Association of Universities for Research in Astronomy, Inc.

Financial Statements (With Supplementary Information) and Independent Auditor's Report

September 30, 2022 and 2021

CohnReznick
ADVISORY • ASSURANCE • TAX

Association of Universities for Research in Astronomy, Inc.

Index

Independent Auditor's Report

To the Board of Directors
Association of Universities for Research in Astronomy, Inc.

Report on the Audit of the Financial Statements

Opinion

We have audited the financial statements of the Association of Universities for Research in Astronomy, Inc. ("AURA"), which comprise the statements of financial position as of September 30, 2022 and 2021, and the related statements of activities, and cash flows for the years then ended, and the related notes to the financial statements.

In our opinion, the accompanying financial statements present fairly, in all material respects, the financial position of the Association of Universities for Research in Astronomy, Inc. as of September 30, 2022 and 2021, 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.

Basis for Opinion

We conducted our audits in accordance with auditing standards generally accepted in the United States of America ("GAAS") and the standards applicable to financial audits contained in *Government Auditing Standards,* issued by the Comptroller General of the United States. Our responsibilities under those standards are further described in the Auditor's Responsibilities for the Audit of the Financial Statements section of our report. We are required to be independent of the Association of Universities for Research in Astronomy, Inc. and to meet our other ethical responsibilities, in accordance with the relevant ethical requirements relating to our audits. We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our audit opinion.

Responsibilities of Management 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, and for 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.

In preparing the financial statements, management is required to evaluate whether there are conditions or events, considered in the aggregate, that raise substantial doubt about the Association of Universities for Research in Astronomy, Inc.'s ability to continue as a going concern for one year after the date that the financial statements are available to be issued.

Auditor's Responsibilities for the Audit of the Financial Statements

Our objectives are to obtain reasonable assurance about whether the financial statements as a whole are free from material misstatement, whether due to fraud or error, and to issue an auditor's report that includes our opinion. Reasonable assurance is a high level of assurance but is not absolute assurance and therefore is not a guarantee that an audit conducted in accordance with GAAS and *Government Auditing Standards* will always detect a material misstatement when it exists. The risk of not detecting a material misstatement resulting from fraud is higher than for one resulting from error, as fraud may involve collusion, forgery, intentional omissions, misrepresentations, or the override of internal control. Misstatements are considered material if there is a substantial likelihood that, individually or in the aggregate, they would influence the judgment made by a reasonable user based on the financial statements.

In performing an audit in accordance with GAAS and *Government Auditing Standards*, we:

- Exercise professional judgment and maintain professional skepticism throughout the audit.
- Identify and assess the risks of material misstatement of the financial statements, whether due to fraud or error, and design and perform audit procedures responsive to those risks. Such procedures include examining, on a test basis, evidence regarding the amounts and disclosures in the financial statements.
- Obtain an understanding of internal control relevant to the audit 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 Association of Universities for Research in Astronomy, Inc.'s internal control. Accordingly, no such opinion is expressed.
- Evaluate the appropriateness of accounting policies used and the reasonableness of significant accounting estimates made by management, as well as evaluate the overall presentation of the financial statements.
- Conclude whether, in our judgment, there are conditions or events, considered in the aggregate, that raise substantial doubt about the Association of Universities for Research in Astronomy, Inc.'s ability to continue as a going concern for a reasonable period of time.

We are required to communicate with those charged with governance regarding, among other matters, the planned scope and timing of the audit, significant audit findings, and certain internal control-related matters that we identified during the audits.

Report on Supplementary Information

Our audits were conducted for the purpose of forming an opinion on the financial statements as a whole. The accompanying schedules of property owned by the United States of America - NSF are presented for purposes of additional analysis of Association of Universities for Research in Astronomy, Inc. and are 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 audits 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 information is fairly stated in all material respects in relation to the financial statements as a whole.

The information within the disclosures of property owned by the United States of America - NASA is presented for purposes of additional analysis and is not a required part of the basic financial statements. Such information has not been subjected to the auditing procedures applied in the audits of the basic financial statements and, accordingly, we express no opinion or any other form of assurance on it.

Other Reporting Required by *Government Auditing Standards*

In accordance with *Government Auditing Standards*, we have also issued a report dated May 3, 2023, on our consideration of the Association of Universities for Research in Astronomy, Inc.'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 the Association of Universities for Research in Astronomy, Inc.'s 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 Association of Universities for Research in Astronomy, Inc.'s internal control over financial reporting and compliance.

CohnReznick LLP

Bethesda, Maryland
May 3, 2023

Association of Universities for Research in Astronomy, Inc.

Statements of Financial Position
September 30, 2022 and 2021
(Amounts in Thousands)

Assets

	2022	2021
Cash and cash equivalents (Note 3)	$ 33,664	$ 32,252
Assets held for others (Note 4)	28,571	29,677
Investments (Notes 6 and 7)	28,973	27,193
Accounts receivable	9,105	15,318
Awards/contracts receivable	2,017	4,624
Inventories and other assets	4,590	5,025
Prepaid postretirement benefit obligation (Note 9)	411	-
Property and equipment, net (Note 8)	1,395	2,633
Total assets	$ 108,726	$ 116,722

Liabilities and Net Assets

	2022	2021
Liabilities		
Payables and accrued expenses	$ 21,824	$ 23,000
Accrued vacation and postemployment benefits	25,267	25,108
Deferred award/contract revenues	30,751	32,691
Assets held for others (Note 4)	28,571	29,677
Accrued postretirement benefit obligation (Note 9)	-	2,010
Total liabilities	106,413	112,486
Net assets (Note 10)		
Without donor restrictions	1,947	3,838
With donor restrictions	366	398
Total net assets	2,313	4,236
Total liabilities and net assets	$ 108,726	$ 116,722

See Notes to Financial Statements.

Association of Universities for Research in Astronomy, Inc.

Statements of Activities
Years Ended September 30, 2022 and 2021
(Amounts in Thousands)

	2022	2021
Revenues, gains and other support		
Changes in net assets without donor restrictions		
National Science Foundation - Cooperative Agreements		
Research activity (Note 3)	$ 154,130	$ 145,538
National Aeronautics and Space Administration - prime		
Research activity (Note 3)	196,716	180,557
Other awards and contracts		
Other federal awards and contracts	14,827	16,632
Other nonfederal awards and contracts	9,289	8,283
Net investment (loss) income (Note 6)	(706)	288
Other income	4,445	4,281
Net assets released from restriction	32	-
Total revenues, gains, and other support without donor restrictions	378,733	355,579
Expenses (Note 11)		
Program expenses - Research activity	345,789	321,519
Management and general	36,880	31,895
Total expenses	382,669	353,414
Change in net assets without donor restrictions before other changes	(3,936)	2,165
Other changes (Note 9)		
Net periodic postretirement benefit credit other than service cost	1,937	1,200
Total postretirement changes other than net periodic benefit cost	108	5,995
Total other changes	2,045	7,195
Change in net assets without donor restrictions	(1,891)	9,360
Changes in net assets with donor restrictions		
Contributions	-	345
Net assets released from restrictions	(32)	-
Change in net assets with donor restrictions	(32)	345
Change in net assets	(1,923)	9,705
Net assets (deficit) at beginning of year	4,236	(5,469)
Net assets at end of year	$ 2,313	$ 4,236

See Notes to Financial Statements.

Association of Universities for Research in Astronomy, Inc.

Statements of Cash Flows
Years Ended September 30, 2022 and 2021
(Amounts in Thousands)

	2022	2021
Cash flows from operating activities		
Change in net assets	$ (1,923)	$ 9,705
Adjustments to reconcile the change in net assets to net cash provided by operating activities		
Depreciation and amortization	1,357	1,394
Realized and unrealized losses on investments, net	1,590	200
Increase (decrease) in cash resulting from changes in		
Accounts receivable	6,213	(5,005)
Awards/contracts receivable	2,607	3,742
Inventories and other assets	435	(509)
Payables and accrued expenses	(1,176)	(393)
Accrued vacation and post employment benefits	159	1,922
Deferred award/contract revenues	(1,940)	9,658
Prepaid/accrued postretirement benefit obligation	(2,421)	(8,033)
Net cash provided by operating activities	4,901	12,681
Cash flows from investing activities		
Purchases of property and equipment	(119)	(573)
Proceeds from sales of investments	25,076	17,386
Purchases of investments	(28,446)	(27,100)
Net cash used in investing activities	(3,489)	(10,287)
Net increase in cash and cash equivalents	1,412	2,394
Cash and cash equivalents at beginning of year	32,252	29,858
Cash and cash equivalents at end of year	$ 33,664	$ 32,252

See Notes to Financial Statements.

Note 1 - Organization and operations

The Association of Universities for Research in Astronomy, Inc. ("AURA") is an Arizona nonprofit corporation incorporated on October 28, 1957. AURA is a consortium of member United States ("U.S.") universities and international affiliates engaged in constructing, operating, and maintaining astronomical research centers.

Member universities as of September 30, 2022, were as follows:

Boston University
California Institute of Technology
Carnegie Institution for Science
Carnegie Mellon University
Cornell University
Fisk University
Georgia State University
Harvard University
Indiana University
Iowa State University
Johns Hopkins University
Keck Northeast Astronomy Consortium
Massachusetts Institute of Technology
Michigan State University
Montana State University
New Jersey Institute of Technology
New Mexico Institute of Mining and Technology
New Mexico State University
Ohio State University
Pennsylvania State University
Princeton University
Rutgers University
Smithsonian Astrophysical Observatory
Stanford University
Stony Brook University
Texas A&M University
University of Arizona
University of California at Berkeley
University of California at Santa Cruz
University of Chicago
University of Colorado
University of Florida
University of Hawaii
University of Illinois at Urbana-Champaign
University of Maryland
University of Michigan
University of Minnesota
University of North Carolina at Chapel Hill
University of Pittsburgh
University of Texas at Austin
University of Texas at San Antonio
University of Toledo
University of Virginia
University of Washington
University of Wisconsin-Madison
Vanderbilt University
Yale University

International affiliates as of September 30, 2022, were as follows:

Leibniz-Institut für Sonnenphysik (KIS)
Pontificia Universidad Catolica de Chile
Universidad de Chile

(Amounts in Thousands)

AURA operates the NSF's National Optical Infrared Astronomy Laboratory ("NOIRLab"), the National Solar Observatory ("NSO"), and the Vera C. Rubin Observatory Construction ("Rubin Construction" or "LSSTPO") under cooperative agreements with the National Science Foundation ("NSF"). AURA also operates the Space Telescope Project ("STScI") under an agreement with the National Aeronautics and Space Administration ("NASA"). These federal agreements are dependent on annual Congressional appropriations and are summarized as follows:

Center	Agreement	Expiration Date
NOIRLab	NSF Cooperative Agreement AST-1546092	September 30, 2024
NSO	NSF Cooperative Agreement AST-0946422	September 30, 2024
LSSTPO	NSF Cooperative Agreement AST-1258333	December 31, 2023
STScI	NASA Contract NAS5-26555	June 30, 2026
STScI	NASA Contract NAS5-03127	April 30, 2023
STScI	NASA Contract 80GSFC19C0054	February 15, 2023

Performance of work under U.S. federal awards may be terminated whenever the sponsoring government agency shall determine that such termination is in the best interest of the U.S. government. Funding under all federal awards is subject to availability of funding as determined by the U.S. Congress. AURA's management is unaware of any significant changes to the federal agreements in the upcoming year that will significantly impact AURA's cash flow and its ability to pay current obligations as they become due.

Note 2 - Summary of significant accounting policies

Basis of accounting and presentation

The financial statements of AURA are presented on the accrual basis of accounting and, accordingly, reflect receivables, payables, other liabilities, and net assets.

AURA's financial statements report resources in separate classes of net assets based on the existence or absence of donor or grantor-imposed restrictions. In the accompanying financial statements, net assets are classified and reported as follows:

Net assets without donor restrictions - Net assets that are not subject to donor or grantor-imposed stipulations. Net assets without donor restrictions may be designated for specific purposes by action of the board of directors or may otherwise be limited by contractual agreements with outside parties.

Net assets with donor restrictions - Net assets whose use by AURA are subject to donor or grantor-imposed stipulations that can be fulfilled by actions of AURA pursuant to those stipulations or that expire by the passage of time, or net assets subject to donor or grantor imposed restrictions that must be maintained in perpetuity by AURA.

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 a number of estimates and assumptions that affect the reported amounts of assets, liabilities, and net assets and disclosure of contingent assets and liabilities as of the date of the financial statements and the reported amounts of revenues, gains, and other support, and expenses and losses during the reporting period. Actual results could differ from those estimates.

Cash and cash equivalents
AURA considers all highly liquid investments used to fund current obligations with a maturity at date of purchase of three months or less to be cash equivalents in the accompanying statements of financial position and statements of cash flows.

Investments
Investments are reported at fair value. Fair value is the price that would be received to sell an asset or paid to transfer a liability in an orderly transaction between market participants at the measurement date. Additional information is presented in Note 7.

Purchases and sales of securities are recorded on a trade-date basis. Interest income is recorded on the accrual basis. Net appreciation or depreciation in fair value of investments includes the AURA's gains and losses on investments bought and sold as well as held during the year. Investment income or loss is included in the change in net assets without donor restriction unless their use is restricted by donor stipulations or by law.

Fair value of financial instruments
Financial instruments in the form of cash, accounts receivable, and accounts payable are carried at cost, which approximated fair value as of September 30, 2022 and 2021, due to the relatively short maturity of these instruments. Additional information is presented in Note 7.

Accounts receivable and awards/contracts receivable
Awards/contracts receivable consist of amounts owed to AURA from the federal government based on costs incurred but not yet reimbursed under federal prime grants, contracts, and cooperative agreements. Accounts receivable represents cost incurred but not yet reimbursed for other awards and contracts. No allowance is established for these receivables. Management considers the accounts fully collectible.

Inventories
Inventories consist primarily of electronic parts inventories and are carried at the lower of cost or market. Cost is determined on the weighted average basis.

Property and equipment
Property acquired with noncontract funds or funds without donor restriction is titled to AURA without restriction and is recorded at cost. Donated items are recorded at their estimated fair market value when received. AURA reviews long-lived assets for impairment when indicators of impairment are present and the net undiscounted cash flows estimated to be generated by those assets are less than the assets' carrying amounts. AURA's capitalization threshold is $5.

(Amounts in Thousands)

Depreciation is calculated using the straight-line method over estimated useful lives as follows:

Buildings and improvements	40 years
Telescopes	50 years
Instruments	25 years
Equipment and vehicles	5 years
Leasehold improvements	5 years

Equipment held under capital lease is amortized over the shorter of the lease term or the asset life. AURA had no capital leases as of September 30, 2022 and 2021.

Property acquired under the terms of the NSF and NASA agreements is owned by the United States Government. Based on the required logistics of operations, title to certain property is in the name of AURA, but is subject to the right of NSF to designate terms and conditions of disposal. Accordingly, such property is not reflected in the accompanying financial statements of AURA.

Accrued vacation and postemployment benefits

Effective October 1, 2018, in agreement with the NSF, vacation leave under all NSF agreements is accrued and funded when earned by the employee. Prior to October 1, 2018, certain NSF agreements funded vacation benefits as the leave was taken, not as the leave was earned. Revenues for these unfunded accrued vacation liabilities was recognized consistent with NSF's Pay-as-you-go arrangement resulting in an accumulated unfunded accrued leave liability at September 30, 2018.

Postemployment benefits are mandatory severance payments ("finiquitos") required by contract and Chilean law that are earned based on years of service. Prior to October 1, 2018, one NSF agreement funded finiquitos at the time the benefit is paid. Under this agreement, the finiquitos expense and corresponding revenue were recorded at the time the benefit was paid. It is management's opinion, based on the advice of legal counsel, that the liability for these benefits has been the responsibility of the NSF and as such no liability under this agreement was recorded in the financial statements as of September 30, 2018.

In agreement with the NSF, effective October 1, 2018, NSF will fund the historical accumulated accrued leave and unrecorded finiquito benefits liabilities on an amortized basis over 15 years to resolve these unfunded liabilities. The total remaining unrecorded finiquitos liability as of September 30, 2022 and 2021 was $2,233 and $2,443, respectively.

Effective October 1, 2018, all NSF agreements fund finiquitos benefits as earned over the employees' years of service. The finiquitos expense and corresponding revenue are recorded as the benefits are earned. The finiquitos liability under these agreements, including the amortized portion of the previously unrecorded finiquitos liability, is recorded under accrued vacation and postemployment benefits on the statements of financial position. The total finiquitos liability accrued as of September 30, 2022 and 2021 was $4,231 and $4,668, respectively.

Revenue and deferred revenue recognition

Awards and contracts

Cooperative agreements awarded by NSF and certain other federal and nonfederal awards and contracts, which are generally considered nonreciprocal transactions restricted by sponsors for certain purposes, are recognized as revenue when qualifying reimbursable expenses have been incurred and conditions under the agreements are met. AURA has elected the simultaneous release policy available for donor-restricted contributions that were initially conditional contributions, which allows a not-for-profit organization to recognize a restricted contribution directly in net assets without donor restrictions if the restriction is met in the same period that the revenue is recognized. The excess of cash advances over recognized revenues is recorded as deferred award/contract revenues.

(Amounts in Thousands)

The percentage of awards considered exchange transactions for the years ended September 30, 2022 and 2021, respectively, were as follows:

	2022	2021
NSF - cooperative agreements	0%	0%
NASA - prime contracts	100%	100%
Other federal awards and contracts	37%	42%
Other nonfederal awards and contracts	100%	100%

For contracts treated as exchange transactions, AURA has the right to consideration from the sponsoring organization in an amount that corresponds directly with the value to the sponsoring organization of AURA's performance completed to date (costs incurred). For these agreements, AURA recognizes revenue in the amount to which AURA has the right to invoice.

For cooperative agreements, awards and contracts treated as nonreciprocal transactions, AURA estimates that its conditional awards outstanding at September 30, 2022 approximate historical annual sponsored program activity. The revenue related to these awards is conditioned on incurring allowable expenditures under the terms of the respective agreements.

Other income
Other income is comprised of revenue recognized for fees generated from the use of AURA housing and lodging provided to visiting scientists, visitor center, and other miscellaneous revenues. Other income is recognized as services are rendered or over the term of the contract and invoiced based on contractual terms.

Income taxes
AURA has been recognized by the Internal Revenue Service ("IRS") as a 501(c) (3) organization exempt from federal income taxes under Internal Revenue Service Code ("IRC") Section 501(a). AURA follows the income tax standard for uncertain tax positions. Management believes it has no material uncertain tax positions or any related penalties and interest to accrue for the years ended September 30, 2022 and 2021, and, accordingly, there is no liability for unrecognized tax benefits. Tax years prior to 2019 are no longer subject to examination by the Internal Revenue Service or the applicable state jurisdictions.

Foreign currency
Expenditures related to AURA operations in Chile are reimbursed by NSF based on the amount of U.S. dollars ("USD") paid. These financial statements are presented in USD, which is AURA's presentation currency. Transactions denominated in foreign currencies are initially recorded at the rates of exchange prevailing on the dates of the transactions. Monetary and nonmonetary assets and liabilities denominated in such currencies are revalued at the rates prevailing on the statement of financial position date. Foreign currency exchange differences arising on revaluation are recognized in the statements of activities.

Postretirement benefits

AURA accrues the postretirement benefit obligation when incurred. The portion of this obligation that has been recognized as a component of net periodic benefit cost is funded and the corresponding revenue has been recognized in the accompanying financial statements. See Note 9.

Certain NSF agreements fund postretirement benefits at the time the benefit is paid. For these agreements it is management's opinion, based on the advice of legal counsel, that the accumulated postretirement benefit obligation is the responsibility of the NSF and as such the obligation has not been recorded in the financial statements. Expense and corresponding revenue for these postretirement benefits are recognized consistent with NSF's pay-as-you go funding arrangement. See Note 12.

New accounting pronouncements

Accounting Standards Update 2020-07, Presentation and Disclosures by Not-for-Profits Entities for Contributed Nonfinancial Assets

In September 2020, the Financial Accounting Standards Board ("FASB") issued Accounting Standards Update ("ASU") 2020-07, Not-for-Profit Entities (Topic 958): *Presentation and Disclosures by Not-for-Profits Entities for Contributed Nonfinancial Assets* to increase the transparency of contributed nonfinancial assets for not-for-profit entities through enhancements to presentation and disclosure. AURA adopted ASU 2020-07 on a retrospective basis for the year ended September 30, 2022. The adoption of this ASU had no impact on the amounts previously recognized in the financial statements.

ASU 2020-05, *Leases (Topic 842) Effective for Certain Entities*

In June 2020, FASB issued ASU 2020-05, which provided an optional one-year deferral of the effective date of *Leases (Topic 842)*. Topic 842 requires recognition of rights and obligations arising from leases contracts as assets and liabilities on the statements of financial position and is effective for AURA in fiscal year 2023. AURA is evaluating the effect that leases under Topic 842 will have on its financial statements and related disclosures.

Note 3 - Concentrations of risk

AURA's financial instruments that are exposed to concentrations of credit risk consist primarily of cash, investments, awards/contracts receivable, and revenues.

AURA maintains its cash balances at several financial institutions which, at times, may exceed federally insured limits. Total cash deposits held at financial institutions subject to federally insured limits were $33,362 and $32,149, as of September 30, 2022 and 2021, respectively. AURA also maintains balances in foreign banks which are used to fund current operations. Foreign deposits, which are uninsured, amounted to $2,074 and $2,488 as of September 30, 2022 and 2021, respectively.

Awards/contracts receivable as of September 30, 2022 and 2021, are primarily due from the NSF and NASA. Revenues without donor restrictions for research under the primary contracts with these entities totaled approximately $350,846 and $326,095 for the years ended September 30, 2022 and 2021, respectively. Other contract funds also include revenues without donor restrictions from the NSF and NASA.

(Amounts in Thousands)

Note 4 - Assets held for others

AURA holds custody of assets for Agencia Nacional de Investigacion y Desarrollo ("ANID"), the Small and Moderate Aperture Research Telescope System 2 project, AURA's 457 (b) deferred compensation trust, AURA's rabbi trust, property for the U.S. Department of Energy named the Dark Energy Camera ("DECAM"), and equipment for the Chinese Academy of Science, South America Center for Astronomy ("CASSACA"). These assets held for others is to facilitate and in support of the science community. As of September 30, 2022 and 2021, total assets held for others and related liabilities are comprised of the following:

	2022	2021
Cash and cash equivalents	$ 1,502	$ 1,464
Investments (Note 7)	10,993	12,137
Property and equipment	16,076	16,076
Total assets held for others	$ 28,571	$ 29,677

Note 5 - Liquidity and availability of financial assets

Financial assets available within one year of the statements of financial position as of September 30, 2022 and 2021 for general expenditure are as follows:

	2022	2021
Financial assets, at year end		
Cash and cash equivalents	$ 33,664	$ 32,252
Assets held for others (cash and cash equivalents and investments)	12,495	13,601
Investments	28,973	27,193
Accounts receivable	9,105	15,318
Awards/contracts receivable	2,017	4,624
	86,254	92,988
Less		
Assets held for others (Note 4):		
Cash and cash equivalents	(1,502)	(1,464)
Investments held for others (Note 7)	(10,993)	(12,137)
Funds restricted by grantor with purpose restrictions	(366)	(398)
	(12,861)	(13,999)
Financial assets available to meet cash needs for general expenditures within one year	$ 73,393	$ 78,989

AURA is substantially supported by cost reimbursable or pay-as-you-go agreements with the NSF and NASA, which include indirect cost recovery. As part of liquidity management, AURA has a policy to structure its financial assets to be available as its general expenditures, liabilities, and other obligations come due. In addition, AURA invests cash in excess of daily requirements in short-term investments.

(Amounts in Thousands)

Note 6 - Investments

AURA invests in various investment securities. Investment securities are exposed to various risks such as interest rate, market, and credit risks. Due to the level of risk associated with certain investment securities, it is at least reasonably possible that changes in the values of investment securities will occur in the near term and those changes could materially affect the amounts reported in the statements of financial position.

AURA investment (loss) income consisted of the following for the years ended September 30, 2022 and 2021:

	2022	2021
Interest	$ 884	$ 488
Net realized and unrealized losses	(1,590)	(200)
Total investment (loss) income	$ (706)	$ 288

Note 7 - Fair value measurements

Fair value is defined as the exchange price that would be received for an asset or paid to transfer a liability (an exit price) in the principal or most advantageous market for the asset or liability in an orderly transaction between market participants on the measurement date. The fair value measurements maximize the use of observable inputs and minimize the use of unobservable inputs when measuring fair value. The standard describes three levels of inputs that may be used to measure fair value:

Level 1 - Inputs that reflect unadjusted quoted prices in active markets for identical assets or liabilities that AURA has the ability to access at the measurement date.

Level 2 - Observable inputs other than Level 1 prices such as quoted prices for similar assets or liabilities; quoted prices in markets that are not active; or other inputs that are observable or can be corroborated by observable market data for substantially the full term of the assets or liabilities.

Level 3 - Inputs that are unobservable and supported by little or no market activity and that are significant to the fair value of the assets or liabilities.

The asset'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. Valuation techniques used need to maximize the use of observable inputs and minimize the use of unobservable inputs. In determining the appropriate levels, AURA performs a detailed analysis of the assets and liabilities that are subject to the Fair Value Topic. At each reporting period, all assets and liabilities for which the fair value measurement is based on significant unobservable inputs are classified as Level 3. AURA had no level 3 inputs as of September 30, 2022 and 2021. There have been no changes in the valuation methodologies used during the current year. All assets have been valued using a market approach.

Following is a description of the valuation methodologies used for assets measured at fair value.

Fixed income securities: AURA's fixed maturity investments include certificate of deposits, U.S. Treasury securities, mutual funds, and bonds. Other than U.S. Treasury securities and mutual funds, these investments generally do not trade on a daily basis. The fair value estimates of such securities are based on prices provided by AURA's investment managers and custodian bank. These investments are traded in secondary markets and are typically valued using unadjusted vendor prices. These prices are reviewed and may be adjusted using quoted market prices for similar securities if determined necessary. Certificate of deposits are valued using rates currently offered for deposits of similar remaining maturities. AURA fixed income securities have no restrictions or unfunded commitments.

Equity and other investments: AURA's equity and other investments securities include equity securities and mutual funds. These securities are actively traded on major trade exchanges and valued at daily closing price.

(Amounts in Thousands)

The following tables present AURA's investments measured at fair value by classification within the fair value hierarchy as of September 30, 2022 and 2021:

	2022		
	Level 1	Level 2	Total fair value
Fixed income			
Money market	$ 216	$ -	$ 216
Certificates of deposit	-	209	209
U.S. treasury bills	-	4,908	4,908
Fixed income - mutual funds	109	-	109
Government bonds	-	5,466	5,466
Corporate and foreign bonds	-	17,010	17,010
Total fixed income	325	27,593	27,918
Equity and other investments			
U.S. equity	709	-	709
Non-U.S. equity	346	-	346
Total equity and other investments	1,055	-	1,055
Total investments	$ 1,380	$ 27,593	$ 28,973

	2021		
	Level 1	Level 2	Total fair value
Fixed income			
Money market	$ 231	$ -	$ 231
Certificates of deposit	-	4,225	4,225
U.S. treasury bills	-	3,016	3,016
Fixed income - mutual funds	130	-	130
Government bonds	-	1,000	1,000
Corporate and foreign bonds	-	17,294	17,294
Total fixed income	361	25,535	25,896
Equity and other investments			
U.S. equity	884	-	884
Non-U.S. equity	413	-	413
Total equity and other investments	1,297	-	1,297
Total investments	$ 1,658	$ 25,535	$ 27,193

(Amounts in Thousands)

The following table presents investments held for others measured at fair value by classification within the fair value hierarchy as of September 30, 2022 and 2021:

	2022		
	Level 1	Level 2	Total fair value
Fixed income			
Corporate and foreign bonds	$ -	$ 4,896	$ 4,896
Government bonds	-	245	245
Fixed income - mutual funds	841	-	841
Foreign money market	1,771	-	1,771
Total fixed income	2,612	5,141	7,753
Equity and other investments			
U.S. equity	1,731	-	1,731
Non-U.S. equity	152	-	152
Stable value	-	138	138
Target dates - mutual funds	1,219	-	1,219
Total equity and other investments	3,102	138	3,240
Total investments held for others	$ 5,714	$ 5,279	$ 10,993

	2021		
	Level 1	Level 2	Total fair value
Fixed income			
Corporate and foreign bonds	$ -	$ 4,930	$ 4,930
Government bonds	-	356	356
Fixed income - mutual funds	795	-	795
Foreign money market	2,051	-	2,051
Foreign government securities	-	157	157
Total fixed income	2,846	5,443	8,289
Equity and other investments			
U.S. equity	2,198	-	2,198
Non-U.S. equity	175	-	175
Stable value	-	150	150
Target dates - mutual funds	1,325	-	1,325
Total equity and other investments	3,698	150	3,848
Total investments held for others	$ 6,544	$ 5,593	$ 12,137

(Amounts in Thousands)

Note 8 - Property and equipment

Property owned by AURA

Property acquired with noncontract or funds without donor restrictions is titled to AURA without restriction and consists of the following as of September 30, 2022 and 2021:

	2022	2021
Land and improvements	$ 279	$ 279
Buildings and improvements	1,195	1,195
Telescopes and research instruments, located in Chile	5,000	5,000
Equipment and vehicles	779	779
Leasehold improvements	5,180	5,061
	12,433	12,314
Less accumulated depreciation and amortization	(11,038)	(9,681)
Total	$ 1,395	$ 2,633

Property owned by NSF

Property acquired under the terms of the NSF agreements is owned by the United States Government. This property is not recorded in the accompanying financial statements and consists of the following as of September 30, 2022 and 2021:

	2022	2021
Land and improvements	$ 7,036	$ 7,036
Buildings and improvements	52,406	52,429
Telescopes	263,619	263,619
Instruments	153,112	150,188
Equipment and vehicles	52,632	50,645
Other-inventory	847	847
Building construction and instrument fabrication	963,891	899,698
	1,493,543	1,424,462
Less accumulated depreciation	(265,308)	(253,267)
Total	$ 1,228,235	$ 1,171,195

Property totaling $626 was acquired under the NOIRLab indirect pools as of September 30, 2021, and pending guidance from the NSF, was not reflected in the schedule above or in the accompanying statements of financial position. AURA received guidance from the NSF during the year ended September 30, 2022, and such amounts are included as a component of equipment and vehicles in the schedule above for the year ended September 30, 2022.

(Amounts in Thousands)

Note 9 - Retirement benefits

Retirement plan

AURA sponsors a defined contribution retirement plan (AURA, Inc. Money Purchase Pension Plan and Trust) which is qualified under Sec. 401 (a) of the Internal Revenue Code of 1986. Substantially all employees of AURA are eligible to participate in the Plan. AURA's contribution to the Plan equals 10% of the participant's compensation, as defined in the Plan document. The Money Purchase Pension Plan and Trust does not permit voluntary contributions. AURA also sponsors a defined contribution retirement plan, the AURA 403 (b) Savings Plan, to which AURA employees may make voluntary contributions. AURA does not contribute to the 403 (b) Saving Plan.

During the years ended September 30, 2022 and 2021, AURA contributed $15,568 and $14,890, respectively, to the Money Purchase Pension Plan and Trust.

Postretirement benefits other than pensions

AURA also maintains a nonqualified Section 457(b) deferred compensation plan allowing top hat executives to elect to defer compensation up to the maximum allowed under IRS regulations. AURA does not contribute to this plan. As of September 30, 2022, and 2021, the balance in the 457(b) deferred compensation plan was $3,936 and $4,643, respectively, and was included with the assets held for others (see Note 4).

AURA provides lifetime postretirement medical coverage (the "Plan") to qualified employees and their dependents based on employee age and years of service, as defined in the plan document.

The Plan is noncontributory for eligible participants retiring prior to January 1, 2007, with cost sharing requirements for eligible participants retiring on or after January 1, 2007; at Gemini, dependents of participants retiring after October 1, 1991, are required to pay 50% of expected premiums. AURA has established a trust under Section 501(c)(9) of the Internal Revenue Code to fund the postretirement medical benefits for the AURA accrued when earned employees. In the event of termination of the contracts with NASA and NSF, the unfunded obligations are anticipated to be paid from contract termination funds.

AURA does not expect to make a contribution to its postretirement plan in fiscal year 2023.

Postretirement related changes other than net periodic postretirement benefit cost included the following during the years ended September 30, 2022 and 2021:

	2022	2021
Net actuarial gain	$ (409)	$ (5,995)
Amortization of net gain	301	-
Total	$ (108)	$ (5,995)

(Amounts in Thousands)

The cumulative amounts recognized as changes in net assets without donor restriction but not yet reclassified as components of net periodic benefit cost consist of the following for the years ended September 30, 2022 and 2021:

	2022	2021
Actuarial loss	$ 4,735	$ 4,843

The reconciliation of the postretirement plan's funded status to amounts recognized in the financial statements is as follows at September 30, 2022 and 2021:

	2022	2021
Change in projected benefit obligation		
Projected benefit obligation, beginning of year	$ 42,320	$ 42,744
Service cost	519	594
Interest cost	1,150	1,057
Actuarial gain	(10,624)	(1,269)
Benefits paid	(1,098)	(976)
Participant contributions	112	112
Medicare Part D reimbursement	50	58
Projected benefit obligation, end of year	32,429	42,320
Change in plan assets		
Fair value of plan assets, beginning of year	40,310	32,701
Actual return on plan assets	(7,429)	6,983
Employer contributions	936	1,460
Participant contributions	112	112
Benefits paid	(1,098)	(976)
Medicare Part D reimbursement	50	58
Plan expenses	(41)	(28)
Fair value of plan assets, end of year	32,840	40,310
Funded status - in assets (liabilities)	$ 411	$ (2,010)

During the year ended September 30, 2022, the APBO decreased primarily due to the increase in the discount rate of 250 basis points, which when considered with all other demographic changes, resulted in a total actuarial gain of $10,624.

During the year ended September 30, 2021, the APBO decreased primarily due to the increase in the discount rate of 25 basis points, which when considered with all other demographic changes, resulted in a total actuarial gain of $1,269.

(Amounts in Thousands)

On a weighted average basis, the following assumptions were used in accounting for the Plan:

	2022	2021
Discount rate	5.25%	2.75%
Rate of return	7.00%	7.00%
Health care cost trend rate - initial	8.00%	5.30%
Health care cost trend rate - ultimate	3.94%	3.90%
Year ultimate reached	2075	2075
Corridor	10.00%	10.00%
Recognition period for losses	6.62 years	7.09 years
Measurement date	9/30	9/30

The assumptions disclosed at September 30, are used to determine net periodic postretirement benefit cost for the following year.

Net periodic post-retirement benefit credit for the years ended September 30, 2022 and 2021 consists of the following:

	2022	2021
Operating - service cost	$ 519	$ 594
Other changes		
Interest cost	1,150	1,057
Expected return on plan assets	(2,786)	(2,257)
Amortization of actuarial gain	(301)	-
Total other changes	(1,937)	(1,200)
Net periodic postretirement credit	$ (1,418)	$ (606)

The following table sets forth the expected benefit payments for the next 10 years:

Year ending September 30:	Amount
2023	$ 1,031
2024	1,165
2025	1,345
2026	1,535
2027	1,679
2028 to 2032	9,900

AURA's investment policy as it relates to plan assets is to meet or exceed the actuarial assumed rate of return. The investment policy includes an asset allocation range of:

Fixed income	20 - 40%
Equity	60 - 80%
Alternatives	0 - 15%

The following table sets forth the Plan's weighted-average asset allocations as of September 30, 2022 and 2021 by asset category:

	2022	2021
Cash and cash equivalents	3.92%	2.17%
Fixed income	28.51%	27.67%
Equity	67.57%	70.16%
Total	100%	100%

The Medicare Prescription Drug, Improvement and Modernization Act of 2003 provides for a federal subsidy to sponsors of retiree health care benefit plans that provide a benefit that is at least actuarially equivalent to the benefit established by law. The accrued postretirement benefit obligation as of September 30, 2022, reflects an estimated subsidy of $538 (figure not in thousands) per eligible participant.

(Amounts in Thousands)

The following table presents the Plan assets measured at fair value by classification within the fair value hierarchy as of September 30, 2022 and 2021 (see Note 7 for fair value techniques and inputs):

	2022 Quoted prices in active markets for identical assets (Level 1)	2021 Quoted prices in active markets for identical assets (Level 1)
Fixed income		
Money market	$ 1,288	$ 872
Fixed income - mutual funds (MF)	9,385	11,168
Total fixed income	10,673	12,040
Equity and other investments		
U.S. large equity - MF/ETF	5,391	5,910
U.S. small/mid equity - MF/ETF	2,146	2,823
Non-U.S. equity - MF/ETF	2,854	3,481
Non-U.S. equity (emerging) - MF/ETF	1,478	1,819
Common stock	9,297	13,167
Real estate - MF	1,001	1,070
Total equity and other investments	22,167	28,270
Total plan assets	$ 32,840	$ 40,310

Note 10 - Net assets

Without donor restrictions

Net assets without donor restrictions is comprised of net assets resulting from differences in revenue and expense recognition under federal awards as described below, and other undesignated amounts for the following purposes as of September 30, 2022 and 2021:

	2022	2021
Accumulated postretirement benefit obligation not recognized as components of net periodic benefit costs (Notes 2 and 9)	$ (4,247)	$ (4,533)
Unbilled accrued vacation	(1,750)	(1,933)
Total net deficit from timing differences under federal awards	(5,997)	(6,466)
Undesignated	7,944	10,304
Total net assets without donor restrictions	$ 1,947	$ 3,838

A portion of the expense recognized for postretirement benefits (STScI) and vacation benefits (NOIRLab and NSO) is considered billable to federal awards when the liability becomes current as opposed to when the costs are accrued. Therefore, although the expenses have been accrued as earned, the related federal award revenue is recorded when the liability becomes current and the costs are billable.

With donor restrictions
Net assets with donor restrictions are $366 and $398 at September 30, 2022 and 2021, respectively, of which $53 is restricted for Kitt Peak Visitor Center and De Mastus Memorial Fund at both year ends, and $313 and $345 is available for prizes at September 30, 2022 and 2021, respectively.

Net assets of $32 were released from restriction during the year ended September 30, 2022. There were no net assets released from restriction during the year ended September 30, 2021.

AURA had no net assets that must be maintained in perpetuity as of September 30, 2022 and 2021.

(Amounts in Thousands)

Note 11 - Functional expenses grouped by natural classification

Expenses are presented by functional classification in accordance with the overall service mission of AURA. AURA's primary program service is research activity. Natural expenses attributable to more than one functional expense category are allocated using a variety of cost allocation techniques such as square footage and headcount.

Expenses by functional and natural classification for the year ended September 30, 2022 were as follows:

	2022						
	Research activity				Total research	Management	
	NOIRLab	NSO	LSSTPO	STScI	activity	and general	Total
Salaries, wages, and benefits	$ 45,436	$ 20,433	$ 10,966	$ 113,479	$ 190,314	$ 21,023	$ 211,337
Supplies and materials	5,600	2,870	3,463	1,157	13,090	2,246	15,336
Travel	1,596	865	666	1,220	4,347	320	4,667
Conferences and meetings	586	108	224	583	1,501	383	1,884
Office and occupancy	3,792	2,527	313	135	6,767	4,854	11,621
Insurance	137	44	14	-	195	595	790
Postage and delivery	418	82	468	-	968	90	1,058
Professional services	14,104	6,306	15,702	33,320	69,432	5,119	74,551
Lease equipment and vehicles	290	41	333	-	664	40	704
Repair and maintenance	1,428	193	147	3,550	5,318	762	6,080
Equipment expensed to government	2,129	3,369	922	5,914	12,334	196	12,530
Grant programs and awards	8,376	73	-	32,305	40,754	-	40,754
Depreciation and amortization	100	-	-	5	105	1,252	1,357
Total expenses	$ 83,992	$ 36,911	$ 33,218	$ 191,668	$ 345,789	$ 36,880	$ 382,669

Association of Universities for Research in Astronomy, Inc.

Notes to Financial Statements
September 30, 2022 and 2021
(Amounts in Thousands)

Expenses by functional and natural classification for the year ended September 30, 2021 were as follows:

	2021						
	Research activity				Total research activity	Management and general	Total
	NOIRLab	NSO	LSSTPO	STScI			
Salaries, wages, and benefits	$ 42,928	$ 21,022	$ 11,492	$ 106,474	$ 181,916	$ 19,635	$ 201,551
Supplies and materials	4,840	2,129	2,381	960	10,310	860	11,170
Travel	638	309	59	156	1,162	18	1,180
Conferences and meetings	266	73	133	254	726	215	941
Office and occupancy	3,930	1,971	205	200	6,306	4,265	10,571
Insurance	180	69	24	1	274	331	605
Postage and delivery	188	88	650	1	927	68	995
Professional services	14,355	6,628	19,815	26,872	67,670	4,359	72,029
Lease equipment and vehicles	417	214	357	2	990	73	1,063
Repair and maintenance	1,133	212	215	3,461	5,021	572	5,593
Equipment expensed to government	2,579	1,498	417	2,779	7,273	233	7,506
Grant programs and awards	8,934	80	-	29,802	38,816	-	38,816
Depreciation and amortization	100	-	-	28	128	1,266	1,394
Total expenses	$ 80,488	$ 34,293	$ 35,748	$ 170,990	$ 321,519	$ 31,895	$ 353,414

(Amounts in Thousands)

Note 12 - Commitments and contingencies

Contract termination

The NASA and NSF agreements are subject to termination at the discretion of the United States Government. Under the terms of the NASA contract, the United States Government will not be obligated to reimburse termination costs beyond the limits of the most current levels of obligated funds. However, NASA will use its best efforts to pay phase-out costs within a stated ceiling amount if the contract is not optionally renewed. Under the terms of the NSF Cooperative Agreements, termination costs will be reimbursed subject to the availability of appropriated funds. Management's opinion is that termination of current awards by NASA and NSF is unlikely. No termination or phase-out costs have been accrued as of September 30, 2022 or 2021.

The unfunded liabilities, in the event of termination, included in the statements of financial position as of September 30, 2022 and 2021 include the following:

	2022	2021
Accumulated postretirement benefit obligation not recognized as components of net periodic benefit costs (Notes 2 and 9)	$ 4,247	$ 4,533
Unbilled accrued vacation	1,750	1,933
Total unfunded liabilities	$ 5,997	$ 6,466

It is management's opinion, based on the advice of legal counsel, that the certain obligations including postretirement benefit obligations and postemployment benefit obligations for NOIRLab and NSO employees employed by AURA have been the responsibility of the NSF and as such they have not been recorded in the financial statements. Expense and corresponding revenue for these benefits are recognized consistent with NSF's pay-as-you go funding arrangement. In the event of termination, the unfunded liabilities of NSF related to AURA employees that are not included in the statements of financial position as of September 30, 2022 and 2021 include the following:

	2022	2021
NOIRLab and NSO employees' unrecorded postretirement benefit obligations	$ 4,831	$ 5,717
NOIRLab employees' unrecorded postemployment benefit obligations (finiquitos)	2,233	2,443
Total unrecorded obligations belonging to NSF	$ 7,064	$ 8,160

In an agreement with the NSF, effective October 1, 2018, NSF will fund the unbilled accrued vacation and finiquito benefits liabilities on an amortized basis over 15 years to resolve these unrecorded liabilities. In addition, effective October 1, 2018, NSF will fund current vacation and finiquito benefits for all awards as the benefits are earned.

(Amounts in Thousands)

The unrecorded postretirement benefit obligations relate to lifetime postretirement medical coverage provided by AURA to qualified employees and their dependents based on employee age and years of service to NOIRLab and NSO employees. NOIRLab and NSO employees hired by AURA prior to July 1, 1990, qualify. Dependents of participants retiring after October 1, 1991, are required to pay 50% of expected premiums.

Actuarial assumptions used in estimating the unrecorded postretirement benefits obligation are described in Note 9. Changes to these assumptions may have a significant effect on the amounts reported.

The following table sets forth the expected benefit payments for the next 10 years:

Year ending September 30:	Amount
2023	$ 410
2024	434
2025	450
2026	415
2027	415
2028 to 2032	1,765

In the event of termination of the contracts, additional termination costs may be incurred; however, not all of these costs are practical to measure until, and if, actual termination occurs.

Open purchase orders and contracts
Commitments under open purchase orders and contracts total $51,181 and $53,611 as of September 30, 2022 and 2021, respectively.

Operating leases
AURA leases property and equipment under noncancelable operating leases. Rent expense under all operating leases for the years ended September 30, 2022 and 2021, totaled $4,665 and $4,862, respectively.

Estimated minimum annual lease payments on these leases are as follows:

Year ending September 30:	Amount
2023	$ 3,724
2024	3,635
2025	2,080
2026	1,052
Total	$ 10,491

In addition to the above leases, AURA has entered into other short-term, cancelable leases for rental of land, buildings, and equipment.

(Amounts in Thousands)

Note 13 - Related party transactions

Consortia

AURA is a member of two consortia formed to construct and operate telescopes. The WIYN Consortium ("WIYN") designed, built, and now operates two telescopes on Kitt Peak in Arizona. The SOAR Consortium, Inc. ("SOAR") constructed and now operates a telescope in Chile. All individuals who perform services for WIYN and SOAR are employees of AURA and are provided to WIYN and SOAR under shared services agreements with AURA. Transactions between AURA and the consortia were as follows as of and for the years ended September 30:

WIYN

	2022	2021
AURA monetary membership dues	$ 1,499	$ 1,505
AURA other program support	747	734
AURA services provided under shared services agreement	3,277	3,413
AURA receivable due from WIYN	1,938	1,055

SOAR

	2022	2021
AURA nonmonetary membership dues	$ 283	$ 156
AURA monetary membership dues	972	944
AURA services provided under shared services agreement	2,442	2,223
AURA receivable due from SOAR	372	294

Other

LSST, Inc.

AURA is a member of LSST, Inc., an Arizona nonprofit corporation. LSST, Inc. was formed to design, develop, construct, and operate a large aperture wide-field survey telescope. As of September 30, 2015, LSST, Inc. transferred the M1/M3 Mirror, M2 Mirror, and the work in progress which consists of site selection and preparation costs and other intellectual property to AURA. AURA is continuing the development of the mirror and telescope. LSST Inc. remains a partner in the operation of the LSSTPO facility and serves as a fundraising partner to secure additional contributions for the Rubin Construction project. All individuals who perform services for LSST, Inc. are employees of AURA and are provided to LSST, Inc. under a shared services agreement with AURA.

(Amounts in Thousands)

Transactions between AURA and LSST, Inc. were as follows as of and for the years ended September 30, 2022 and 2021:

LSST, Inc.

	2022	2021
AURA research contributions	$ 25	$ 25
AURA services provided under shared services agreement	582	530
AURA receivable due from LSST, Inc.	179	179

Board members

AURA operates a grants award program on behalf of NASA. At times, AURA Board Members through their institutions are direct recipients of these grants. Total amounts awarded as of September 30, 2022 and 2021 were $146 and $13, respectively.

Note 14 - Subsequent events

AURA has evaluated subsequent events from the statement of financial position date through May 3, 2023, the date at which the financial statements were issued and determined that there were no other items to disclose.

Supplementary Information

Association of Universities for Research in Astronomy, Inc.

Schedules of Property Owned by the United States of America - NSF
September 30, 2022 and 2021
(Amounts in thousands)

The following property has been acquired under the terms of the NSF agreements and is owned by the United States Government. The property is utilized by AURA and is not recorded in the accompanying financial statements as of September 30, 2022 and 2021:

	2022				
	NOIRLab	NSO	NOIRLab (Gemini)	LSSTPO	Total
Property					
Land and improvements	$ 4,204	$ 2,805	$ 27	$ -	$ 7,036
Buildings and improvements	17,696	11,737	16,535	6,438	52,406
Telescopes	31,839	14,787	216,993	-	263,619
Instruments	35,204	19,015	98,882	11	153,112
Equipment and vehicles	30,253	10,570	10,187	1,622	52,632
Other - Inventory	-	-	847	-	847
Construction work-in-progress: Building construction and instrument fabrication	94	386,776	42,803	534,218	963,891
	119,290	445,690	386,274	542,289	1,493,543
Less accumulated depreciation	(82,640)	(40,287)	(141,308)	(1,073)	(265,308)
Total	$ 36,650	$ 405,403	$ 244,966	$ 541,216	$ 1,228,235

	2021				
	NOIRLab	NSO	NOIRLab (Gemini)	LSSTPO	Total
Property					
Land and improvements	$ 4,204	$ 2,805	$ 27	$ -	$ 7,036
Buildings and improvements	17,688	11,778	16,535	6,428	52,429
Telescopes	31,839	14,787	216,993	-	263,619
Instruments	35,204	16,364	98,620	-	150,188
Equipment and vehicles	30,198	9,911	9,713	823	50,645
Other - Inventory	-	-	847	-	847
Construction work-in-progress: Building construction and instrument fabrication	38	374,152	28,650	496,858	899,698
	119,171	429,797	371,385	504,109	1,424,462
Less accumulated depreciation	(80,592)	(39,633)	(132,287)	(755)	(253,267)
Total	$ 38,579	$ 390,164	$ 239,098	$ 503,354	$ 1,171,195

See Independent Auditor's Report.

Association of Universities for Research in Astronomy, Inc.

Disclosures of Property Owned by the United States of America - NASA (Unaudited)
September 30, 2022 and 2021
(Amounts in thousands)

Property has been acquired under the terms of the NASA agreements and is owned by the United States Government. The property is utilized by AURA and is not recorded in the accompanying financial statements. The amounts are reflected at historical cost with no allowance for accumulated depreciation. Total equipment and vehicles as of September 30, 2022 and 2021 were $48,159 and $44,532, respectively.

See Independent Auditor's Report.

CohnReznick
ADVISORY • ASSURANCE • TAX

Independent Member of Nexia International

cohnreznick.com

Association of Universities for Research in Astronomy, Inc.

Single Audit Reports

Year Ended September 30, 2022

CohnReznick
ADVISORY • ASSURANCE • TAX

Association of Universities for Research in Astronomy, Inc.

Index

Page

Independent Auditor's 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*

To the Board of Directors
Association of Universities for Research in Astronomy, Inc.
Washington, DC

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 Association of Universities for Research in Astronomy, Inc. ("AURA"), which comprise the statement of financial position as of September 30, 2022, and the related statements of activities and cash flows for the year then ended, and the related notes to the financial statements, and have issued our report thereon dated May 3, 2023.

Report on Internal Control over Financial Reporting

In planning and performing our audit of the financial statements, we considered AURA's internal control over financial reporting ("internal control") as a basis for designing 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 AURA's internal control. Accordingly, we do not express an opinion on the effectiveness of AURA'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 over financial reporting that we consider to be material weaknesses. However, material weaknesses or significant deficiencies may exist that were not identified.

Report on Compliance and Other Matters

As part of obtaining reasonable assurance about whether AURA'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 financial statements. 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*.

CohnReznick

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.

CohnReznick LLP

Bethesda, Maryland
May 3, 2023

Independent Auditor's Report on Compliance for Each Major Federal Program; Report on Internal Control over Compliance; and Report on Schedule of Expenditures of Federal Awards Required by the Uniform Guidance

To the Board of Directors
Association of Universities for Research in Astronomy, Inc.
Washington, DC

Report on Compliance for Each Major Federal Program

Opinion on Each Major Federal Program

We have audited Association of Universities for Research in Astronomy, Inc.'s ("AURA") compliance with the types of compliance requirements identified as subject to audit in the OMB *Compliance Supplement* that could have a direct and material effect on each of AURA's major federal programs for the year ended September 30, 2022. AURA's major federal program is identified in the summary of auditor's results section of the accompanying schedule of findings and questioned costs.

In our opinion, AURA complied, in all material respects, with the 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, 2022.

Basis for Opinion on Each Major Federal Program

We conducted our audit of compliance in accordance with auditing standards generally accepted in the United States of America ("GAAS"); the standards applicable to financial audits contained in *Government Auditing Standards* issued by the Comptroller General of the United States ("*Government Auditing Standards*"); 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"). Our responsibilities under those standards and the Uniform Guidance are further described in the Auditor's Responsibilities for the Audit of Compliance section of our report.

We are required to be independent of AURA and to meet our other ethical responsibilities, in accordance with relevant ethical requirements relating to our audit. We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our opinion on compliance for the major federal program. Our audit does not provide a legal determination of AURA's compliance with the compliance requirements referred to above.

Responsibilities of Management for Compliance

Management is responsible for compliance with the requirements referred to above and for the design, implementation, and maintenance of effective internal control over compliance with the requirements of laws, statutes, regulations, rules and provisions of contracts or grant agreements applicable to AURA's federal programs.

Auditor's Responsibilities for the Audit of Compliance

Our objectives are to obtain reasonable assurance about whether material noncompliance with the compliance requirements referred to above occurred, whether due to fraud or error, and express an opinion on AURA's compliance based on our audit. Reasonable assurance is a high level of assurance but is not absolute assurance and therefore is not a guarantee that an audit conducted in accordance with GAAS, *Government Auditing Standards*, and the Uniform Guidance will always detect material noncompliance when it exists. The risk of not detecting material noncompliance resulting from fraud is higher than for that resulting from error, as fraud may involve collusion, forgery, intentional omissions, misrepresentations, or the override of internal control. Noncompliance with the compliance requirements referred to above is considered material, if there is a substantial likelihood that, individually or in the aggregate, it would influence the judgment made by a reasonable user of the report on compliance about AURA's compliance with the requirements of each major federal program as a whole.

In performing an audit in accordance with GAAS, *Government Auditing Standards*, and the Uniform Guidance, we:

- Exercise professional judgment and maintain professional skepticism throughout the audit.

- Identify and assess the risks of material noncompliance, whether due to fraud or error, and design and perform audit procedures responsive to those risks. Such procedures include examining, on a test basis, evidence regarding AURA's compliance with the compliance requirements referred to above and performing such other procedures as we considered necessary in the circumstances.

- Obtain an understanding of AURA's internal control over compliance relevant to the audit in order to design audit procedures that are appropriate in the circumstances 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 AURA's internal control over compliance. Accordingly, no such opinion is expressed.

We are required to communicate with those charged with governance regarding, among other matters, the planned scope and timing of the audit and any significant deficiencies and material weaknesses in internal control over compliance that we identified during the audit.

Report on 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 a 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 Auditor's Responsibilities for the Audit of Compliance section above and was not designed to identify all deficiencies in internal control over compliance that might be material weaknesses or significant deficiencies in internal control over compliance. Given these limitations, during our audit we did not identify any deficiencies in internal control over compliance that we consider to be material weaknesses, as defined above. However, material weaknesses or significant deficiencies in internal control over compliance may exist that were not identified.

Our audit was not designed for the purpose of expressing an opinion on the effectiveness of internal control over compliance. Accordingly, no such opinion is expressed.

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.

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

We have audited the financial statements of AURA as of and for the year ended September 30, 2022, and have issued our report thereon dated May 3, 2023, 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.

CohnReznick LLP

Bethesda, Maryland
May 3, 2023

AURA Section

Association of Universities for Research in Astronomy, Inc.

Schedule of Expenditures of Federal Awards
Year Ended September 30, 2022

Federal grantor/pass-through grantor/ program or cluster title	Federal assistance listing number	Pass-through entity identifying number	Total federal expenditures	Passed through to subrecipients
Research and Development Cluster				
National Science Foundation				
Mathematical and Physical Sciences, Cooperative Agreement No. AST-1546092 - CSA AST-1421197	47.049	N/A	$ 23,222,068	$ 1,304,736
Mathematical and Physical Sciences, Cooperative Agreement No. AST-1546092 - CSA AST-1559596	47.049	N/A	1,912,074	1,909,019
Mathematical and Physical Sciences, Cooperative Agreement No. AST-1546092 - CSA AST-1839157	47.049	N/A	1,755,748	-
Mathematical and Physical Sciences, Cooperative Agreement No. AST-1546092 - CSA AST-2013059	47.049	N/A	5,856,847	5,103,793
Mathematical and Physical Sciences, AST-1637359	47.049	N/A	46,695	-
Mathematical and Physical Sciences, Cooperative Agreement No. AST-0946422 - CSA AST-1400450	47.049	N/A	32,443,106	40,247
Mathematical and Physical Sciences, Cooperative Agreement No. AST-0946422 - CSA AST-1011851	47.049	N/A	6,416,452	-
Mathematical and Physical Sciences, Cooperative Agreement No. AST-0946422 - CSA AST-1023439	47.049	N/A	492,488	-
Mathematical and Physical Sciences, Cooperative Agreement No. AST-1546092 - CSA AST-1539773	47.049	N/A	33,127,143	50,985
Mathematical and Physical Sciences, Cooperative Agreement No. AST-1546092 - CSA AST-1839225	47.049	N/A	3,536,749	-
Mathematical and Physical Sciences, Cooperative Agreement No. AST-1258333 - CSA AST-1202910	47.049	N/A	37,359,819	-
Mathematical and Physical Sciences, Cooperative Agreement No. AST-1546092- CSA AST-1836783	47.049	N/A	5,564,617	7,842
Mathematical and Physical Sciences, AST 1816196	47.049	N/A	662	-
Mathematical and Physical Sciences, Pass-through from New Jersey Institute of Technology	47.049	997199	19,486	-
Mathematical and Physical Sciences, Pass-through from New Mexico State University	47.049	1945705	526	-
Mathematical and Physical Sciences, Pass-through from American Museum of Natural History	47.049	A90-2020-02	10,398	-
AST-0834235, National Virtual Observatory with Johns Hopkins University, Pass-through from Virtual Astronomical Observatory, LLC	47.049	VAO_2010_02	139	-
Total for ALN 47.049			151,765,017	8,416,622
Education and Human Resources, Pass-through from San Jose State University Research Foundation	47.076	21-1507-6197-STScI	2,952	-
Total for ALN 47.076			2,952	-
Total National Science Foundation			151,767,969	8,416,622
National Aeronautics and Space Administration				
Science, NNH17IA04P	43.000	N/A	(12,978)	-
Contract NAS5-03127, Support for Space Telescope Science Institute	43.000	N/A	103,004,558	-
Contract NAS5-03127, Grant Program	43.000	N/A	1,886,760	1,617,908
Contract NAS5-26555, Support for Space Telescope Science Institute	43.000	N/A	39,821,569	-
Contract NAS5-26555, Grant Program	43.000	N/A	34,285,934	30,365,501
Contract 80GSFC19C0054, Wide-Field Infrared Survey Telescope	43.000	N/A	17,361,686	-
Contract NNA09DA83C, Kepler Data Management Center (Phase E)	43.000	N/A	14,158	-
Contract NNG15PN97P, Consultation and Set Up of DMD Boards	43.000	N/A	37	-
Contract OF 69 # (REV. 2-89), IPA Alexander Lockwood	43.000	N/A	37,378	-
Contract NAS5-97271, The New Horizons Project, Pass-through from Johns Hopkins University	43.000	160577	26,112	-
Contract NNG16PJ23C, WFIRST Science Investigation Teams and Adjutant Scientists, Pass-through from Johns Hopkins University	43.000	2003301637	206	-
Contract NNG14FC03C, Transiting Exoplanet Survey Satellite (TESS) Project, Pass-through from Massachusetts Institute of Technology	43.000	s3457-025	676,363	-
Contract NNG16PJ24C, WFIRST SIT CGI, Pass-through from Stanford University	43.000	61362448-122362	2,523	-
The Solar Dynamics Observatory (SDO) Helioseismic and Magnetic Imager Investigation - Second Extended Mission, Pass-through from Stanford University	43.000	62366563-26967	(22,391)	-
Extragalactic Potential Observations (EXPO), Pass-through from University of California Santa Cruz	43.000	A16-0381-S001-P0600214	23,841	-
Contract 80GSFC21C0055, Solaris Phase A Study for CDM Development Support, Pass-through from Southwest Research Institute	43.000	P99053LJ	6,392	-
Contract NNG16PJ27C, Harnessing the Power of the WFIRST, Pass-through from Search for Ext	43.000	SC3214	6,597	-
Grant NNA17BF53C, Luminosity Evolution of Outbursting Protostars in Orion, Pass-through from USRA	43.000	SOF 07-0200	4,262	-
Total for ALN 43.000			197,123,007	31,983,409

Association of Universities for Research in Astronomy, Inc.

Schedule of Expenditures of Federal Awards
Year Ended September 30, 2022

Federal grantor/pass-through grantor/ program or cluster title	Federal assistance listing number	Pass-through entity identifying number	Total federal expenditures	Passed through to subrecipients
National Aeronautics and Space Administration - continued				
Science, 80NSSC18K0421	43.001	N/A	$ (3,712)	$ -
Science, 80NSSC18K0944	43.001	N/A	109,008	-
Science, 80NSSC18K1051	43.001	N/A	(5,658)	-
Science, 80NSSC18K1105	43.001	N/A	152,942	-
Science, 80NSSC18K1206	43.001	N/A	200,701	32,577
Science, 80NSSC18K1242	43.001	N/A	170,737	-
Science, 80NSSC19K0112	43.001	N/A	3,586	-
Science, 80NSSC19K0120	43.001	N/A	276,806	-
Science, 80NSSC19K0261	43.001	N/A	117,455	-
Science, 80NSSC19K0443	43.001	N/A	104,819	-
Science, 80NSSC19K0529	43.001	N/A	25,112	-
Science, 80NSSC19K0585	43.001	N/A	119,957	-
Science, 80NSSC19K1017	43.001	N/A	19,240	-
Science, 80NSSC19K1393	43.001	N/A	37,326	-
Science, 80NSSC20K0194	43.001	N/A	124,154	-
Science, 80NSSC20K0261	43.001	N/A	11,577	-
Science, 80NSSC20K0435	43.001	N/A	128,983	-
Science, 80NSSC20K0586	43.001	N/A	502,050	-
Science, 80NSSC20K0760	43.001	N/A	122,046	-
Science, 80NSSC20K0837	43.001	N/A	9,591	-
Science, 80NSSC21K0242	43.001	N/A	44,023	-
Science, 80NSSC21K0363	43.001	N/A	23,097	-
Science, 80NSSC21K0472	43.001	N/A	50,404	-
Science, 80NSSC21K0719	43.001	N/A	11,718	-
Science, 80NSSC21K0735	43.001	N/A	121,494	-
Science, 80NSSC21K1025	43.001	N/A	11,961	-
Science, 80NSSC21K1053	43.001	N/A	193,413	-
Science, 80NSSC21K1294	43.001	N/A	1,847	-
Science, 80NSSC21K1468	43.001	N/A	2,824	-
Science, 80NSSC21K1485	43.001	N/A	25,732	-
Science, 80NSSC22K0493	43.001	N/A	7,119	-
Science, 80NSSC22K0552	43.001	N/A	2,851	-
Science, 80NSSC22K0571	43.001	N/A	39,070	-
Science, 80NSSC22K0712	43.001	N/A	379	-
Science, NAG5-12458	43.001	N/A	(32)	-
Science, NAG5-12595	43.001	N/A	91	-
Science, NNG06GA01G	43.001	N/A	(88)	-
Science, NNX07AR82G	43.001	N/A	145	-
Science, NNX07AV67G	43.001	N/A	(2)	-
Science, NNX08AG33G	43.001	N/A	(4)	-
Science, NNX09AF08G	43.001	N/A	(2,165)	-
Science, NNX09AQ11A	43.001	N/A	(978)	-
Science, NNX10AD70G	43.001	N/A	(36)	-
Science, NNX10AG30G	43.001	N/A	(168)	-
Science, NNX10AM64G	43.001	N/A	(34)	-
Science, NNX11AB06G	43.001	N/A	(20)	-
Science, NNX11AD28G	43.001	N/A	(62)	-
Science, NNX11AF74G	43.001	N/A	(230)	-
Science, NNX11AK61G	43.001	N/A	(22)	-
Science, NNX12AE65G	43.001	N/A	(13)	-
Science, NNX12AG05G	43.001	N/A	205	-
Science, NNX12AI89G	43.001	N/A	(611)	-
Science, NNX12AO83G	43.001	N/A	(70)	-
Science, NNX13AC07G	43.001	N/A	9,332	-
Science, NNX13AF18G	43.001	N/A	80	-
Science, NNX13AK58G	43.001	N/A	(2,050)	-
Science, NNX14AD33G	43.001	N/A	(579)	-
Science, NNX14AN06G	43.001	N/A	(674)	-
Science, NNX15AB26G	43.001	N/A	(947)	-
Science, NNX15AC86G	43.001	N/A	(1,574)	-
Science, NNX15AJ75G	43.001	N/A	(513)	-
Science, NNX15AP23G	43.001	N/A	(425)	-
Science, NNX15AP96G	43.001	N/A	(202)	-

Association of Universities for Research in Astronomy, Inc.

Schedule of Expenditures of Federal Awards
Year Ended September 30, 2022

Federal grantor/pass-through grantor/ program or cluster title	Federal assistance listing number	Pass-through entity identifying number	Total federal expenditures	Passed through to subrecipients
National Aeronautics and Space Administration - continued				
Science, NNX16AC65A	43.001	N/A	$ 5,769,543	$ -
Science, NNX16AF44G	43.001	N/A	29	-
Science, NNX17AB60G	43.001	N/A	3,459	-
Science, Pass-through from Ball Aerospace and Technology	43.001	19KMB00102	75,904	-
Science, Pass-through from Boston College	43.001	5111771-1	5,321	-
Science, Pass-through from Boston University	43.001	GC205312NGA	(1)	-
Science, Pass-through from Columbia University	43.001	2(GG016376-01)	21,477	-
Science, Pass-through from Jet Propulsion Laboratory	43.001	1539872	40,123	-
Science, Pass-through from Jet Propulsion Laboratory	43.001	1496556	(615)	-
Science, Pass-through from Jet Propulsion Laboratory	43.001	1506553	(1,095)	-
Science, Pass-through from JHU Applied Physics Lab	43.001	957421	(80)	-
Science, Pass-through from John Hopkins University	43.001	2000835395	(117)	-
Science, Pass-through from Johns Hopkins University Applied Physics Laboratory	43.001	146918	2,425	-
Science, Pass-through from Million Concepts LLC	43.001	N1953	(833)	-
Science, Pass-through from New Jersey Institute of T	43.001	997433	18,051	-
Science, Pass-through from NorthWest Research Assoc	43.001	NWRA-21-S-218	10,321	-
Science, Pass-through from Predictive Science Inc.	43.001	80NSSC20K1285	20,073	-
Science, Pass-through from SETI	43.001	SC3082	32	-
Science, Pass-through from Smithsonian Astrophysical Observatory	43.001	SV9-89013	1,879	-
Science, Pass-through from Smithsonian Astrophysical Observatory	43.001	GO7-18103X	3,096	-
Science, Pass-through from Smithsonian Astrophysical Observatory	43.001	GO9-20070X	31,466	-
Science, Pass-through from Smithsonian Astrophysical Observatory	43.001	GO9-20017X	10,531	-
Science, Pass-through from Smithsonian Astrophysical Observatory	43.001	GO9-20004X	962	-
Science, Pass-through from Smithsonian Astrophysical Observatory	43.001	GO1-22084X	16	-
Science, Pass-through from Smithsonian Astrophysical Observatory	43.001	GO1-22093X	37,533	-
Science, Pass-through from Smithsonian Astrophysical Observatory	43.001	GO2-23103X	31,359	-
Science, Pass-through from Smithsonian Astrophysical Observatory	43.001	GO8-9114B	(1)	-
Science, Pass-through from Smithsonian Astrophysical Observatory	43.001	GO9-0075A	(6)	-
Science, Pass-through from Smithsonian Astrophysical Observatory	43.001	AR0-11010X	(2)	-
Science, Pass-through from Smithsonian Astrophysical Observatory	43.001	GO1-12115A	(2)	-
Science, Pass-through from Smithsonian Astrophysical Observatory	43.001	GO2-13066B	8	-
Science, Pass-through from Smithsonian Astrophysical Observatory	43.001	G02-13094X	(205)	-
Science, Pass-through from Smithsonian Astrophysical Observatory	43.001	GO2-13103B	5	-
Science, Pass-through from Smithsonian Astrophysical Observatory	43.001	GO2-13114X	6	-
Science, Pass-through from Smithsonian Astrophysical Observatory	43.001	GO3-14021X	11	-
Science, Pass-through from Smithsonian Astrophysical Observatory	43.001	GO3-14146X	(99)	-
Science, Pass-through from Smithsonian Astrophysical Observatory	43.001	GO2-23047X	27	-
Science, Pass-through from Southwest Research Institute	43.001	P99019DS	9,933	-
Science, Pass-through from Stanford University	43.001	62356558-145590	18,364	-
Science, Pass-through from University of Arizona	43.001	357547	155,993	-
Science, Pass-through from University of California	43.001	00009097	(55)	-
Science, Pass-through from University of Colorado	43.001	1000029751	(65)	-
Science, Pass-through from University of Colorado	43.001	1000166689	(61)	-
Science, Pass-through from University of Colorado	43.001	1000029755	(20)	-
Science, Pass-through from University of Massachusetts	43.001	S52000000024320	(79)	-
Science, Pass-through from University of Michigan	43.001	80NSSC17K0686	32,331	-
Science, Pass-through from University of Toledo	43.001	F-2019-49	1,492	-
Science, Pass-through from University of Toledo	43.001	F-2020-33	1,385	-
Science, Pass-through from University of Washington	43.001	UWSC10437	35,063	-
Science, Pass-through from USRA	43.001	N/A	(83)	-
Science, Pass-through from USRA	43.001	SOF 08-0192	2,352	-
Science, Pass-through from USRA	43.001	SOF 08-0232	2,131	-
Science, Pass-through from USRA	43.001	SOF 09-0145	560	-
Science, Pass-through from USRA	43.001	SOF 09-0030	13,041	-
Science, Pass-through from USRA	43.001	SOF 75_0057	2,175	-
Science, Pass-through from Yale University	43.001	GR102632	137	-
Total for ALN 43.001			9,116,201	32,577
Science, NNH12IA03P	43.002	N/A	(183)	-
Science, NNX12AC82G	43.002	N/A	(12)	-
Science, Pass-through from Smithsonian Astrophysical Observatory	43.002	GO0-11021X	(4)	-
Science, Pass-through from Smithsonian Astrophysical Observatory	43.002	NNX08AG36G	17	-
Science, Pass-through from Villanova University	43.002	NNX11AB19G	(2)	-
Total for ALN 43.002			(184)	-
Total National Aeronautics and Space Administration			206,239,024	32,015,986

Association of Universities for Research in Astronomy, Inc.

Schedule of Expenditures of Federal Awards
Year Ended September 30, 2022

Federal grantor/pass-through grantor/ program or cluster title	Federal assistance listing number	Pass-through entity identifying number	Total federal expenditures	Passed through to subrecipients
Department of Defense				
Basic and Applied Scientific Research, Pass-through from US Naval Research Laboratory	12.300	N00173-20-1-G008	46,108	-
Basic and Applied Scientific Research, Pass-through from USNO- Navy	12.300	N00189-19-P-Z104	79,423	-
Total Department of Defense			125,531	-
Department of Energy				
DESI - Energy, LBNL, Pass-through from The Regents of the University of California, LBNL	81.000	7471199	$ 3,684,228	$ -
LSST Commissioning Services, Pass-through from SLAC National Accelerator Laboratory	81.000	SLAC 194609	298,053	-
Contract DE-AC02-05CH11231, Wide-Field Infrared Survey Telescope (WFIRST) Science Investigation Team (SIT) Investigating Supernova Cosmology, Pass-through from Lawrence Berkeley National Laboratory	81.000	7323250	64,912	-
Contract DE-AC02-05CH11231, Joint Analysis of Optical Legacy Survey of Space and Time (LSST), Pass-through from Lawrence Berkeley National Laboratory	81.000	7636013	69,767	-
Total Department of Energy			4,116,960	-
Total Research and Development Cluster			362,249,484	40,432,608
Total Expenditures of Federal Awards			$ 362,249,484	$ 40,432,608

See Notes to Schedule of Expenditures of Federal Awards.

Association of Universities for Research in Astronomy, Inc.

Notes to Schedule of Expenditures of Federal Awards
Year Ended September 30, 2022

Note 1 - Summary of Significant Accounting Policies

Basis of Presentation

The accompanying Schedule of Expenditures of Federal Awards (the "Schedule") includes the federal award activity of Association of Universities for Research in Astronomy, Inc. ("AURA") under programs of the federal government for the year ended September 30, 2022 and is presented on the accrual basis of accounting. The information in this 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"), wherein certain types of expenditures are not allowable or are limited as to reimbursement. Program income is reported at gross in the Schedule. Negative amounts shown on the Schedule represent adjustments or credits made in the normal course of business to amounts reported as expenditures in prior years. Because the Schedule presents only a selected portion of the operations of AURA, it is not intended to and does not present the financial position, changes in net assets or cash flows of AURA.

AURA recognized fixed management fee revenue totaling $614,066 on National Aeronautics and Space Administration ("NASA") contracts NAS5-03127 and NAS5-26555 during the year ended September 30, 2022. Such amounts are excluded from the expenditures presented in the accompanying Schedule.

For purposes of the Schedule, federal awards include all grants, contracts, and similar agreements entered into directly between AURA and agencies and departments of the Federal Government and all sub-awards made to AURA by non-federal organizations pursuant to federal grants, contracts and similar agreements.

Subrecipients

Certain funds received under federal awards are paid to subrecipient organizations by AURA; these expenditures are presented in the "Provided to Subrecipients" column within the Schedule and are related primarily to research and development awards received from the National Science Foundation ("NSF") and NASA.

Note 2 - Indirect Cost Rate

AURA has not elected to use the 10 percent de minimis indirect cost rate as allowed under the Uniform Guidance.

Schedule of Findings and Questioned Costs

Association of Universities for Research in Astronomy, Inc.
Schedule of Findings and Questioned Costs

September 30, 2022

Section A - Summary of Auditor's Results

Financial Statements

Type of auditor's report issued on whether the financial statements audited were prepared in accordance with GAAP:	Unmodified opinion
Internal control over financial reporting:	
Material weakness(es) identified?	___ Yes ✓ No
Significant deficiency(ies) identified?	___ Yes ✓ None reported
Noncompliance material to financial statements noted?	___ Yes ✓ No

Federal Awards

Internal control over major programs:	
Material weakness(es) identified?	___ Yes ✓ No
Significant deficiency(ies) identified?	___ Yes ✓ None Reported
Type of auditor's report issued on compliance for major programs:	Unmodified opinion
Any audit findings disclosed that are required to be reported in accordance with 2 CFR 200.516(a)?	___ Yes ✓ No

Identification of major programs:

Name of Federal Program	Assistance Listing Numbers
Research and Development Cluster: National Science Foundation National Aeronautics and Space Administration Department of Defense Department of Energy	All Assistance Listing Present

Dollar threshold used to distinguish between Type A and Type B programs:	$3,000,000
Auditee qualified as a low-risk auditee?	___ Yes ✓ No

Section B - Financial Statement Audit Findings

No matters were reported.

Section C - Major Federal Award Program Findings and Questioned Costs

No matters were reported.

CohnReznick

ADVISORY • ASSURANCE • TAX

Association of Universities
For Research in Astronomy
Suite 1475
1331 Pennsylvania Avenue NW
Washington, DC 20004

March 14, 2023

Mr. Daniel O'Shea, CPA
Partner
CohnReznick, LLP
Bethesda, Maryland

Dear Mr. O'Shea:

We have prepared the accompanying summary schedule of prior audit findings (SSPAF) as required by standards applicable to financial audits contained in Government Auditing Standards and by the audit requirements of Title 2 U.S. Code of Federal Regulation Part 200, *Uniform Administrative Requirements, Cost Principles and Audit Requirements for Federal Awards* (Uniform Guidance). We are reporting the status of audit findings included in the prior audit's schedule of findings and questioned costs.

Sincerely,

Barbara Lam (Mar 14, 2023 11:02 EDT)

Barbara Lam, Chief Financial Officer/Vice President for Operations

ASSOCIATION OF UNIVERSITIES FOR RESEARCH IN ASTRONOMY
SUMMARY SCHEDULE OF PRIOR AUDIT FINDINGS
YEAR ENDED SEPEMBER 30, 2022

FINANCIAL STATEMENT AUDIT FINDINGS

Finding Reference: 2021-001 Material Weakness

Condition: Account reconciliations and other month-end procedures were not performed timely. As a result, there were several instances where material adjusting entries were required to various accounts.

Auditor's Recommendation: Management should ensure that account reconciliations are performed on a timely basis for all accounts.

Current Status: The material weakness has been resolved. AURA recognizes that a timely monthly close and account reconciliation effort are key controls in creating an effective financial reporting environment. AURA devoted significant resources to account reconciliation during the 2022 fiscal year which resulted in reconciled account balances for all key accounts, including those specifically named in the FY21 management letter (accounts receivable, accrued liabilities, due to-from related entities, interfund account, deferred revenue, and revenue).

The final trial balance for fiscal year 2022 was presented to the auditors on February 8, 2023, with minimal changes identified after that time. This final close for fiscal year 2022 was approximately two and a half months earlier than the May 2, 2022 delivery of the final fiscal year 2021 trial balance reflecting the improvements made from the reconciliation efforts during fiscal year 2022.

AURA has continued its monthly close and reconciliation efforts in fiscal year 2023 to ensure the books are closed in a timely manner and that all balance sheet accounts are assigned reconciliation owners and reviewers. The CAS Assistant Controller is responsible for overseeing the monthly account reconciliation process and ensuring open reconciliations are identified and completed. AURA recognizes that immaterial variances remain in certain account reconciliations and is working to have all such items fully resolved. In addition, the CAS Accounting team continues to follow a standard monthly close process to ensure all identified tasks are completed according to the established close guidance.

Finding Reference: 2021-002 Significant Deficiency

Condition: The initial schedule of expenditures of federal awards prepared by management included incorrect amounts of expenditures. The incorrect amounts related to AURA's Space Telescope Science Institute ("STScI") division.

Auditor's Recommendation: We recommend a reconciliation of the schedule of expenditures of federal awards to the related general ledger accounts be performed on a semi-annual basis and any variances be investigated.

Current Status: The significant deficiency has been resolved. STScI has revised the process utilized to compile its portion of the schedule of expenditures of federal awards (SEFA) to exclude billings based on estimates as well as management fees under NASA prime contracts. The SEFA presented for audit in FY22 properly captured actual expenditures for discretionary projects on NASA contracts and excluded all management fees on those contracts.