LOWELL OBSERVATORY YEARS ENDED DECEMBER 31, 2018 AND 2017

YEARS ENDED DECEMBER 31, 2018 AND 2017

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Independent Auditors' Report

Lowell Observatory Sole Trustee, Lowell Observatory Foundation Board of Trustees and Management Lowell Observatory Flagstaff, Arizona

We have audited the accompanying combined financial statements of Lowell Observatory (the Organization) which comprise the combined statements of financial position as of December 31, 2018 and 2017, and the related combined statements of activities, functional expenses and cash flows for the years then ended and the related notes to the combined financial statements.

Management's Responsibility for the Combined Financial Statements

Management is responsible for the preparation and fair presentation of these combined 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 combined financial statements that are free from material misstatement, whether due to fraud or error.

Auditors' Responsibility

Our responsibility is to express an opinion on these combined financial statements based on our audits. We conducted our audits in accordance with auditing standards generally accepted in the United States of America established by the AICPA Auditing Standards Board 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 combined financial statements are free from material misstatement.

An audit involves performing procedures to obtain audit evidence about the amounts and disclosures in the combined financial statements. The procedures selected depend on the auditors' judgment, including the assessment of the risks of material misstatement of the combined financial statements, whether due to fraud or error. In making those risk assessments, the auditor considers internal control relevant to the Organization's preparation and fair presentation of the combined 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 Organization'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 combined 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 combined financial statements referred to above present fairly, in all material respects, the financial position of Lowell Observatory as of December 31, 2018 and 2017, and the changes in its net assets and its cash flows for the years then ended, in conformity with accounting principles generally accepted in the United States of America.

Emphasis of Matter

As discussed in Note 1 to the financial statements, the organization adopted Accounting Standards Update (ASU) 2016-14, Not-for-Profit Entities (Topic 958): Presentation of Financial Statements of Not-for-Profit Entities. Our opinion is not modified with respect to this matter.

Report on Combining Information

Our audit was conducted for the purpose of forming an opinion on the combined financial statements as a whole. The combining information on pages 24 and 25 is presented for purposes of additional analysis of the combined financial statements rather than to present the financial position and results of operations of the individual entities, and it is not a required part of the combined financial statements. 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 combined financial statements. The combining information has been subjected to the auditing procedures applied in the audit of the combined financial statements and certain additional procedures, including comparing and reconciling such information directly to the underlying accounting and other records used to prepare the combined financial statements or to the combined financial statements themselves, and other additional procedures in accordance with auditing standards generally accepted in the United States of America. In our opinion, the information is fairly stated in all material respects in relation to the combined financial statements as a whole.

Other Report Required by Government Auditing Standards

In accordance with *Government Auditing Standards*, we have also issued a report dated April 5, 2019, on our consideration of the Organization'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 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 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 Organization's internal control over financial reporting and compliance.

Beach Fleischman PC

Phoenix, Arizona April 5, 2019

COMBINED STATEMENTS OF FINANCIAL POSITION

DECEMBER 31, 2018 AND 2017

ASSETS

	_	2018	_	2017
Current assets:				
Cash and cash equivalents	\$	265,651	\$	614,670
Restricted cash		206,178		199,778
Investments without donor restrictions		8,893		1,119,757
Grants receivable		360,146		281,584
Promises to give, current portion		1,265,726		547,385
Other current assets		338,767		458,895
Total current assets		<u>2,445,361</u>		3,222,069
Property and equipment, net		45,626,539		43,452,560
Promises to give, net of current portion		364,302		924,921
Collection item		400,000		400,000
Assets limited to use: Investments with donor restrictions		25,990,107		32,975,170
investments with donor restrictions			_	
		72,380,948		77,752,651
	\$	74,826,309	<u>\$</u>	80,974,720
LIABILITIES AND NET ASSETS				
Current liabilities:				
Accounts payable	\$	427,401	\$	309,969
Accrued expenses and other current liabilities	_	90,636		90,491
Total current liabilities		518,037		400,460
Note payable, bank		7,453,421		10,200,000
Deferred research grant revenue Deferred access fee revenue		85,454		598,953
Deferred access fee revenue	_	7,761,824	_	8,310,268
	_	15,818,736		19,509,681
Contingencies				
Net assets:				
Without donor restrictions:				
Net invested in property and equipment		38,173,118		33,252,560
Undesignated		(9,402,841)		(8,775,704)
		28,770,277		24,476,856
With donor restrictions		30,237,296		36,988,183
		59,007,573		61,465,039
	_	74 026 200	\$	80,974,720
	<u>Ş</u>	74,826,309	<u>Ş</u>	00,974,720

COMBINED STATEMENT OF ACTIVITIES

		ithout donor restrictions	With donor restrictions		Total
Revenues and support:					
Contracts with governmental and other agencies	\$	3,649,780	\$ -	\$	3,649,780
Telescope access fees		2,343,971	-		2,343,971
Contributions		1,306,505	3,404,531		4,711,036
Public program revenue		1,374,741	-		1,374,741
Investment income (loss), net		158,016	(2,088,786)		(1,930,770)
Other income		69,684	-		69,684
Net assets released from restrictions		8,066,632	(8,066,632)		
		16,969,329	(6,750,887)	_	10,218,442
Expenses:					
Program services:					
Research		4,108,652	-		4,108,652
Technology		4,157,008	-		4,157,008
Public program		2,099,779	_	_	2,099,779
	_	10,365,439			10,365,439
Support services:					
Management and general		1,069,613	-		1,069,613
Fundraising	_	1,240,856		_	<u>1,240,856</u>
		2,310,469			2,310,469
		12,675,908	_		12,675,908
Increase (decrease) in net assets		4,293,421	(6,750,887)		(2,457,466)
Net assets, beginning restated		24,476,856	36,988,183		61,465,039
Net assets, ending	<u>\$</u>	28,770,277	\$ 30,237,296	<u>\$</u>	59,007,573

COMBINED STATEMENT OF ACTIVITIES

		ithout donor restrictions	With donor restrictions		Total
Revenues and support:					
Contracts with governmental and other agencies	\$	4,061,731	\$ -	\$	4,061,731
Telescope access fees		1,538,425	-		1,538,425
Contributions		836,889	3,492,184		4,329,073
Public program revenue		1,205,815	-		1,205,815
Investment income, net		253,621	4,010,132		4,263,753
Other income		147,752	_		147,752
Net assets released from restrictions		12,278,368	(12,278,368)		_
		20,322,601	(4,776,052)	_	15,546,549
Expenses:					
Program services:					
Research		3,739,896	-		3,739,896
Technology		3,987,916	-		3,987,916
Public programs	_	<u>1,748,496</u>			1,748,496
		9,476,308			9,476,308
Support services:					
Management and general		1,012,744	-		1,012,744
Fundraising	_	1,263,386	_		1,263,386
		2,276,130			2,276,130
	_	11,752,438			11,752,438
Revenues less expenses		8,570,163	(4,776,052)		3,794,111
Gain on interest rate swap	_	248,960			248,960
Increase (decrease) in net assets		8,819,123	(4,776,052)		4,043,071
Transfers of net assets		626,788	(626,788)		-
Net assets, beginning		15,030,945	42,391,023		57,421,968
Net assets, ending restated	<u>\$</u>	24,476,856	<u>\$ 36,988,183</u>	<u>\$</u>	61,465,039

STATEMENT OF FUNCTIONAL EXPENSES

	Program Services					Supporting Services									
		Research	_	Гесhnology		Public programs	То	tal program services		lanagement and general	F	undraising	•	Total supporting services	Total expenses
Salaries	\$	2,109,848	\$	1,649,414	\$	934,562	\$	4,693,824	\$	786,147	\$	589,450	\$	1,375,597	\$ 6,069,421
Payroll taxes and benefits	_	398,175	_	341,393		210,960		950,528	_	192,750		117,736	_	310,486	 1,261,014
		2,508,023		1,990,807		1,145,522		5,644,352		978,897		707,186		1,686,083	7,330,435
Depreciation		265,819		1,425,809		163,830		1,855,458		51,091		25,516		76,607	1,932,065
Equipment		41,416		4,632		13,218		59,266		12,995		-		12,995	72,261
Insurance		18,068		236,393		24,879		279,340		10,692		3,380		14,072	293,412
Interest		-		187,990		-		187,990		-		-		-	187,990
Other		164,719		(71,966)		508,145		600,898		(365,348)		297,583		(67,765)	533,133
Professional services		660,738		45,373		25,360		731,471		143,672		96,115		239,787	971,258
Repairs and maintenance		74,651		141,122		48,081		263,854		65,651		34,732		100,383	364,237
Supplies and postage		93,373		24,076		61,947		179,396		25,299		18,790		44,089	223,485
Training and development		11,341		5,185		23,158		39,684		73,273		4,875		78,148	117,832
Travel and meals		175,025		18,788		40,360		234,173		54,766		44,255		99,021	333,194
Utilities		95,479		148,799		45,279		289,557		18,625		8,424		27,049	 316,606
	\$	4,108,652	\$	4,157,008	\$	2,099,779	\$	10,365,439	\$	1,069,613	\$	1,240,856	\$	2,310,469	\$ 12,675,908

STATEMENT OF FUNCTIONAL EXPENSES

	Program Services					Supporting Services										
		Research		echnology		Public programs	To	otal program services		Management and general	F	undraising		Total supporting services		Total expenses
Salaries	\$	1,955,867	\$	1,306,643	\$	750,114	\$	4,012,624	\$	702,798	\$	534,792	\$	1,237,590	\$	5,250,214
Payroll taxes and benefits		256,053		191,621		152,691		600,365		127,602		100,190	_	227,792		828,157
		2,211,920		1,498,264		902,805		4,612,989		830,400		634,982		1,465,382		6,078,371
Depreciation		319,062		1,408,050		166,675		1,893,787		48,395		24,198		72,593		1,966,380
Equipment		30,693		19,978		16,755		67,426		20,369		8,361		28,730		96,156
Gain on disposal		-		-		-		-		(2,905)		-		(2,905)		(2,905)
Insurance		15,849		231,192		23,223		270,264		10,732		4,379		15,111		285,375
Interest		_		602,214		-		602,214		-		-		_		602,214
Other		175,784		(89,785)		424,066		510,065		(282,921)		246,711		(36,210)		473,855
Professional services		542,041		41,805		11,768		595,614		170,959		126,582		297,541		893,155
Repairs and maintenance		65,095		108,838		58,640		232,573		56,604		38,051		94,655		327,228
Supplies and postage		87,529		22,709		41,469		151,707		21,334		58,662		79,996		231,703
Training and development		14,486		7,783		12,586		34,855		66,516		12,459		78,975		113,830
Travel and meals		192,905		19,646		34,166		246,717		55,602		98,603		154,205		400,922
Utilities		84,532		117,222		<u>56,343</u>		258,097	_	<u> 17,659</u>	_	10,398	_	28,057	_	286,154
	\$_	3,739,896	\$	3,987,916	\$	1,748,496	\$	9,476,308	\$	1,012,744	\$	1,263,386	<u>\$</u>	2,276,130	\$	11,752,438

COMBINED STATEMENTS OF CASH FLOWS

YEARS ENDED DECEMBER 31, 2018 AND 2017

		2018		2017
Cash flows from operating activities:				
Increase (decrease) in net assets	\$	(2,457,466)	\$	4,043,071
Adjustments to reconcile increase (decrease) in net assets to				
net cash provided by operating activities:				
Depreciation		1,932,065		1,966,380
Net realized and unrealized (gains) losses on investments		2,971,730		(3,150,035)
Gain on disposal of assets		-		(2,905)
Gain on interest rate swap		-		(248,960)
Changes in operating assets and liabilities:				
Grants receivable		(78,562)		10,206
Promises to give		(157,722)		22,805
Other current assets		120,128		(120,814)
Accounts payable		117,432		64,927
Accrued expenses and other liabilities		145		(297,471)
Deferred research grant revenue		(513,499)		(672,396)
Deferred access fee revenue		(5 <u>48,444)</u>		102,352
Net adjustments		3,843,273		(2,325,911)
Net cash provided by operating activities	_	1,385,807		1,717,160
Cash flows from investing activities:				
Purchases of property and equipment		(4,106,044)		(2,176,760)
Proceeds from disposal of assets		-		2,905
Purchases of investments		(1,202,278)		(1,164,200)
Proceeds from sale/maturity of investments		6,326,475		10,496,802
Decrease in restricted cash		(6,400)		548,004
Net cash provided by investing activities		1,011,753		7,706,751
Cash flows from financing activities:				
Payments on note payable, bank		(2,746,579)		(10,200,000)
Net cash used in financing activities		(2,746,579)		(10,200,000)
Net decrease in cash and cash equivalents		(349,019)		(776,089)
Cash and cash equivalents, beginning		614,670		1,390,759
Cash and cash equivalents, ending	<u>\$</u>	265,651	<u>\$</u>	614,670

NOTES TO COMBINED FINANCIAL STATEMENTS

YEARS ENDED DECEMBER 31, 2018 AND 2017

1. Description of organization and summary of significant accounting policies:

Organization:

Lowell Observatory (the Observatory), located in Flagstaff, Arizona, is a nonprofit organization whose purpose is conducting astronomical research and sponsoring educational programs related to astronomy. The Observatory's mission is to pursue the study of astronomy, especially the study of our solar system and its evolution; to conduct pure research in astronomical phenomena; and to maintain quality public education and outreach programs to bring the results of astronomical research to the general public. The Observatory is overseen by a Sole Trustee, who is the responsible party for all operations of the Observatory. The Observatory's programs are supported primarily by government grants, public contributions, and investment returns.

The Trust U/W of Percival Lowell (the Trust) is a perpetual trust established for the benefit of the Observatory and is overseen by the Sole Trustee of the Observatory. Percival Lowell's will, which established the Trust, was executed on February 21, 1913, with its final codicil dated December 15, 1915. Percival Lowell died November 12, 1916. The Trust has been amended since that date.

The Lowell Observatory Foundation (the Foundation) was established on September 9, 2014 as a non-profit organization governed by an independent board of trustees and dedicated solely to supporting the Observatory's mission.

Principles of consolidation and combination:

The Trust is consolidated into the Observatory. The combined financial statements include the accounts of the Observatory and the Foundation (collectively the Organization). All significant interorganizational accounts and transactions have been eliminated.

Estimates:

The preparation of combined financial statements in conformity with accounting principles generally accepted in the United States of America (GAAP) 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 combined financial statements and the reported amounts of revenues and expenses during the reporting period. Actual results could differ from those estimates.

Net assets:

Net assets, revenues, gains, and losses are classified based on the existence or absence of donor or grantor imposed restrictions. Accordingly, net assets and changes therein are classified and reported as follows:

 Net assets without donor restrictions - Net assets available for use in general operations and not subject to donor restrictions.

NOTES TO COMBINED FINANCIAL STATEMENTS (CONTINUED)

YEARS ENDED DECEMBER 31, 2018 AND 2017

1. Description of organization and summary of significant accounting policies (continued):

Net assets (continued):

Net assets with donor restrictions - Net assets subject to donor-imposed restrictions. Some
donor-imposed restrictions are temporary in nature, such as those that will be met by the
passage of time or other events specified by the donor. Other donor-imposed restrictions are
perpetual in nature, where the donor stipulates that resources be maintained in perpetuity.
Donor-imposed restrictions are released when a restriction expires, that is, when the stipulated
time has elapsed, when the stipulated purpose for which the resource was restricted has been
fulfilled, or both.

Revenues and support:

Revenues from governmental and other agency contracts are reported as exchange transactions based on the contract provisions. Revenue is recognized at the time expenses or services reimbursable under the provisions of the contract are incurred. Advances received from governmental funding sources in excess of costs incurred under the related grants are deferred and recognized as revenue when the related expenses are incurred. Costs charged to certain grant accounts from government agencies include indirect costs and are subject to audit by the United States Department of the Interior, Interior Business Center, as directed by the Office of National Aeronautics and Space Administration.

Contributions received are recorded as support without donor restrictions or with donor restrictions, depending on the existence and/or nature of any donor restrictions. All donor-restricted support is reported as an increase in net assets with donor restrictions, depending on the nature of the restriction. When a restriction expires (that is, when a stipulated time restriction ends or purpose restriction is accomplished), net assets with donor restrictions are reclassified to unrestricted net assets and reported in the statement of activities as net assets released from restrictions. Endowment contributions are reported as additions to net assets with donor restrictions.

Public program revenue consists of exchange transactions recognized when the related services are provided.

Telescope access fees are charged to partnering universities for time on the Organization's Telescopes. Advances received from the partnering universities are recorded as deferred revenue. Revenue is recognized in the period earned based on actual nights used.

NOTES TO COMBINED FINANCIAL STATEMENTS (CONTINUED)

YEARS ENDED DECEMBER 31, 2018 AND 2017

1. Description of organization and summary of significant accounting policies (continued):

Revenue recognition (continued):

Support arising from donated goods and services is recognized in the combined financial statements at its fair value. Donated services are recognized when the services received meet one of the following criteria:

- (a) create or enhance nonfinancial assets
- b) require specialized skills, are provided by individuals possessing those skills, and would typically need to be purchased if not provided by donation.

Although the Organization utilizes the services of outside volunteers to perform a variety of tasks that assist the Organization, the fair value of all these services may not be reflected in the financial statements because the above criteria are not met.

Cash and cash equivalents:

All highly liquid debt instruments purchased with a maturity of three months or less are considered to be cash equivalents.

All cash and cash equivalents are placed with various credit institutions. At times, such amounts may be in excess of the FDIC insurance limits; however, management does not believe they are exposed to any significant credit risk on cash and cash equivalents.

Restricted cash consists of contributions from donors for temporarily restricted purposes.

Investments:

Investments are carried at fair value. Donated investments are recorded at fair value at the date of gift. Investment gains and losses are included in the changes in net assets in the accompanying statements of activities as increases or decreases in without donor restrictions net assets unless their use is with donor restrictions by explicit donor-imposed stipulations or legal requirements net of related investment fees. Realized gains or losses on disposition of investments are recorded on a trade date basis using the specific identification method. Dividends and interest income are accrued when earned. Investments are considered to be impaired when a decline in fair value is judged to be other-than-temporary.

NOTES TO COMBINED FINANCIAL STATEMENTS (CONTINUED)

YEARS ENDED DECEMBER 31, 2018 AND 2017

1. Description of organization and summary of significant accounting policies (continued):

Fair value measurements:

Fair value is defined as the price to sell an asset or transfer a liability between market participants in an orderly exchange in the principal or most advantageous market for that asset or liability. The fair value for qualifying alternative investments is determined based on the investment's net asset value as a practical expedient. Considerable judgment is required in interpreting market data used to develop the estimates of fair value. Accordingly, the estimates presented in the financial statements are not necessarily indicative of the amounts that could be realized in a current market exchange. The use of different market assumptions and estimation methodologies may have a material effect on the estimated fair value.

Grants receivable:

The Organization grants unsecured credit under contracts to its customers that are primarily Federal Government agencies. The carrying amount of grants receivable is reduced by a valuation allowance that reflects management's best estimate of amounts that will not be collected. Receivables are written off when deemed uncollectible. As of December 31, 2018 and 2017, receivable balances are considered fully collectible by management; therefore, no allowance for doubtful accounts has been provided.

Promises to give:

Unconditional promises to give are recognized as revenues at their estimated net realizable value in the period received. Promises to give that are collectible over future periods are discounted to their net present value. The provision for uncollectible promises to give is based on management's estimate of current economic factors, applied as a percentage of gross contribution revenues. Promises to give are periodically reviewed for collectibility and written off when determined uncollectible. At December 31, 2018 and 2017, promises to give are considered fully collectible, therefore, no allowance for uncollectible pledges has been provided.

Property and equipment:

Property and equipment are stated at cost except for donated equipment, which is recorded at its fair market value at the date of gift. Property and equipment with a value of greater than or equal to \$5,000 and a useful life of more than one year is capitalized. Depreciation is calculated using the straight-line method over the estimated useful lives of the assets.

Buildings and improvements	5 - 40 years
Equipment and computers	3 - 30 years
Furniture and fixtures	5 - 10 years
Vehicles	5 - 10 years

NOTES TO COMBINED FINANCIAL STATEMENTS (CONTINUED)

YEARS ENDED DECEMBER 31, 2018 AND 2017

1. Description of organization and summary of significant accounting policies (continued):

Collection items:

The Organization has ownership of a vintage car, which was donated to the Observatory by the Sole Trustee in 2002. The vehicle is capitalized based on its appraised value at the date of the unrestricted contribution.

Endowments:

The Organization's endowments consist of funds established under either donor restriction or as designated by the Trustees for a variety of purposes. As required by GAAP, net assets associated with endowment funds (including funds designated by the Trustees to function as endowments) are classified and reported based on the existence or absence of donor-imposed restrictions.

The Trustees of the Foundation have interpreted the Uniform Prudent Management of Institutional Funds Act (UPMIFA) as requiring the preservation of the fair value of the original gift, as of the gift date of the donor-restricted endowment funds, unless there are explicit donor stipulations to the contrary. As a result of this interpretation, the Organization retains in perpetuity (a) the original value of initial and subsequent gift amounts donated to the endowment and (b) any accumulations to the endowment made in accordance with the direction of the applicable donor gift instrument at the time the accumulation is added. Donor-restricted amounts not retained in perpetuity are subject to appropriation for expenditure by the Organization in a manner consistent with the standard of prudence prescribed by UPMIFA.

Program expense allocations:

The financial statements report certain categories of expenses that are attributable to one or more program or supporting services of the Organization. Those expenses include depreciation, the Executive Director's office, communications department, and information technology department. Depreciation is allocated based on a square footage basis, the Executive Director's office is allocated based on a time and cost study of where efforts are made, certain costs of the communications department are allocated based on the benefit received, and the information technology department is allocated based on a cost study of specific technology utilized and the benefit received.

Advertising:

Advertising costs are expensed as incurred. Total advertising expense was \$220,286 and \$171,442 for 2018 and 2017.

Income taxes:

The Observatory, the Foundation, and the Trust are exempt from income taxes under both Internal Revenue Code (IRC) section 501(c)(3) and Arizona income tax laws. The Observatory is classified as other than a private foundation under IRC section 509(a)(1). The Foundation and the Trust are each classified as other than a private foundation under IRC section 509(a)(3) as a supporting organization of the Observatory. Income from certain activities not directly related to the Organization's tax-exempt purpose, however, may be subject to taxation as unrelated business taxable income (UBTI).

NOTES TO COMBINED FINANCIAL STATEMENTS (CONTINUED)

YEARS ENDED DECEMBER 31, 2018 AND 2017

1. Description of organization and summary of significant accounting policies (continued):

Income taxes (continued):

From time to time, the Organization may be subject to penalties and interest assessed by various taxing authorities, which are classified as general and administrative expenses if they occur.

Change in accounting principle:

In August 2016, FASB issued Accounting Standards Update (ASU) 2016-14, "Not-for-Profit Entities (Topic 958): Presentation of Financial Statements of Not-for-Profit Entities." The update addresses the complexity and understandability of net asset classification, deficiencies in information about liquidity and availability of resources, and the lack of consistency in the type of information provided about expenses and investment return. The Organization has implemented ASU 2016-14 and has adjusted the presentation in these combined financial statements accordingly.

Subsequent events:

The Organization's management has evaluated the events that have occurred subsequent to December 31, 2018 through April 5, 2019, the date that the combined financial statements were available to be issued.

2. Liquidity and availability of financial assets:

As part of the Organization's liquidity management, it has a policy to structure its financial assets to be available as its general expenditures, liabilities and other obligations come due. In addition, the Organization invests cash in excess of daily requirements in short-term investments. To help manage unanticipated liquidity needs, the Organization has also committed a line of credit in the amount of \$10.2 million, which it could draw upon. At December 31, 2018 the Organization could draw down an additional \$2.8 million.

The following reflects the Organization's financial assets as of the combined statement of financial position date, reduced by the amounts not available for general use within one year of the combined statement of financial position date because of contractual or donor-imposed restrictions.

NOTES TO COMBINED FINANCIAL STATEMENTS (CONTINUED)

YEARS ENDED DECEMBER 31, 2018 AND 2017

2. Liquidity and availability of financial assets (continued):

	2018	<u>2017</u>
Cash and cash equivalents	\$ 265,651	\$ 614,670
Restricted cash	206,178	199,778
Investments	25,999,000	34,094,927
Grants receivable	360,146	281,584
Promises to give	1,630,028	1,472,306
Total financial assets	28,461,003	36,663,265
Promises to give scheduled to be collected in more than one year	(364,302)	(924,921)
Contractual or donor-imposed restrictions:	/F.O.C.A. COO.\	/F 440 046\
Endowment funds	(5,064,600)	(5,118,816)
Other donor restrictions	(3,679,025)	(3,416,500)
Funds restricted by lender as collateral	(7,453,421)	(10,200,000)
Restricted cash	(206,178)	(199,778)
	<u>\$ 11,693,477</u>	\$ 16,803,250

3. Investments:

	2018	<u> </u>
Money market funds	\$ 1,406,382	\$ 7,994,417
Fixed income securities	7,335,618	5,656,656
Equity securities	15,112,483	18,114,656
Alternative investments	<u>2,144,5</u> 17	2,329,198
	25,999,000	34,094,927
Less investments with donor restrictions	<u>25,990,107</u>	32,975,170
	\$ 8,893	\$ 1,119,757

Investment income for the years ended December 31, 2018 and 2017 is as follows:

	2018	<u>2017</u>
Interest and dividends	\$ 1,175,695	\$ 1,252,998
Net realized and unrealized gains on investments	(2,971,730)	3,150,035
Investment fees	(134,735)	(139,280)
	<u>\$ (1,930,770)</u>	\$ 4,263,753

NOTES TO COMBINED FINANCIAL STATEMENTS (CONTINUED)

YEARS ENDED DECEMBER 31, 2018 AND 2017

4. Fair value measurements:

At December 31, 2018, the fair value of assets measured on a recurring basis is as follows:

		Fair value		Level 1		expedient
Money market funds	\$	1,406,382	\$	1,406,382	\$	-
Fixed income securities		7,335,618		7,335,618		-
Equity securities:						
US large cap		8,871,260		8,871,260		-
US mid cap		1,636,877		1,636,877		_
US small cap		903,889		903,889		-
Developed international		2,485,082		2,485,082		-
Other		1,215,375		1,215,375		-
Alternative investments		2,144,517		-		2,144,517
	<u>\$</u>	25,999,000	<u>\$</u>	23,854,483	<u>\$</u>	2,144,517

At December 31, 2017, the fair value of assets measured on a recurring basis is as follows:

	Fair value		Level 1		-	expedient
Money market funds	\$	7,994,417	\$	7,994,417	\$	-
Fixed income securities		5,656,656		5,656,656		-
Equity securities:						
US large cap		10,235,667		10,235,667		-
US mid cap		2,252,356		2,252,356		-
US small cap		1,462,334		1,462,334		-
Developed international		2,964,381		2,964,381		-
Other		1,199,918		1,199,918		-
Alternative investments		2,329,198				2,329,198
	<u>\$</u>	34,094,927	<u>\$</u>	31,765,729	<u>\$</u>	2,329,198

The assets in the preceding tables were measured primarily using the market approach. Following is a description of the valuation methodologies used for assets measured at fair value. The asset or liability's fair value measurement level within the fair value hierarchy is based on the lowest level of any input that is significant to the fair value measurement. Transfers between levels are recorded at the beginning of the reporting period in which they occur. Valuation techniques used maximize the use of observable inputs and minimize the use of unobservable inputs:

Level 1 - Inputs to the valuation methodology are unadjusted quoted prices for identical assets or liabilities in active markets that the Plan has the ability to access.

Descrical

NOTES TO COMBINED FINANCIAL STATEMENTS (CONTINUED)

YEARS ENDED DECEMBER 31, 2018 AND 2017

4. Fair value measurements (continued):

Practical Expedient - Investments for which fair value is measured at net asset value per share (or its equivalent). Due to the inherent uncertainty of these estimates, these values may differ materially from the values that would have been used had a ready market for these investments existed. Investments that are included in this category generally include private fund investment structures and limited party interest, without quoted prices.

The fair value of the Organization's investments are valued at the closing price reported on the active market on which the individual securities are traded except for the alternative investments. The Organization's alternative investments are valued based on their net asset value using the practical expedient. The alternative investments consist primarily of offshore investment funds that provide investment exposure to global equity, bond, currency and commodity markets and fixed-income securities. The funds may invest in instruments that provide economic exposure to developed and emerging market issuers. These investments have restrictions on redemptions consisting of lock up periods of up to 65 days. No unfunded commitments exist related to these investments.

5. Property and equipment:

	2018	2017	
Land	\$ 670,434	\$ 670,434	
Buildings and improvements	23,647,243	22,470,846	
Equipment and computers	38,567,187	38,505,620	
Furniture and fixtures	653,381	653,381	
Vehicles	449,362	397,212	
Construction in progress	<u>4,557,924</u>	1,745,128	
	68,545,531	64,442,621	
Less accumulated depreciation	22,918,992	20,990,061	
	<u>\$ 45,626,539</u>	<u>\$ 43,452,560</u>	

6. Note payable, bank:

The Organization had a \$20,400,000 revolving line of credit (the Line) with BNY Mellon Bank (BNY) that was revised in March 2018. The Line called for monthly interest only payments at the monthly LIBOR rate (1.56% at December 31, 2017) plus 0.90%. The line was collateralized by investment assets of the Organization. The Organization had an outstanding balance of \$10,200,000 related to this line of credit at December 31, 2017.

NOTES TO COMBINED FINANCIAL STATEMENTS (CONTINUED)

YEARS ENDED DECEMBER 31, 2018 AND 2017

6. Note payable, bank (continued):

In March 2018, the Organization revised the Line noted above into a \$10,200,000 revolving line of credit note (the Note) with BNY to extend the maturity of the outstanding balance on the Line to March 2023. The Note calls for monthly interest only payments at the monthly LIBOR rate (2.34% at December 31, 2018) with a floor of 0.90% and requires an annual reduction in the outstanding balance of \$1,020,000 on the Note's anniversary date through its maturity on March 2023. The Note is collateralized by investment assets of the Organization. The Organization had an outstanding balance of \$7,453,421 related to this line of credit at December 31, 2018.

The Organization is required to be in compliance with certain non-financial covenants.

7. Deferred access fee revenue:

The Organization has entered into a series of agreements to provide several educational institutions access to its telescopes. Under the terms of the agreements, the institutions are required to provide prescribed levels of financial support in exchange for nights of telescope use. Deferred access fee revenue represents amounts received from the institutions for nights not yet provided. At December 31, 2018 and 2017 deferred access fee revenue totaled \$7,761,824 and \$8,310,268.

8. Net assets with donor restrictions:

Net assets with donor restrictions are restricted for the following purposes or periods.

	2018	2017
Subject to expenditure for specified purpose:		
Improvements and maintenance	\$ 2,432,080	\$ 1,863,389
Marketing	28,489	16,855
Exhibits, education and outreach, and other public programs	125,684	142,787
Research	1,092,773	1,393,469
Funds held in Trust U/W of Percival Lowell to be used for Observatory		
purposes	21,493,670	<u>28,452,867</u>
	<u>25,172,696</u>	<u>31,869,367</u>
Endowments:		
Earnings are subject to appropriation and expenditure for specified		
purposes:		
Exploration fund assets, subject to reversionary clause	62,184	68,596
Exploration fund assets, not subject to reversionary clause	1,508,653	1,508,211
Giovale endowed fund for astronomical research	465,066	500,000
Historic preservation fund, subject to reversionary clause	915	-

NOTES TO COMBINED FINANCIAL STATEMENTS (CONTINUED)

YEARS ENDED DECEMBER 31, 2018 AND 2017

8. Net assets with donor restrictions (continued):

	<u> 2018 </u>	<u> 2017 </u>
Historic preservation fund, not subject to reversionary clause	\$ 24,243	\$ -
Instrumentation fund, subject to reversionary clause	605,542	575,594
Instrumentation fund, not subject to reversionary clause	454	-
Marcus cometary research fund	301,045	233,068
Mars Hill fund, subject to reversionary clause	50,076	55,694
Mars Hill fund, not subject to reversionary clause	899	-
Millenium fund, subject to reversionary clause	1,852,213	2,065,340
Waddell fund, subject to reversionary clause	91,065	101,635
Young scholar fund	92,679	-
Fund for Observatory's mission, including operations	9,566	10,678
Total endowments	5,064,600	5,118,816
	\$ 30,237,296	<u>\$ 36,988,183</u>

Endowments:

In 2000, the Lowell Millennium Fund (the Fund) was created to be a perpetual fund for the benefit of the Observatory. While it was the intent of the donors who contributed to the Fund, that the Fund exist in perpetuity, the Observatory was given the flexibility to withdraw the principal of the Fund, if needed. The Observatory has transferred to the Foundation these assets along with certain other unrestricted funds it previously received from donors. By agreement between the Observatory and the Foundation, the Observatory can at any time compel the return of these unrestricted funds to the Observatory by written request. Because the Foundation is not able to spend these funds, they are recorded as perpetually restricted. At December 31, 2018 and 2017 these funds comprised 53% and 56% of the Foundation's perpetually restricted net assets.

The Organization's endowment consists of the Millennium Fund and nine other perpetually restricted funds. Investment earnings related to the endowed assets are restricted for prescribed operating purposes. Changes in endowment net assets for the year ended December 31, 2018 are as follows:

	Without donor restrictions		Vith donor estrictions	Total		
Endowment net assets, beginning	\$	-	\$ 5,118,816	\$	5,118,816	
Investment loss, net fees		_	(355,983)		(355,983)	
Contributions		-	467,872		467,872	
Distributions			 (166,105)		(166,105)	
	\$	<u>-</u>	\$ 5,064,600	\$	5,064,600	

NOTES TO COMBINED FINANCIAL STATEMENTS (CONTINUED)

YEARS ENDED DECEMBER 31, 2018 AND 2017

9. Endowments (continued):

Changes in endowment net assets for the year ended December 31, 2017 are as follows:

	Without donor restrictions		With donor restrictions	Total		
Endowment net assets, beginning	\$	(149,770)	\$ 3,437,848	\$	3,288,078	
Investment return, net fees		149,770	287,438		437,208	
Contributions		-	1,476,056		1,476,056	
Distributions			(82,526)		(82,526)	
Endowment net assets, ending	\$		\$ 5,118,816	\$	<u>5,118,816</u>	

Funds with deficiencies:

From time to time, certain donor-restricted endowment funds may have fair values less than the amount required to be maintained by donors or by law (underwater endowments). We have interpreted UPMIFA to permit spending from underwater endowments in accordance with prudent measures required under law. At December 31, 2018 and 2017, funds with original gift values of \$5,381,777 and \$4,913,905, fair values of \$5,064,601 and \$5,118,816, and deficiencies of \$317,176 and \$0 were reported in net assets with donor restrictions. These deficiencies were reported in net assets without donor restrictions and resulted from unfavorable market fluctuations that occurred after the investment of new permanently restricted contributions and continued appropriation for certain programs that was deemed prudent by the Board of Trustees.

Return objectives and risk parameters:

The Organization has adopted investment policies including those for endowment assets that attempt to preserve the capital, preserve the purchasing power, and achieve long-term growth of capital of the endowment assets. Endowment assets include those assets of donor-restricted funds that the organization must hold in perpetuity or for a donor-specified period(s). Under these policies all assets including endowment assets are invested in a manner that is intended to produce results that exceed various external benchmarks while assuming a moderate level of investment risk. Actual returns in any given year may vary from this amount.

Spending policy and how the investment objectives relate to spending policy:

The Trust and Foundation have spending policies in place whereby amounts are appropriated based on determination of certain criteria to include the preservation of the endowment corpus, consideration of economic conditions, effects of inflation and deflation and the expected return from income and appreciation of investments.

The spending policy over the Trust endowments utilizes a total return approach.

NOTES TO COMBINED FINANCIAL STATEMENTS (CONTINUED)

YEARS ENDED DECEMBER 31, 2018 AND 2017

9. Endowments (continued):

Spending policy and how the investment objectives relate to spending policy (continued):

The spending policy over the Foundation endowments also utilizes a total return approach, but provides for appropriations (currently a 4% rate annually) which may be made regardless of whether an Endowment Fund has sufficient current period and/or accumulated net investment returns but after taking into consideration the criteria specified above.

10. Donor commitments:

During 2018, The Organization received a donor commitment (the commitment) from The Steele Foundation (the donor) in the amount of \$250,000 for repurposing of the Steele Visitor Center into the Steele Learning Center. The donor has expressed their full intent to meet this commitment in a written letter to the Organization. The commitment is not considered a legal promise to give and therefore not recorded as a promise to give nor recognized as revenue at December 31, 2018.

11. Retirement plans:

The Organization has a contributory 403(b) retirement plan historically held at Teachers' Insurance and Annuity Association. The last contributions sent to TIAA were in December 2016. Beginning in December 2016, new contributions were sent to Mutual of America. In 2017, the plan documents were changed and eligible employees may voluntarily participate in the plan. The Observatory contributes 5% of gross earnings up to the Internal Revenue Service maximum allowable, when the employee contributes at least 5% of gross earnings. The Organization made contributions of \$275,523 and \$256,794 to the plan during the years ended December 31, 2018 and 2017.

12. Contingencies:

For the years ended December 31, 2018 and 2017, substantially all of the Organization's grant revenue and receivables are comprised of revenue derived from federal agencies. A significant reduction in the level of this support, if it were to occur, would have a material effect on the programs and activities of the Organization. The governmental funding is subject to compliance audits by the respective governmental agencies. Assessments from such audits, if any, are recorded when the amounts of such assessments are reasonably determinable.

NOTES TO COMBINED FINANCIAL STATEMENTS (CONTINUED)

YEARS ENDED DECEMBER 31, 2018 AND 2017

13. Statement of cash flows:

Supplemental disclosure of cash flow information:

Cash paid for interest was \$179,132 and \$642,985 for the years ended December 31, 2018 and 2017.

14. Subsequent events:

In February 2019, the Organization paid off their BNY line of credit balance using funds from the Trust investment account and subsequently drew down an amount of \$650,000 on the line of credit in the same month.

15. Reclassifications:

The 2017 financial statements have been reclassified in order to conform to the 2018 financial statement presentation. The reclassifications had no effect on net assets at December 31, 2017 or on the increase (decrease) in net assets for the year then ended.

16. Restatement:

The Organization has restated the 2017 combined financial statements presented to show \$626,788 of net transfers of assets between net assets with donor restrictions and net assets without donor restrictions that were not properly included as transfers in 2017. The restatement had no effect on total net assets at December 31, 2017 or on the increase in net assets for the year then ended.

17. Pending pronouncements:

In May 2014, the FASB issued ASU 2014-09 "Revenue from Contracts with Customers." ASU 2014-09 applies to contracts with customers, excluding, most notably, insurance and leasing contracts. ASU 2014-09 prescribes a framework in accounting for revenues from contracts within its scope, including (a) identifying the contract, (b) identifying the performance obligations under the contract, (c) determining the transaction price, (d) allocating the transaction price to the identified performance obligations and (e) recognizing revenues as the identified performance obligations are satisfied. ASU 2014-09 also prescribes additional financial statement presentations and disclosures. ASU 2014-09 is effective for reporting periods beginning after December 15, 2018, with early adoption permitted.

NOTES TO COMBINED FINANCIAL STATEMENTS (CONTINUED)

YEARS ENDED DECEMBER 31, 2018 AND 2017

17. Pending pronouncements (continued):

In February 2016, the FASB issued ASU 2016-02 "Leases." ASU 2016-02 requires a lessee to recognize in the statement of financial position a liability to make lease payments and a right-of-use asset representing its right to use the underlying asset for the lease term, along with additional qualitative and quantitative disclosures. ASU 2016-02 is effective for reporting periods beginning after December 15, 2019, with early adoption permitted.

Management is currently evaluating the effect that these standards will have on the financial statements.

COMBINING STATEMENT OF FINANCIAL POSITION

DECEMBER 31, 2018

ASSETS

	Ob	Lowell servatory and Trust		Lowell Observatory Foundation		Eliminating		Combined total
Current assets:								
Cash and cash equivalents	\$	210,694	\$	54,957	\$	-	\$	265,651
Restricted cash		165,994		40,184		-		206,178
Investments without donor restrictions		8,893		-		-		8,893
Grants receivable		360,146		-		-		360,146
Promises to give, current portion		1,264,176		1,550		-		1,265,726
Other current assets		338,617		150				338,767
Total current assets		2,348,520		96,841	_		_	2,445,361
Property and equipment, net		44,877,993		748,546		-		45,626,539
Due from related party		5,774,977		3,272,999		(9,047,976)		-
Promises to give, net of current portion		364,302		-		-		364,302
Collection item		400,000		-		-		400,000
Assets limited to use:		20 044 004		- 470 440				25 200 407
Investments with donor restrictions		20,811,991		5,178,116	_		_	25,990,107
		72,229,263		9,199,661	_	(9,047,976)	_	72,380,948
	<u>\$</u>	74,577,783	<u>\$</u>	9,296,502	<u>\$</u>	(9,047,976)	<u>\$</u>	74,826,309
Current liabilities: Accounts payable	SILIT \$	427,401	SSE1 \$	rs	\$	_	\$	427,401
Accounts payable Accrued expenses and other current liabilities	ڔ	90,636	Ų	_	Ą	_	ڔ	90,636
Due to related party		5,774,977		3,272,999		(9,047,976)		-
Total current liabilities		6,293,014		3,272,999	_	(9,047,976)	_	518,037
rotal current habilities		0,233,014		3,212,333		(3,047,370)		310,037
Note payable, bank		7,453,421		-		-		7,453,421
Deferred research grant revenue		85,454		-		-		85,454
Deferred access fee revenue		7,761,824			_	_		7,761,824
		21,593,713		3,272,999		(9,047,976)		15,818,736
Contingencies					_			
Net assets:								
Without donor restrictions:								
Without donor restrictions: Net invested in property and equipment		37,424,572		748,546		_		38,173,118
		37,424,572 (9,459,498)				-		38,173,118 (9,402,841)
Net invested in property and equipment				748,546	_	- - -		
Net invested in property and equipment		(9,459,498)		748,546 56,657		- - - -		(9,402,841)
Net invested in property and equipment Undesignated		(9,459,498) 27,965,074		748,546 56,657 805,203		- - - -		(9,402,841) 28,770,277

COMBINING STATEMENT OF ACTIVITIES

	Lowell Observatory and Trust		Lowell bservatory oundation	El	liminating	<u>Co</u>	ombined total
Revenues and support:							
Contracts with governmental and other agencies	\$ 3,649,780	\$	-	\$	-	\$	3,649,780
Telescope access fees	2,343,971		-		-		2,343,971
Contributions	3,659,445		1,051,591		-		4,711,036
Public program revenue	1,374,741		-		_		1,374,741
Investment loss, net	(1,567,284)		(363,486)		-		(1,930,770)
Other income	 69,684						69,684
	 9,530,337		688,105		_		10,218,442
Expenses:							
Program services:							
Research	4,108,652		-		-		4,108,652
Technology	4,157,008		-		-		4,157,008
Public programs	 2,099,779		<u></u>		-		2,099,779
	10,365,439	_	-				10,365,439
Support services:							
Management and general	1,063,343		6,270		-		1,069,613
Fundraising	 1,231,384		9,472				1,240,856
	 2,294,727		15,742				2,310,469
	 12,660,166		15,742		-		12,675,908
Increase (decrease) in net assets	\$ (3,129,829)	\$	672,363	\$		\$	(2,457,466)

SINGLE AUDIT REPORTS

SINGLE AUDIT REPORTS

YEAR ENDED DECEMBER 31, 2018

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INDEPENDENT AUDITORS' REPORT 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

Sole Trustee and Management Lowell Observatory Flagstaff, Arizona

We have audited, in accordance with the 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 Lowell Observatory (the Organization) which comprise the statement of financial position as of December 31, 2018, and the related statements of activities, functional expenses, and cash flows for the year then ended, and the related notes to the financial statements, and have issued our report thereon dated April 5, 2019.

Internal Control Over Financial Reporting

In planning and performing our audit of the financial statements, we considered the Organization'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 Organization's internal control. Accordingly, we do not express an opinion on the effectiveness of the Organization'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 combination of deficiencies, in internal control, such that there is a reasonable possibility that a material misstatement of the Organization'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 the 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 Organization'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 Organization'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 Organization's internal control and compliance. Accordingly this communication is not suitable for any other purpose.

Beach Fleischman PC

Phoenix, Arizona April 5, 2019



INDEPENDENT AUDITORS' REPORT ON COMPLIANCE FOR EACH MAJOR PROGRAM, ON INTERNAL CONTROL OVER COMPLIANCE, AND ON THE SCHEDULE OF EXPENDITURES OF FEDERAL AWARDS REQUIRED BY THE UNIFORM GUIDANCE

Sole Trustee and Management Lowell Observatory Flagstaff, Arizona

Report on Compliance for Each Major Federal Program

We have audited Lowell Observatory's (the Organization) 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 Organization's major federal programs for the year ended December 31, 2018. The Organization's major federal programs are identified in the summary of auditors' results section of the accompanying schedule of findings and questioned costs.

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 Organization'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 Organization'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 Organization's compliance.

Opinion on Each Major Federal Program

In our opinion, the Organization 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 December 31, 2018.

Report on Internal Control Over Compliance

Management of the Organization 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 Organization'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 circumstance 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 Organization'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 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.

Report on Schedule of Expenditures of Federal Awards Required by the Uniform Guidance

We have audited the financial statements of the Organization as of and for the year ended December 31, 2018, and have issued our report thereon dated April 5, 2019, which contained an unmodified opinion on those financial statements. 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 the Uniform Guidance and is not a required part of the financial statements. 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 in relation to the financial statements as a whole.

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.

Beach Fleischman PC

SCHEDULE OF EXPENDITURES OF FEDERAL AWARDS

Federal Grant/Pass-Through Grantor/ Program or Cluster Title	Grant number	Pass-through entity identifying number	Federal CFDA number	Passed through to subrecipients	Federal expenditures
Research and Development - Cluster					
National Aeronautics and Space Administration					
Science:					
Direct awards:					
NASA Headquarters	71084	NNX14AH32G	43.001	\$ -	\$ 13,736
NASA Headquarters	71093	NNX14AG81G	43.001	23,039	104,856
NASA Headquarters	71191	NNX09AB47G	43.001	-	(2,085)
NASA Headquarters	71452	NNX11AH46G	43.001	-	38,581
NASA Headquarters	81094	80NSSSC18K0856	43.001	33,307	166,357
NASA Headquarters	81200	NNX13AL02G	43.001	5,416	6,442
NASA Headquarters	81210	NNX16AQ02G	43.001	57,673	71,681
NASA Headquarters	81300	NNX14AG33G	43.001	-	384
NASA Headquarters	81310	80NSSC18K0987	43.001	3,329	33,453
NASA Headquarters	81320	80NSSC18K1687	43.001	-	13,224
NASA Headquarters	81400	NNX14AG32G	43.001	-	3,464
NASA Headquarters	81405	NNX17AF13G	43.001	-	8,482
NASA Headquarters	81415	NNX17AE64G	43.001	-	1,520
NASA Headquarters	81420	80NSSC18K0729	43.001	15,095	22,509
NASA Headquarters	81490	NNX16AJ51G	43.001	9,877	31,949
NASA Headquarters	81495	80NSSC18K0203	43.001	72,049	85,149
NASA Headquarters	81502	NNX17AH06G	43.001	101,732	252,258
NASA Headquarters	81505	NNX16AG52G	43.001	-	146,050
NASA Headquarters	81509	NNX16AK68G	43.001	-	23,003
NASA Goddard Space Flight Center	81510	NNX16AD56G	43.001	-	84
NASA Headquarters	81520	NNX15AJ82G	43.001	63,520	98,604
Total direct NASA				385,037	1,119,701
Pass-through awards:					
NASA JPL/CalTech	82402	RSA 1580984	43.001	-	1,130
NASA JPL/CalTech	82415	RSA 1610345	43.001	-	477
NASA JPL/CalTech	82802	RSA 1523106	43.001	-	12,708
NASA JPL/CalTech	82805	RSA 1580392	43.001	-	9,771
Space Telescope Science Institute	73705	HST-GO-13781.001-A	43.001	-	21,164
Space Telescope Science Institute	73706	HST-GO-14707.001-A	43.001	-	938
Space Telescope Science Institute	73816	HST-GO-13031.001-A	43.001	-	(774)
Space Telescope Science Institute	73817	HST-GO-13692.001-A	43.001	-	62,584
Space Telescope Science Institute	73819	HST-GO-13667.007-A	43.001	-	14,161
Space Telescope Science Institute	73820	HST-AR-14581.002-A	43.001	-	(361)
Space Telescope Science Institute	73821	HST-GO-14928.004-A	43.001	-	6,928
Space Telescope Science Institute	73822	HST-GO-15207.005-A	43.001	-	222
Space Telescope Science Institute	73823	HST-GO-15233.001-A	43.001	-	2,876
Space Telescope Science Institute	73825	HST-GO-15144.004-A	43.001	-	401
Space Telescope Science Institute	73826	HST-GO-15142.003-A	43.001	-	502
Space Telescope Science Institute	73844	HST-GO-14133.002-A	43.001	-	5,697
Space Telescope Science Institute	73851	HST-GO-13404.001-A	43.001	-	(2,944)
Space Telescope Science Institute	73854	HST-GO-13364.022-A	43.001	-	226
Space Telescope Science Institute	73855	HST-EO-13404.001-A	43.001	-	70

SCHEDULE OF EXPENDITURES OF FEDERAL AWARDS (CONTINUED)

Federal Grant/Pass-Through Grantor/ Program or Cluster Title	Grant number	Pass-through entity identifying number	Federal CFDA number	Passed through to subrecipients	Federal expenditures
Research and Development - Cluster (continued)					
Space Telescope Science Institute	73865	HST-GO-13777.003-A	43.001	\$ -	\$ (637)
Space Telescope Science Institute	73866	HST-GO-15170.002-A	43.001	-	5,775
Space Telescope Science Institute	73875	HST-GO-14794.003-A	43.001	-	2,447
Boston University	78310	4500002707	43.001	-	7,163
Massachusetts Institute of Technology	78500	#510003705	43.001	-	8,161
Johns Hopkins Applied Physics Lab	78502	#128572	43.001	-	4,232
Southwest Research Institute	78415	#K99090JRG	43.001	-	7,306
Southwest Research Institute	78420	#K99058JRG	43.001	-	8,981
Southwest Research Institute	78425	#K99038MEC	43.001	-	5,508
Southwest Research Institute	78431	#278981Q	43.001	-	80,605
Planetary Science Institute	78440 78445	#1374 #1437	43.001	-	2,531
Planetary Science Institute	78443	#145/	43.001		1,002
Total pass-through NASA					268,850
Total - NASA				385,037	1,388,551
National Science Foundation Mathematical and Physical Sciences:					
Direct awards:					
National Science Foundation	74803	AST-1411563	47.049	17,664	28,602
National Science Foundation	74804	AST-1518081	47.049	-	89,278
National Science Foundation	83010	AST-1738032	47.049	-	18,166
National Science Foundation	83011	AST-1831063	47.049	-	64,348
National Science Foundation	83050	AST-1734484	47.049	-	55,037
National Science Foundation	83090	AST-1616084	47.049	71,522	150,051
National Science Foundation	83116	AST-1612874	47.049		211,202
Total direct National Science Foundation				89,186	616,684
Pass-through awards:					
New Mexico Institute of Mining and Technology	83200	SRIS10	47.049	-	7,039
American Association of Variable Star Observers	78300	#1412587-01	47.049	-	20,573
Southwest Research Institute	78435	#H99010HP	47.049	-	8,700
Southwest Research Institute	78436	#L99001JRG	47.049	-	1,505
Northern Arizona University	83205	#1001999-01	47.049	_	15,470
Total pass-through National Science Foundat	ion			-	53,287
Total National Science Foundation				89,186	669,971

SCHEDULE OF EXPENDITURES OF FEDERAL AWARDS (CONTINUED)

Federal Grant/Pass-Through Grantor/ Program or Cluster Title Research and Development - Cluster (continued)	Grant number	Pass-through entity identifying number	Federal CFDA number	Passed through to subrecipients	Federal expenditures
Department of Defense					
Basic and Applied Scientific Research:					
Direct awards:					
Naval Research Laboratory	75115, 75120	N00173-16-2-C904	12.300	\$ -	\$ 1,564,825
Total Department of Defense					1,564,825
Total Research and Development - Cluster				474,223	3,623,347
Total expenditures of federal awards				\$ 474,223	\$ 3,623,347

NOTES TO SCHEDULE OF EXPENDITURES OF FEDERAL AWARDS

YEAR ENDED DECEMBER 31, 2018

1. Basis of presentation:

The accompanying Schedule of Expenditures of Federal Awards (the Schedule) includes the federal award activity of Lowell Observatory (the Organization) under programs of the federal government for the year ended December 31, 2018. The information in the Schedule is presented 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)*. Because the Schedule presents only a selected portion of the operations of Lowell Observatory, it is not intended to and does not present the financial position, changes in net assets or cash flows of the Organization.

2. Summary of significant accounting policies:

Expenditures reported on the Schedule are reported on the accrual basis of accounting. Such expenditures are recognized following the cost principles contained in the Uniform Guidance, wherein certain types of expenditures are not allowable or are limited as to reimbursement.

The Organization has not elected to use the ten percent de minimis indirect cost rate as allowed under the Uniform Guidance.

3. Catalog of Federal Domestic Assistance (CFDA) Numbers:

The program titles and CFDA numbers or federal identification numbers were obtained from the federal or pass-through grantor or the update to the *Catalog of Federal Domestic Assistance*.

SCHEDULE OF FINDINGS AND QUESTIONED COSTS

YEAR ENDED DECEMBER 31, 2018

SUMMARY OF AUDITORS' RESULTS

Financial Statements	
The auditors' report expressed an unmodified opinion on the final	ancial statements of Lowell Observatory.
Internal control over financial reporting:	
Material weakness(es) identified?	Yes <u>X</u> No
Significant deficiency(ies) identified?	Yes <u>X</u> No Yes <u>X</u> No
Noncompliance material to financial statements noted?	Yes <u>X</u> No
Federal Awards	
Internal control over major federal programs:	
Material weakness(es) identified?	Yes <u>X</u> No Yes <u>X</u> No
Significant deficiency(ies) identified?	Yes <u>X</u> No
The auditors' report on compliance for the major federal awar unmodified opinion on its major programs.	ards program of Lowell Observatory expressed an
Audit findings disclosed that are required to be reported in accor	dance with 2 CFR 200.516(a):
	YesX_ No
Identification of major federal programs:	
Research and Development Cluster:	
Science	CFDA 43.001
Mathematical and Physical Sciences	CFDA 47.049
Basic and Applied Scientific Research	CFDA 12.300
Dollar threshold used to distinguish between Type A and Type B I	programs: <u>\$750,000</u>
Auditee qualified as a low-risk auditee?	X YesNo

SCHEDULE OF FINDINGS AND QUESTIONED COSTS (CONTINUED)

YEAR ENDED DECEMBER 31, 2018

FINDINGS - FINANCIAL STATEMENT AUDIT

None

SCHEDULE OF FINDINGS AND QUESTIONED COSTS (CONTINUED)

YEAR ENDED DECEMBER 31, 2018

FINDINGS AND QUESTIONED COSTS - MAJOR FEDERAL AWARD PROGRAMS AUDIT

None

SUMMARY SCHEDULE OF PRIOR YEAR FINDINGS

YEAR ENDED DECEMBER 31, 2018

None