2016	95,631	-
Telaris Inc.	12.RD	11-2015	(5,008)	-
Telaris Inc.	12.RD	9-2016	204,104	-
University of California Berkeley	12.431	00009460	5,847	-
University of California Los Angeles	12.431	0160 G UA559	160,159	-
University of California Los Angeles	12.431	W911NF-17-0402	624,027	-
University of California San Francisco	12.420	9418sc	131,129	-
University of California Santa Barbara	12.431	KK1809	201,763	-
University of California Santa Barbara	12.431	KK1816	39,466	-
University of California Santa Barbara	12.RD	KK9150	1,911,984	258,334
University of California Davis	12.431	201301077-01	292,736	-
University of California Davis	12.431	A14-0030-S001-A01	205,604	-
University of Southern California	12.RD	89865874	103,795	-
University of Utah	12.630	10028801-CAL-BPP CLIN0006	20,024	-
University of Utah	12.630	10028801-CAL-BPP CLIN004	1,528	-
Total Army Pass-Through			5,414,213	258,334

See the accompanying notes to Schedule of Expenditures of Federal Awards

**California Institute of Technology**  
**Schedule of Expenditures of Federal Awards**  
**(exclusive of the Jet Propulsion Laboratory)**  
**For the Year Ended September 30, 2018**

Federal Grantor/Pass-Through Grantor/Program Title	Federal CFDA Number	Grant/Contract or Pass-Through Number	Total Federal Expenditures	Pass-Through to Subrecipients
<b>Research and Development Cluster (Continued)</b>				
<b>Pass-Through Funds (Continued)</b>				
<b>Department of Defense (Continued)</b>				
<b>Navy</b>				
Brown University	12.300	00000984	\$ 244,696	\$ -
Brown University	12.300	00001043	143,513	-
Harvard University	12.300	123950-5092636	493,647	-
Honeywell	12.910	3501723955E	179,915	-
Massachusetts Institute of Technology	12.300	5710003358	47,324	-
University of California Los Angeles	12.300	0190 G VB291	55,835	-
University of California Los Angeles	12.300	0980 G SB033	224,630	-
University of Massachusetts	12.300	18-010467 A 00	44,584	-
University of Minnesota	12.300	A006141801	203,264	-
University of New Hampshire	12.300	17-049	112,516	-
University of Wisconsin	12.300	825K296	51,163	-
Total Navy Pass-Through			<u>1,801,087</u>	-
<b>Defense Advanced Research Projects Agency</b>				
Columbia University	12.910	3(GG012664)	391,351	-
Draper	12.RD	SC001-1088	224,181	-
Duke University	12.910	313-0699	345,030	-
Harvard University	12.910	152236.5099923.0004	120,067	-
Massachusetts Institute of Technology	12.RD	5710004046	173,126	-
The Ohio State University	12.351	60047783	4,819	-
University of California Berkeley	12.RD	00008161/BB00143380	93,660	-
University of California Santa Barbara	12.910	KK1540	514,592	-
University of Washington	12.910	UWSC10014	293,793	-
Total Defense Advanced Research Projects Agency Pass-Through			<u>2,160,619</u>	-
Total Department of Defense Pass-Through			<u>10,863,280</u>	<u>258,334</u>

See the accompanying notes to Schedule of Expenditures of Federal Awards

**California Institute of Technology**  
**Schedule of Expenditures of Federal Awards**  
**(exclusive of the Jet Propulsion Laboratory)**  
**For the Year Ended September 30, 2018**

Federal Grantor/Pass-Through Grantor/Program Title	Federal CFDA Number	Grant/Contract or Pass-Through Number	Total Federal Expenditures	Pass-Through to Subrecipients
<b>Research and Development Cluster (Continued)</b>				
<b>Pass-Through Funds (Continued)</b>				
<b>Department of Energy</b>				
Aerosol Dynamics, Inc.	81.049	3901	\$ 165,091	\$ -
Battelle	81.RD	424858	8,416	-
Battelle	81.RD	427860	1,136	-
Brookhaven National Laboratory	81.RD	310211	36,168	-
Carnegie Institution of Washington	81.049	4-10114-02 B	140,105	-
Carnegie Institution of Washington	81.112	4-10469-02	71,125	-
Colorado State University	81.135	G-73361-01	57,352	-
Fermilab National Accelerator Laboratory	81.RD	554897	69,483	-
Fermilab National Accelerator Laboratory	81.RD	615210	156,003	-
Fermilab National Accelerator Laboratory	81.RD	620353	18,873	-
Fermilab National Accelerator Laboratory	81.RD	626507	111,065	-
Fermilab National Accelerator Laboratory	81.RD	629947	17,996	-
Fermilab National Accelerator Laboratory	81.RD	631328	(2,300)	-
Fermilab National Accelerator Laboratory	81.RD	635161	24,210	-
Fermilab National Accelerator Laboratory	81.RD	635571	46,893	-
Fermilab National Accelerator Laboratory	81.RD	641955	17,992	-
Fermilab National Accelerator Laboratory	81.RD	643309	69,916	-
Fermilab National Accelerator Laboratory	81.RD	644019	79,163	-
Fermilab National Accelerator Laboratory	81.RD	645001	15,000	-
Fermilab National Accelerator Laboratory	81.RD	648559	13,435	-
Fermilab National Accelerator Laboratory	81.RD	18-S-20	4,909	-
Idaho National Laboratory	81.RD	179457	420,056	-
Krell Institute	81.049	KRELL.CSGFAY17	3,918	-
Krell Institute	81.112	KRELL.GRADPT	1,000	-
Lawrence Berkeley National Laboratory	81.RD	7366908	24,808	-
Lawrence Livermore National Laboratory	81.RD	B621015	147,522	-
Liox Power, Inc	81.086	102679	(300)	-
Los Alamos National Laboratory	81.RD	305963	152,456	-
Los Alamos National Laboratory	81.RD	444203	(143)	-
Los Alamos National Laboratory	81.RD	483673	45,000	-
National Security Technologies, LLC	81.RD	146428	(1,058)	-
Proton Onsite	81.087	EC-0008092-02	141,239	-
Safcell, Inc	81.135	C2014.0025	66,295	-
Sandia National Laboratories	81.RD	1827873	85,325	-
Sheeta Global Technology Company	81.RD	Caltech-DE-SC0017710	60,000	-
Stanford University	81.087	61559158-51077	(9,787)	-
University of Colorado at Boulder	81.135	1554051	13,388	-

See the accompanying notes to Schedule of Expenditures of Federal Awards



**California Institute of Technology**  
**Schedule of Expenditures of Federal Awards**  
**(exclusive of the Jet Propulsion Laboratory)**  
**For the Year Ended September 30, 2018**

<b>Federal Grantor/Pass-Through Grantor/Program Title</b>	<b>Federal CFDA Number</b>	<b>Grant/Contract or Pass-Through Number</b>	<b>Total Federal Expenditures</b>	<b>Pass-Through to Subrecipients</b>
<b>Research and Development Cluster (Continued)</b>				
<b>Pass-Through Funds (Continued)</b>				
<b>Department of Energy (Continued)</b>				
University of Delaware	81.049	37733	\$ 243,577	\$ -
University of Michigan	81.135	3004152693	160,061	-
University of Notre Dame	81.049	203208CIT	57,655	-
University of Southern California	81.049	68192992	174,182	-
Washington State University	81.112	21238_G003613	108,828	-
Oak Ridge Institute for Science and Education	81.RD	ORISE.MCELROY	10,713	-
Total Department of Energy Pass-Through			<u>3,026,766</u>	-
<b>Department of Health and Human Services</b>				
<b>National Institutes of Health</b>				
Aerosol Dynamics, Inc.	93.262	NIHOH010515	84,773	-
Allen Institute for Brain Science	93.242	2014-215	710	-
Allen Institute for Brain Science	93.242	2017-0569	694,313	-
Carnegie Mellon University	93.351	1090520-389466	108,889	-
Cold Spring Harbor Labs	93.242	64550115	20,639	-
Cold Spring Harbor Labs	93.242	64550215	21,493	-
Columbia University	93.879	1(GG012266-01)	50,736	-
Georgia Institute of Technology	93.103	RG219-G5	6,180	-
Indiana University	93.242	BL-4631256-CT	118,950	-
Institute for Systems Biology	93.397	2018.0007	283,391	-
Johns Hopkins University	93.855	2003414413	312,652	-
Princeton University	93.853	SUB0000038	8,193	-
Salk Institute for Biological Studies	93.242	P0243583	163,027	-
Symbiotix Biotherapies, Inc.	93.847	SBI-003	454,975	-
Talis Biomedical Corporation	93.360	2018-01	162,439	-
The University of Chicago	93.853	FP061371-A	70,566	-
University at Buffalo	93.286	R1044577	19,435	-
University of California Berkeley	93.853	00009590	240,877	-
University of California Los Angeles	93.286	0845 G SB495	(11,006)	-
University of California Los Angeles	93.310	1553 G UC338	470,115	-
University of California Los Angeles	93.310	1556 G VB627	315,847	-
University of California Los Angeles	93.837	1564GSA123	71,869	-
University of California Los Angeles	93.866	1580 G VD072	206,250	-
University of California Los Angeles	93.286	1713 G RA348	42,767	-
University of California Los Angeles	93.853	1713 G UA875	185,062	-

See the accompanying notes to Schedule of Expenditures of Federal Awards

**California Institute of Technology**  
**Schedule of Expenditures of Federal Awards**  
**(exclusive of the Jet Propulsion Laboratory)**  
**For the Year Ended September 30, 2018**

Federal Grantor/Pass-Through Grantor/Program Title	Federal CFDA Number	Grant/Contract or Pass-Through Number	Total Federal Expenditures	Pass-Through to Subrecipients
<b>Research and Development Cluster (Continued)</b>				
<b>Pass-Through Funds (Continued)</b>				
<b>Department of Health and Human Services (Continued)</b>				
<b>National Institutes of Health (Continued)</b>				
University of California San Francisco	93.394	8849sc	\$ 106,704	\$ -
University of California San Francisco	93.867	9190SC	148,017	-
University of California Santa Barbara	93.859	KK1645	1,499	-
University of California Santa Cruz	93.172	S0184278	143,934	-
University of Minnesota	93.351	H005556202	330,044	-
University of Southern California	93.RD	56294097	84,119	-
University of Southern California	93.172	86281301	484,847	-
University of Southern California	93.242	91200601	509,555	-
University of Toronto	93.279	503727	54,623	-
University of Utah	93.859	10027535-05	(24,814)	-
University of Utah	93.859	10027535-06	(39,992)	-
University of Utah	93.859	10044932-01	341,019	-
University of Utah	93.859	10044932-11	447,820	-
University of Washington	93.847	UWSC7927	135,164	-
Vanderbilt University	93.847	VUMC 52731	360,381	-
Vanderbilt University	93.847	VUMC 57088	540,530	-
Washington University in St. Louis	93.286	WU-18-225	153,273	-
Total National Institutes of Health Pass-Through			7,879,865	-
Total Department of Health and Human Services Pass-Through			7,879,865	-
 <b>Department of the Interior</b>				
<b>United States Geological Survey (USGS)</b>				
Baylor College of Medicine	15.RD	102185175	(877)	-
University of Southern California	15.807	90699077	159,941	-
University of Southern California	15.807	91251767	54,991	-
Total Department of the Interior Pass-Through			214,055	-

See the accompanying notes to Schedule of Expenditures of Federal Awards

**California Institute of Technology**  
**Schedule of Expenditures of Federal Awards**  
**(exclusive of the Jet Propulsion Laboratory)**  
**For the Year Ended September 30, 2018**

<b>Federal Grantor/Pass-Through Grantor/Program Title</b>	<b>Federal CFDA Number</b>	<b>Grant/Contract or Pass-Through Number</b>	<b>Total Federal Expenditures</b>	<b>Pass-Through to Subrecipients</b>
<b>Research and Development Cluster (Continued)</b>				
<b>Pass-Through Funds (Continued)</b>				
<b>Environmental Protection Agency</b>				
University of California Berkeley	66.509	00008461	\$ 53,056	\$ -
<b>National Aeronautics and Space Administration (NASA)</b>				
Baylor College of Medicine	43.003	7000000323	169,361	-
Baylor College of Medicine	43.003	7000000446	396,564	-
Boeing Company	43.RD	1516995	174,388	-
Brigham Young University	43.001	18-0522	11,523	-
Chromologic LLC	43.RD	MSA-161004	123,171	-
Harvard University	43.001	131396-5071107	31,779	-
Harvard University	43.001	131477-5099213	52,914	-
Johns Hopkins University	43.001	135896	18,515	-
Massachusetts Institute of Technology	43.001	5710003373	41,228	-
Pennsylvania State University	43.001	4984-CIT-NASA-D22G	1,321	-
Princeton University	43.001	00002046	74,946	-
Princeton University	43.RD	SUB0000157	618,747	-
Princeton University	43.001	SUB0000194	29,375	-
Smithsonian Astrophysical Observatory	43.001	DD6-17085X	14,237	-
Smithsonian Astrophysical Observatory	43.001	GO6-17080X	62,851	-
Smithsonian Astrophysical Observatory	43.001	GO6-17101X	21,151	-
Smithsonian Astrophysical Observatory	43.001	GO7-18105X	35,085	-
Smithsonian Astrophysical Observatory	43.001	GO8-19055B	1,194	-
Smithsonian Astrophysical Observatory	43.001	GO8-19070X	38,875	-
Smithsonian Astrophysical Observatory	43.001	PF5-160136	77,817	-
Smithsonian Astrophysical Observatory	43.001	PF6-170152	110,024	-
Smithsonian Astrophysical Observatory	43.001	SV8-88010	50,907	-
Smithsonian Astrophysical Observatory	43.001	TM8-19003X	28,345	-
Southwest Research Institute	43.RD	699047X	341,376	-
Southwest Research Institute	43.RD	699048X	316,543	-
Southwest Research Institute	43.RD	699049X	126,295	-
Southwest Research Institute	43.001	K99057JRG	24,783	-
Space Science Institute	43.001	SUBAWD 000797	38,197	-
Space Telescope Science Institute	43.001	HST-AR-13917.007-A	2,871	-
Space Telescope Science Institute	43.001	HST-AR-15005.002-A	955	-
Space Telescope Science Institute	43.001	HST-AR-15021.001-A	2,935	-
Space Telescope Science Institute	43.001	HST-AR-15036.003-A	7,970	-
Space Telescope Science Institute	43.001	HST-GO-13333.002-A	24,999	-

See the accompanying notes to Schedule of Expenditures of Federal Awards

**California Institute of Technology**  
**Schedule of Expenditures of Federal Awards**  
**(exclusive of the Jet Propulsion Laboratory)**  
**For the Year Ended September 30, 2018**

<b>Federal Grantor/Pass-Through Grantor/Program Title</b>	<b>Federal CFDA Number</b>	<b>Grant/Contract or Pass-Through Number</b>	<b>Total Federal Expenditures</b>	<b>Pass-Through to Subrecipients</b>
<b>Research and Development Cluster (Continued)</b>				
<b>Pass-Through Funds (Continued)</b>				
<b>National Aeronautics and Space Administration (NASA)</b>				
<b>(Continued)</b>				
Space Telescope Science Institute	43.001	HST-GO-13340.001-A	\$ 14,245	\$ -
Space Telescope Science Institute	43.RD	HST-GO-13341.001-A	11,462	-
Space Telescope Science Institute	43.RD	HST-GO-13352.010-A	27,167	-
Space Telescope Science Institute	43.001	HST-GO-13364.049-A	1,419	-
Space Telescope Science Institute	43.RD	HST-GO-13431-001-A	36,122	-
Space Telescope Science Institute	43.001	HST-GO-13641.001-A	33,839	-
Space Telescope Science Institute	43.RD	HST-GO-13665.005-A	11,842	-
Space Telescope Science Institute	43.001	HST-GO-13665.013-A	8,280	-
Space Telescope Science Institute	43.RD	HST-GO-13683.001-A	6,818	-
Space Telescope Science Institute	43.RD	HST-GO-13684.001-A	15,700	-
Space Telescope Science Institute	43.RD	HST-GO-13690.002-A	45,671	-
Space Telescope Science Institute	43.001	HST-GO-13858.009-A	5,223	-
Space Telescope Science Institute	43.001	HST-GO-14115.001-A	12,890	-
Space Telescope Science Institute	43.001	HST-GO-14116.001-A	3,544	-
Space Telescope Science Institute	43.001	HST-GO-14123.002-A	107,476	-
Space Telescope Science Institute	43.001	HST-GO-14178.008-A	22,210	-
Space Telescope Science Institute	43.001	HST-GO-14258.010-A	2,271	-
Space Telescope Science Institute	43.001	HST-GO-14260.003-A	4,948	-
Space Telescope Science Institute	43.001	HST-GO-14455.004-A	21,973	-
Space Telescope Science Institute	43.001	HST-GO-14516.002-A	8,895	-
Space Telescope Science Institute	43.001	HST-GO-14645.001-A	2,734	-
Space Telescope Science Institute	43.001	HST-GO-14650.001-A	4,227	-
Space Telescope Science Institute	43.001	HST-GO-14682.005-A	8,903	-
Space Telescope Science Institute	43.001	HST-GO-14734.011-A	9,237	-
Space Telescope Science Institute	43.001	HST-GO-14764.001-A	983	-
Space Telescope Science Institute	43.001	HST-GO-14767.010-A	14,573	-
Space Telescope Science Institute	43.001	HST-GO-14862.002-A	17,389	-
Space Telescope Science Institute	43.001	HST-GO-14887.005-A	3,336	-
Space Telescope Science Institute	43.001	HST-GO-15074.001-A	10,929	-
Space Telescope Science Institute	43.001	HST-GO-15117.003-A	30,546	-
Space Telescope Science Institute	43.001	HST-GO-15140.005-A	14,854	-
Space Telescope Science Institute	43.001	HST-GO-15140.006-A	1,911	-
Space Telescope Science Institute	43.001	HST-GO-15151.001-A	1,269	-
Space Telescope Science Institute	43.001	HST-GO-15186.016-A	1,343	-
Space Telescope Science Institute	43.001	HST-GO-15218.014-A	7,914	-
Space Telescope Science Institute	43.001	HST-GO-15241.002-A	80,204	-

See the accompanying notes to Schedule of Expenditures of Federal Awards

**California Institute of Technology**  
**Schedule of Expenditures of Federal Awards**  
**(exclusive of the Jet Propulsion Laboratory)**  
**For the Year Ended September 30, 2018**

Federal Grantor/Pass-Through Grantor/Program Title	Federal CFDA Number	Grant/Contract or Pass-Through Number	Total Federal Expenditures	Pass-Through to Subrecipients
<b>Research and Development Cluster (Continued)</b>				
<b>Pass-Through Funds (Continued)</b>				
<b>National Aeronautics and Space Administration (NASA)</b>				
<b>(Continued)</b>				
Space Telescope Science Institute	43.001	HST-GO-15287.002-A	\$ 16,772	\$ -
Space Telescope Science Institute	43.001	HST-GO-15295.001-A	29,233	-
Space Telescope Science Institute	43.001	HST-GO-15331.003-A	49,255	-
Space Telescope Science Institute	43.001	HST-GO-15346.001-A	3,003	-
Space Telescope Science Institute	43.001	HST-GO-15357.001-A	977	-
Space Telescope Science Institute	43.001	HST-HF2-51355.002-A	88,952	-
Space Telescope Science Institute	43.RD	HST-HF2-51365.001-A	101,913	-
Space Telescope Science Institute	43.001	HST-HF2-51377.001-A	84,176	-
Space Telescope Science Institute	43.001	HST-HF2-51408.001-A	24,024	-
Space Telescope Science Institute	43.001	HST-HF2-51417.001-A	13,584	-
Space Telescope Science Institute	43.001	STI-510253	778,407	-
Space Telescope Science Institute	43.001	STScI-50320	41,754	-
The Ohio State University	43.RD	60052242 - RF01451668	277,139	-
Universities Space Research Association	43.RD	SOF 05-0014 Appleton	12,226	-
Universities Space Research Association	43.RD	SOF 05-0089 Morris	16,901	-
Universities Space Research Association	43.RD	SOF 05-0104 Chary	6,747	-
Universities Space Research Association	43.RD	SOF 05-0146 Chary	56,856	-
Universities Space Research Association	43.RD	SOF 06-0131	25,661	-
Universities Space Research Association	43.RD	SOF-06-0052-Morris	12,293	-
Universities Space Research Association	43.RD	SOF-06-0072	32,289	-
Universities Space Research Association	43.RD	SOF-06-0124-Appleton	4,698	-
Universities Space Research Association	43.RD	SOF-06-0221-Chary	7,878	-
University of California Berkeley	43.001	00008864	387,014	-
University of California Los Angeles	43.001	2095 G UA002	63,097	-
University of California Santa Cruz	43.001	A16-0408-S001-P0652638	118,326	-
University of California Irvine	43.001	2017-3455	21,946	-
University of Colorado at Boulder	43.003	1555629	48,415	-
University of Maryland	43.001	34508-Z6037001	6,609	-
University of Maryland	43.001	44707-Z6065001	2,740	-
University of Michigan	43.001	3003962831	5,125	-
University of Nebraska-Lincoln	43.001	25-6238-0753-003	23,545	-
University of Southern California	43.001	38485892	87,162	-
University of Washington	43.001	UWSC10147	35,539	-
Woods Hole Institution of Oceanography	43.001	23164800	19,414	-
Total NASA Pass-Through			6,187,259	-

See the accompanying notes to Schedule of Expenditures of Federal Awards

**California Institute of Technology**  
**Schedule of Expenditures of Federal Awards**  
**(exclusive of the Jet Propulsion Laboratory)**  
**For the Year Ended September 30, 2018**

Federal Grantor/Pass-Through Grantor/Program Title	Federal CFDA Number	Grant/Contract or Pass-Through Number	Total Federal Expenditures	Pass-Through to Subrecipients
<b>Research and Development Cluster (Continued)</b>				
<b>Pass-Through Funds (Continued)</b>				
<b>National Science Foundation</b>				
Arizona State University	47.041	17-100	\$ 412,039	\$ -
Assoc. of Universities for Research In Astronomy	47.049	N51608C	1,575,821	-
Carnegie Mellon University	47.050	1122215-343879	137,897	-
Columbia University	47.050	9(GG009393)	37,862	-
Columbia University	47.050	9H(GG009393)	9,504	-
Columbia University	47.050	9T(GG009393)	40,974	-
Cornell University	47.070	72954-10593	30,615	-
Duke University	47.075	333-2366	10,500	-
Emory University	47.049	T662110	(3,782)	-
Emory University	47.049	T859485	111,219	-
Georgia Institute of Technology	47.070	1544332	174,877	-
Georgia Institute of Technology	47.070	RG229-G1	161,058	-
Georgia Institute of Technology	47.041	RJ133-G2	176,737	-
Harvard University	47.078	5064956-131340	218,418	-
National Radio Astronomy Observatory	47.049	346351	42,220	-
National Radio Astronomy Observatory	47.049	355365	2,746	-
National Radio Astronomy Observatory	47.049	358237	14,999	-
National Radio Astronomy Observatory	47.049	360533	38,528	-
Northeastern University	47.070	502480-78050	73,680	-
Oregon Health Sciences University	47.074	1009951_CALTECH	124,320	-
Princeton University	47.049	SUB0000150	220,459	-
Princeton University	47.049	SUB0000174	563,568	-
Protabit LLC	47.041	1534743	25,117	-
Provivi, Inc.	47.041	1738308	178,635	-
Space Environment Technologies	47.049	CG-2015-1-1	47,999	-
The University of North Carolina at Charlotte	47.070	20160600-01-CIT	174,559	-
University of California Berkeley	47.049	00008795	22,167	-
University of California Berkeley	47.076	00009345	(4)	-
University of California Berkeley	47.076	00009414	96,634	-
University of California Berkeley	47.049	00009632	36,739	-
University of California Los Angeles	47.041	0160 G VB427	108,451	-
University of California Santa Cruz	47.049	A17-0534-S001-P0604827	(296)	-

See the accompanying notes to Schedule of Expenditures of Federal Awards

**California Institute of Technology**  
**Schedule of Expenditures of Federal Awards**  
**(exclusive of the Jet Propulsion Laboratory)**  
**For the Year Ended September 30, 2018**

Federal Grantor/Pass-Through Grantor/Program Title	Federal CFDA Number	Grant/Contract or Pass-Through Number	Total Federal Expenditures	Pass-Through to Subrecipients
<b>Research and Development Cluster (Continued)</b>				
<b>Pass-Through Funds (Continued)</b>				
<b>National Science Foundation (Continued)</b>				
University of Hawaii at Manoa	47.050	MA1234	\$ 27,022	\$ -
University of Iowa	47.049	1001641867	34,250	-
University of Michigan	47.074	3004704539	243,863	-
University of Southern California	47.041	59997380	15,316	-
University of Southern California	47.083	66468073	26,236	-
University of Southern California	47.050	91171011	78,820	-
University of Southern California	47.041	100051794	11,108	-
University of Southern California	47.050	104714800	16,495	-
University of Washington	47.041	UWSC9356	80,948	-
University of Wisconsin-Milwaukee	47.049	123405532	6,444	-
University of Wisconsin-Milwaukee	47.049	153405540	404,215	-
Virginia Tech	47.070	479589-19717	23,551	-
W.M. Keck Observatory	47.049	11523	26,552	-
W.M. Keck Observatory	47.049	13679	3,463	-
W.M. Keck Observatory	47.049	14639	151,516	-
Washington State University	47.041	120239 G003227	(758)	-
Total National Science Foundation Pass-Through			<u>6,013,301</u>	<u>-</u>
<b>Nuclear Regulatory Commission</b>				
University of Wisconsin	77.RD	707K560	46,401	-
Total Research and Development - Pass-Through Funds			<u>34,369,970</u>	<u>305,505</u>
Total Research and Development Cluster			<u>239,189,897</u>	<u>24,657,205</u>

See the accompanying notes to Schedule of Expenditures of Federal Awards

**California Institute of Technology**  
**Schedule of Expenditures of Federal Awards**  
**(exclusive of the Jet Propulsion Laboratory)**  
**For the Year Ended September 30, 2018**

---

Federal Grantor/Pass-Through Grantor/Program Title	Federal CFDA Number	Grant/Contract or Pass-Through Number	Total Federal Expenditures	Pass-Through to Subrecipients
<b>Student Financial Aid Cluster</b>				
<b>Direct Funds</b>				
<b>Department of Education</b>				
Federal Work Study Program	84.033		\$ 328,790	\$ -
Federal Supplemental Educational Opportunity Grant	84.007		431,988	-
Federal Pell Grant Program	84.063		618,165	-
Federal Perkins Loan				
Outstanding Loans as of September 30, 2017	84.038		3,672,164	-
New Loans Issued during 2018	84.038		-	-
Federal Direct Loans	84.268		<u>843,901</u>	<u>-</u>
Total Student Financial Aid Cluster			<u>5,895,008</u>	<u>-</u>
Total Expenditures of Federal Awards			<u>\$245,084,905</u>	<u>\$ 24,657,205</u>

See the accompanying notes to Schedule of Expenditures of Federal Awards



# California Institute of Technology

## Notes to Schedule of Expenditures of Federal Awards

### For the Year Ended September 30, 2018

---

#### 1. Summary of Significant Accounting Policies

##### ***General***

The California Institute of Technology (the "Institute") is a private, not-for-profit institution of higher education based in Pasadena, California. The Institute provides education and training services, primarily for students at the undergraduate, graduate, and postdoctoral levels. The Institute performs research, training, and other services under grants, contracts, and similar agreements with sponsoring organizations, primarily departments and agencies of the United States government. The awards set forth in the accompanying Schedule of Expenditures of Federal Awards (the "Schedule") do not include amounts related to the Jet Propulsion Laboratory ("JPL") which is a National Aeronautics and Space Administration ("NASA") Federally Funded Research and Development Center ("FFRDC") managed by the Institute. Please refer to the separate audited financial statements and related OMB Uniform Guidance reports for JPL.

##### ***Basis of Presentation***

The Schedule has been prepared on the cash basis of accounting and in accordance with the requirements of Title 2 U.S. *Code of Federal Regulations* Part 200, *Uniform Administrative Requirements, Cost Principles, and Audit Requirements for Federal Awards* ("Uniform Guidance"). The Schedule summarizes the expenditures of the Institute under programs of the federal government for the year ended September 30, 2018, except those related to JPL. Because the Schedule presents only a selected portion of the operations of the Institute and is prepared on the cash basis of accounting, it is not intended to and does not present the financial position, changes in net assets or cash flows of the Institute in accordance with accounting principles generally accepted in the United States of America.

Expenditures for direct costs are recognized as incurred using the cash basis of accounting and the cost accounting principles contained in OMB Circular A-21, *Cost Principles for Educational Institutions* and, effective December 26, 2014, the Uniform Guidance, as applicable. Under those cost principles, certain types of expenditures are not allowable or are limited as to reimbursements. Moreover, expenditures include a portion of costs associated with general institution activities (facilities and administrative costs) which are allocated to awards under negotiated formulas commonly referred to as indirect cost rates. The Institute has elected to use its own negotiated indirect cost rates rather than the 10% de minimis rate allowed by Uniform Guidance.

Negative balances reflected in the Schedule represent adjustments to expenditures under awards made in prior years.

The Institute receives funding or reimbursement from Federal Government agencies primarily for research under government grants and contracts. Grants and contracts provide for reimbursement of indirect costs based on rates negotiated with the Department of Defense's Office of Naval Research ("ONR"), the Institute's cognizant federal agency.

# **California Institute of Technology**

## **Notes to Schedule of Expenditures of Federal Awards**

### **For the Year Ended September 30, 2018**

---

#### **1. Summary of Significant Accounting Policies (Continued)**

For purposes of the Schedule, federal awards include all grants, contracts and similar agreements entered into directly between the Institute and agencies and departments of the federal government and all subawards to the Institute by nonfederal organizations pursuant to federal grants, contracts and similar agreements.

#### **2. Loan Advances**

The Federal Perkins Loan Program is administered directly by the Institute. The outstanding balance of loans at September 30, 2018 was \$2,819,740. Balances and transactions related to this program are included in the Institute's financial statements. The Institute did not charge any administrative cost allowance to the Federal Perkins Loan Program for the year ended September 30, 2018.

#### **3. Commingled Assistance**

California Student Aid Commission (CSAC) administers the State Cal Grant A and B Programs, selects the student recipients of these grant awards, and provides funds to participating institutions for disbursement. Federal Temporary Assistance for Needy Families (TANF) funds, CFDA Number 93.558, from the United States Department of Health and Human Services may comprise up to approximately 25% of the total funding for these Cal Grant awards. In fiscal year 2018, the Institute received Cal Grant A and B funds in the amount of \$145,344; however, CSAC is unable to determine the exact amount of TANF funds, if any, represented in those awards. Therefore, the Schedule does not include State Cal Grant A and B awards.



## **Report of Independent Auditors on Internal Control Over Financial Reporting and on Compliance and Other Matters Based on an Audit of Financial Statements Performed in Accordance with *Government Auditing Standards***

To the Board of Trustees of the  
California Institute of Technology

We have audited, in accordance with auditing standards generally accepted in the United States of America and the standards applicable to financial audits contained in *Government Auditing Standards* issued by the Comptroller General of the United States, the financial statements of the California Institute of Technology (the "Institute"), which comprise the balance sheet as of September 30, 2018, and the related statements of activities and of cash flows for the year then ended, and the related notes to the financial statements, and have issued our report thereon dated January 30, 2019.

### **Internal Control Over Financial Reporting**

In planning and performing our audit of the financial statements, we considered the Institute's internal control over financial reporting ("internal control") to determine the audit procedures that are appropriate in the circumstances for the purpose of expressing our opinion on the financial statements, but not for the purpose of expressing an opinion on the effectiveness of the Institute's internal control. Accordingly, we do not express an opinion on the effectiveness of the Institute's internal control.

*A deficiency in internal control* exists when the design or operation of a control does not allow management or employees, in the normal course of performing their assigned functions, to prevent, or detect and correct, misstatements on a timely basis. *A material weakness* is a deficiency, or a combination of deficiencies, in internal control such that there is a reasonable possibility that a material misstatement of the entity's financial statements will not be prevented, or detected and corrected on a timely basis. *A significant deficiency* is a deficiency, or a combination of deficiencies, in internal control that is less severe than a material weakness, yet important enough to merit attention by those charged with governance.

Our consideration of internal control was for the limited purpose described in the first paragraph of this section and was not designed to identify all deficiencies in internal control that might be material weaknesses or significant deficiencies. Given these limitations, during our audit we did not identify any deficiencies in internal control that we consider to be material weaknesses. However, material weaknesses may exist that have not been identified.

### **Compliance and Other Matters**

As part of obtaining reasonable assurance about whether the Institute's financial statements are free from material misstatement, we performed tests of its compliance with certain provisions of laws, regulations, contracts and grant agreements, noncompliance with which could have a direct and material effect on the determination of financial statement amounts. However, providing an opinion on compliance with those provisions was not an objective of our audit, and accordingly, we do not express such an opinion. The results of our tests disclosed no instances of noncompliance or other matters that are required to be reported under *Government Auditing Standards*.



**Purpose of this Report**

The purpose of this report is solely to describe the scope of our testing of internal control and compliance and the results of that testing, and not to provide an opinion on the effectiveness of the entity's internal control or on compliance. This report is an integral part of an audit performed in accordance with *Government Auditing Standards* in considering the entity's internal control and compliance. Accordingly, this communication is not suitable for any other purpose.

*PricewaterhouseCoopers LLP*

Los Angeles, California  
January 30, 2019



**Report of Independent Auditors on Compliance with Requirements  
That Could Have a Direct and Material Effect on Each Major Program and on Internal  
Control Over Compliance in Accordance with the Uniform Guidance**

To the Board of Trustees of the  
California Institute of Technology

**Report on Compliance for Each Major Federal Program**

We have audited the California Institute of Technology's (the "Institute") compliance with the types of compliance requirements described in the *OMB Compliance Supplement* that could have a direct and material effect on each of the Institute's major federal programs for the year ended September 30, 2018. The Institute's major federal programs are identified in the summary of auditor's results section of the accompanying schedule of findings and questioned costs.

The Institute's basic financial statements include the operations of the Jet Propulsion Laboratory (a Federally Funded Research and Development Center managed by the Institute), which expended \$2,679,516,000 in federal awards which is not included in the schedule of expenditures of federal awards during the year ended September 30, 2018. Our audit, described below, did not include the operations of the Jet Propulsion Laboratory because it is audited separately under the Uniform Guidance.

***Management's Responsibility***

Management is responsible for compliance with federal statutes, regulations and the terms and conditions of its federal awards applicable to its federal programs.

***Auditors' Responsibility***

Our responsibility is to express an opinion on compliance for each of the Institute's major federal programs based on our audit of the types of compliance requirements referred to above. We conducted our audit of compliance in accordance with auditing standards generally accepted in the United States of America; the standards applicable to financial audits contained in *Government Auditing Standards*, issued by the Comptroller General of the United States; and the audit requirements of Title 2 U.S. *Code of Federal Regulations* Part 200, *Uniform Administrative Requirements, Cost Principles, and Audit Requirements for Federal Awards* (Uniform Guidance). Those standards and the Uniform Guidance require that we plan and perform the audit to obtain reasonable assurance about whether noncompliance with the types of compliance requirements referred to above that could have a direct and material effect on a major federal program occurred. An audit includes examining, on a test basis, evidence about the Institute's compliance with those requirements and performing such other procedures as we considered necessary in the circumstances.

We believe that our audit provides a reasonable basis for our opinion on compliance for each major federal program. However, our audit does not provide a legal determination of the Institute's compliance.



### ***Opinion on Each Major Federal Program***

In our opinion, the California Institute of Technology complied, in all material respects, with the types of compliance requirements referred to above that could have a direct and material effect on each of its major federal programs for the year ended September 30, 2018.

### **Report on Internal Control Over Compliance**

Management of the Institute is responsible for establishing and maintaining effective internal control over compliance with the types of compliance requirements referred to above. In planning and performing our audit of compliance, we considered the Institute's internal control over compliance with the types of requirements that could have a direct and material effect on each major federal program to determine the auditing procedures that are appropriate in the circumstances for the purpose of expressing an opinion on compliance for each major federal program and to test and report on internal control over compliance in accordance with the Uniform Guidance, but not for the purpose of expressing an opinion on the effectiveness of internal control over compliance. Accordingly, we do not express an opinion on the effectiveness of the Institute's internal control over compliance.

*A deficiency in internal control over compliance* exists when the design or operation of a control over compliance does not allow management or employees, in the normal course of performing their assigned functions, to prevent, or detect and correct, noncompliance with a type of compliance requirement of a federal program on a timely basis. *A material weakness in internal control over compliance* is a deficiency, or combination of deficiencies, in internal control over compliance, such that there is a reasonable possibility that material noncompliance with a type of compliance requirement of a federal program will not be prevented, or detected and corrected, on a timely basis. *A significant deficiency in internal control over compliance* is a deficiency, or a combination of deficiencies, in internal control over compliance with a type of compliance requirement of a federal program that is less severe than a material weakness in internal control over compliance, yet important enough to merit attention by those charged with governance.

Our consideration of internal control over compliance was for the limited purpose described in the first paragraph of this section and was not designed to identify all deficiencies in internal control over compliance that might be material weaknesses or significant deficiencies. We did not identify any deficiencies in internal control over compliance that we consider to be material weaknesses. However, material weaknesses may exist that have not been identified.

The purpose of this report on internal control over compliance is solely to describe the scope of our testing of internal control over compliance and the results of that testing based on the requirements of the Uniform Guidance. Accordingly, this report is not suitable for any other purpose.

*PricewaterhouseCoopers LLP*

Los Angeles, California  
May 3, 2019

**California Institute of Technology  
Schedule of Findings and Questioned Costs  
For the Year Ended September 30, 2018**

---

**SECTION I – SUMMARY OF AUDITOR’S RESULTS**

**Financial Statements**

Type of auditor’s report issued: Unmodified

Internal control over financial reporting:

- Material weakness(es) identified? No
- Significant deficiency(ies) identified that are not considered to be material weakness(es)? None Reported

Noncompliance material to the financial statements noted? No

**Federal Awards**

Internal control over major programs:

- Material weakness(es) identified? No
- Significant deficiency(ies) identified that are not considered to be material weakness(es)? None Reported

Type of auditor’s report issued on compliance for major programs: Unmodified

Any audit findings that are required to be reported in accordance with 2 CFR 200.516(a)? No

Identification of major programs:

<b>Program Name</b>	<b>CFDA Number</b>
Research and Development Cluster	Various
Student Financial Assistance Cluster	Various

Dollar threshold used to distinguish between Type A and Type B programs: \$3,000,000

Auditee qualified as a low-risk auditee? Yes

**SECTION II – FINANCIAL STATEMENT FINDINGS**

None reported.

**Section III – FEDERAL AWARD FINDINGS AND QUESTIONED COSTS**

None reported.

**California Institute of Technology**  
**Summary Schedule of Prior Audit Findings**  
**For the Year Ended September 30, 2018**

---

There were no prior audit findings which require an update in this report.