



FY 2026

TECHNOLOGY AND RESEARCH INITIATIVE FUND REPORT



ABOUT THIS REPORT

This report details Arizona's public universities Technology and Research Initiative Fund (TRIF) expenditures in accordance with state law and the universities' board approved three-year plans.

The report includes sections summarizing fiscal year allocations and fiscal year expenditures, with the latter covering enterprise-level initiatives administered by the Arizona Board of Regents as well as TRIF activities for each of the three universities. Details for each project, including the proposal, progress report, budget for this fiscal year, and performance metrics are presented in the final section. This and previous TRIF reports are available through the Reports section of the Board's website at www.azregents.edu.

ABOUT THE ARIZONA BOARD OF REGENTS

The Arizona Board of Regents is committed to ensuring access for qualified residents of Arizona to undergraduate and graduate institutions; promoting the discovery, application, and dissemination of new knowledge; extending the benefits of university activities to Arizona's citizens outside the university; and maximizing the benefits derived from the state's investment in education.

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September 1, 2026

BACKGROUND

Proposition 301 established the Technology and Research Initiative Fund (TRIF) through an increase in state sales tax dedicated to K-12, community colleges and Arizona's public universities. Collection of the tax began on June 1, 2001, and the proposition was extended for another 20 years in 2018. Twelve percent of collections go to the Arizona Board of Regents to administer for the expansion of research, workforce development and increasing access to public higher education. TRIF monies are continuously appropriated to the board and do not lapse at the end of the fiscal year.

Since its inception in June 2001 the program has received about \$2.1 billion in TRIF funds. In FY 2026, the system received \$139 million in TRIF revenue. The system carried over an additional \$4.2 million from FY 2025 to FY 2026 resulting in \$143.2 million in total TRIF revenues available for budget allocation in FY 2026.

FY 2026 BUDGET ALLOCATIONS

The Board allocated the FY2026 TRIF budget as detailed below and illustrated in Exhibit Enterprise.1:

University Research & Workforce Base Funding

- Board Office Operating – \$2.0 million to the board office for operating expenditures in support of administrative oversight and reporting, specific board initiatives, programs and infrastructure, and activities designed to support and promote the board's TRIF goals and initiatives.
- Base Allocation Funds – \$84.8 million for the universities' board approved three-year TRIF plans. The base allocation awards 40 percent of funding to Arizona State University, 40 percent to the University of Arizona, and 20 percent to Northern Arizona University.

Arizona Board of Regents Grant Programs to Impact and Improve Arizona

- Regents Community Grants Funds – \$1.0 million to a grant funding process designed to engage Arizona's local communities with university resources and talent to solve real world problems at the local level.
- Regents Research Grants Funds – \$8.6 million to a grant funding process designed to address critical Arizona issues and problems by leveraging Arizona's public universities' research talent and assets.

Arizona Board of Regents Approved Initiatives

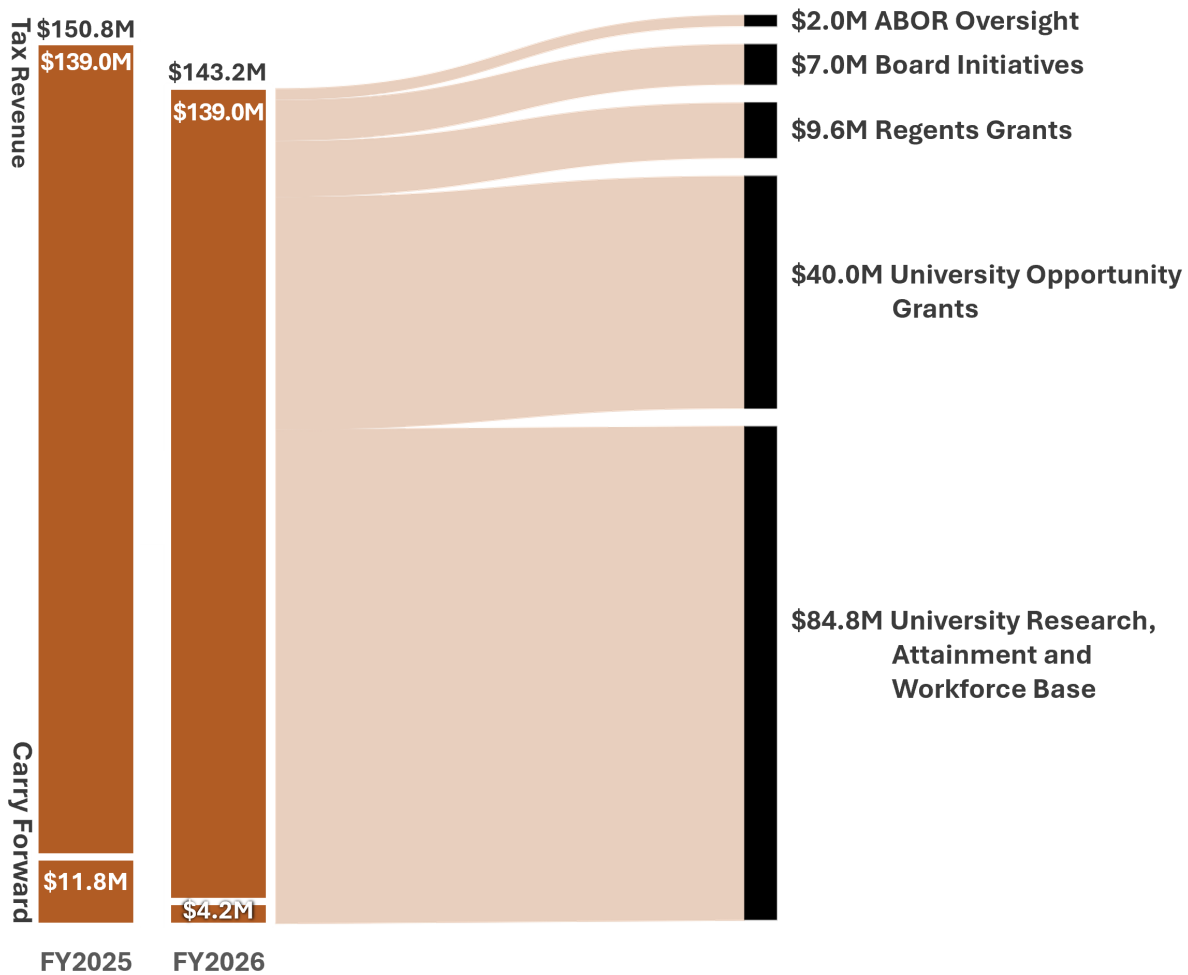
Board approved initiatives, including:

- General Education Assessment – \$300 thousand to the board office and the universities to help design and administer the general education assessments to support and improve student and workforce outcomes.
- Phoenix Bioscience Core – \$1.4 million for the Phoenix Bioscience Core in support of its research, technology transfer and workforce development efforts.
- Southern Arizona Military Installation Initiative – \$0.3 million to accelerate high-impact research and near-term defense solutions to strengthen the readiness and technological advantage of Southern Arizona's military installations.

- Board and university attainment and workforce initiatives - \$5.0 million to expand programs in workforce development including \$2 million at the three universities and \$3 million at the Board office to support projects that include the FAFSA completion program and statewide college-going initiatives to enhance college preparation and access for students and families in Arizona.

Regents' Opportunity Grants Awarded to the Universities

- Regents' Future Opportunity Initiative Funds – \$40 million allocated on a year-by-year and university-by-university basis to support board priorities in research and improving Arizona workforce and higher education access.



FY 2026 AWARDS

The Board approved TRIF awards in FY 2026 as summarized in Table Enterprise.1 below. Awards are approved at various times during the fiscal year and may be for a single fiscal year or for multiple fiscal years. Regents Grants are awarded project-by-project, Base Funding is awarded to an approved slate of projects, while Opportunity Grants and Board Initiative awards may be further subdivided into projects subsequent to the award during implementation.

Note that award amounts will not necessarily align with FY 2026 expenditures (in the next section) because of the timing and precise amounts of actual expenses during project implementation.

Table Enterprise.1: FY 2026 TRIF Awards

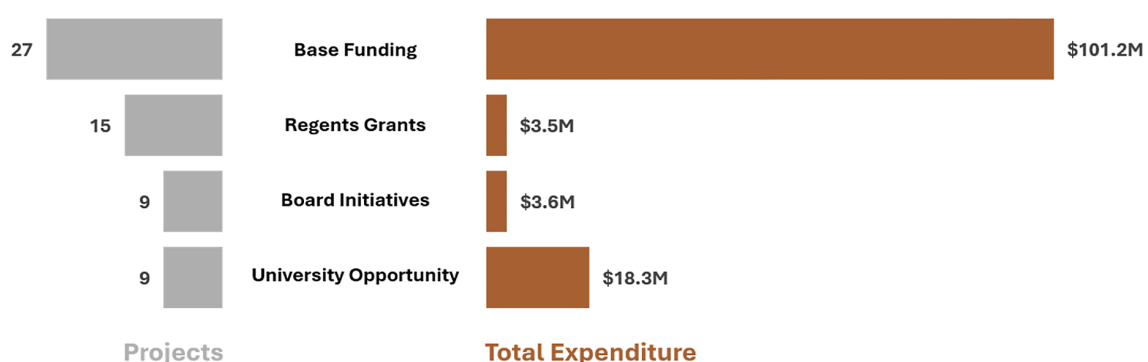
Inst.	Award Type	Title	FY 2026 Amount	Award Period
ABOR	Board Initiative	50 By Fall		FY26
ABOR	Board Initiative	Arizona Basic Needs Report and Tri-University Basic Needs and Student Wellbeing Dashboard	\$ 0.10M	FY26
ABOR	Board Initiative	Arizona College-Going Initiatives: College Application, FAFSA Completion and Decision Day	\$ 0.72M	FY26
ABOR	Board Initiative	AZ Comeback Initiative: Re-Engaging Arizonans with Some College and No Credential	\$ 0.24M	FY26
ABOR	Board Initiative	General Education Assessment	\$ 0.30M	FY26
ABOR	Board Initiative	Phoenix Bioscience Core	\$ 1.40M	FY26
ABOR	Board Initiative	Southern Arizona Military Installation Initiative	\$ 0.30M	FY26
ABOR	Board Initiative	Student Wellness and Wellbeing: Mental Health as Part of Arizona's Student Wellbeing Continuum	\$ 0.10M	FY26
ABOR	Board Initiative	The Arizona FAFSA Peer Coach Program	\$ 0.39M	FY26
ABOR	Regents Grant	ASU Lead: AI Capabilities to Support Emergency Response, Preparedness, Unit Mobilization and Course-of-Action Development	\$ 1.74M	FY26-28
ABOR	Regents Grant	ASU Lead: Distributed RF Based Positioning	\$ 0.09M	FY26
ABOR	Regents Grant	ASU Lead: Drone Charging System	\$ 0.09M	FY26
ABOR	Regents Grant	ASU Lead: Inexperienced Driver Mitigation	\$ 0.28M	FY26-27
ABOR	Regents Grant	ASU Lead: In-Space Wireless Power Transfer	\$ 0.09M	FY26
ABOR	Regents Grant	ASU Lead: Tuevonet-Making AI Results Explainable	\$ 0.09M	FY26
ABOR	Regents Grant	NAU Lead: Glasswing Lead: Modular UAS Autonomy for Complex and GPS-Denied Environments	\$ 0.09M	FY26
ABOR	Regents Grant	NAU Lead: Resilient Zero-Trust Key Exchange	\$ 0.09M	FY26
ABOR	Regents Grant	U of A Lead: Distributed Hybrid Fiber Sensing	\$ 0.09M	FY26
ABOR	Regents Grant	U of A Lead: Morphable Multicopter Uncrewed Aerial Systems (MMU)	\$ 0.09M	FY26
ABOR	Regents Grant	U of A Lead: Strengthening Arizona Agriculture for a Water-Scarce Future	\$ 3.00M	FY26-29
ABOR	Base Funding	ABOR Operations	\$ 2.00M	FY26-28
ASU	Base Funding	Biodesign Institute	\$ 8.00M	FY26-28
ASU	Base Funding	Core Facilities	\$ 5.98M	FY26-28
ASU	Base Funding	Global Futures Laboratory	\$ 3.57M	FY26-28
ASU	Base Funding	Global Security Initiative	\$ 2.25M	FY26-28
ASU	Base Funding	Industry Partnership and Commercialization Ecosystem	\$ 4.05M	FY26-28
ASU	Base Funding	Innovation Ecosystem	\$ 1.26M	FY26-28
ASU	Base Funding	Materials of the Universe	\$ 0.25M	FY26-28
ASU	Base Funding	Microelectronics	\$ 1.93M	FY26-28
ASU	Base Funding	Research Advancement	\$ 6.16M	FY26-28
ASU	Base Funding	Space Exploration	\$ 0.45M	FY26-28
NAU	Base Funding	Community-engaged Health	\$ 0.72M	FY26-28
NAU	Base Funding	Continued Investment in NAU Health Program Personnel	\$ 0.00M	Slate only
NAU	Base Funding	Forest Health, Wildfire and Environment	\$ 1.40M	FY26-28
NAU	Base Funding	Pathogen Genomics & Microbiome Science	\$ 0.91M	FY26-28
NAU	Base Funding	Remote Sensing Applications & Instrument Development	\$ 2.84M	FY26-28
NAU	Base Funding	Research Infrastructure, Innovation and Student Engagement	\$ 9.13M	FY26-28
NAU	Base Funding	Semiconductor and Microelectronic Research	\$ 0.00M	FY26-28
NAU	Base Funding	Start up for New Access and Workforce Development Programs	\$ 0.00M	Slate only
U of A	Opportunity	University of Arizona Opportunity Grant Award	\$ 39.70M	FY26
U of A	Base Funding	Access & Workforce Development (AWD)	\$ 0.77M	FY26-28
U of A	Base Funding	Improving Health	\$ 7.80M	FY26-28
U of A	Base Funding	National Security Systems	\$ 13.05M	FY26-28
U of A	Base Funding	Space Engineering and Optical Sciences	\$ 6.14M	FY26-28
U of A	Base Funding	Water, Environmental and Energy Solutions (WEES) specifically through the Arizona Institute for Resilience (AIR)	\$ 6.14M	FY26-28
Total			\$ 133.93M	

FY 2026 EXPENDITURES

The universities and the Board had FY 2026 TRIF expenditures as summarized in Exhibit Enterprise.2 below in and the subsequent sections, with an overall 60 projects totaling \$126.5 million in expenditures.

Note: actual expenditures within each fiscal year may be a combination of previous year carry forward as well as funds allocated and expended in the current fiscal year, and they do not include unspent allocations that will carry forward into the next fiscal year. Therefore, expenditures do not necessarily align exactly with allocations for the same fiscal year, although they do match over time as carry forward amounts are accounted for. Throughout this report, amounts and percentages may not total exactly due to rounding.

Exhibit Enterprise.2: FY 2026 TRIF Project Count and Expenditure Totals by Type of Award



University Three-Year Base Funding Plans

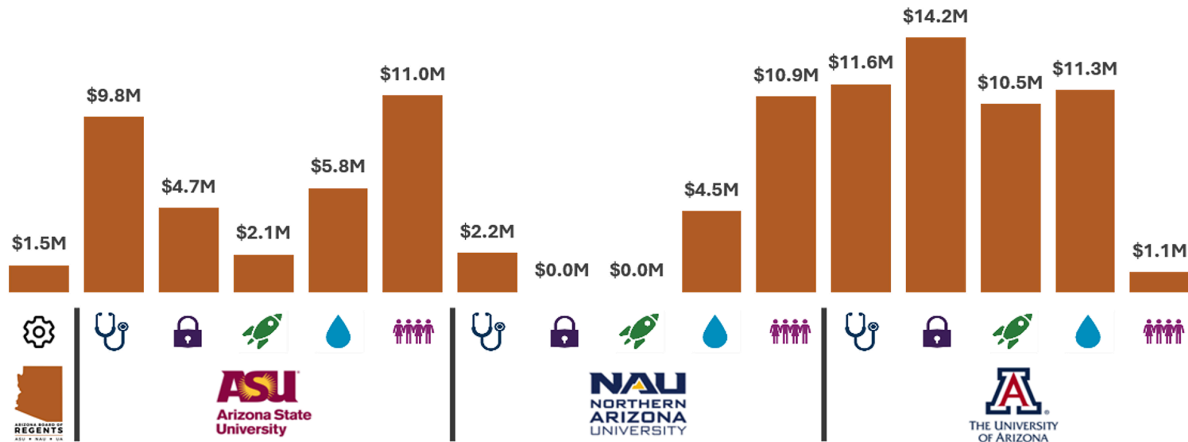
The largest category of TRIF investments is the base allocation awarded to each university for research, attainment, and workforce initiatives in accordance with the universities' board approved three-year TRIF plans. The universities develop the three-year plans in compliance with A.R.S. §15-1648(C).

The three-year plans' identified initiatives and projects must be in one or more of the board-approved research investment areas. The FY 2026 investment area expenditure totals and institutional breakouts are summarized in Table Enterprise.2 and Exhibit Enterprise.3 below. Expenditure for projects covering multiple investment areas were divided equally across each area for this report.

Table Enterprise.2: FY 2026 Base Expenditure Totals by Investment Area

Investment Area	FY 2026 Total
 Administration (ABOR Office)	\$ 1,547,736
 Improving Health	\$ 23,594,498
 National Security Systems	\$ 18,868,229
 Space Exploration and Optical Solutions	\$ 12,537,747
 Water, Environment and Energy Solutions	\$ 21,585,933
 Workforce Development	\$ 23,030,047
Total	\$ 101,164,190

Exhibit Enterprise.3: FY 2026 Institutional Base Expenditures by Investment Area



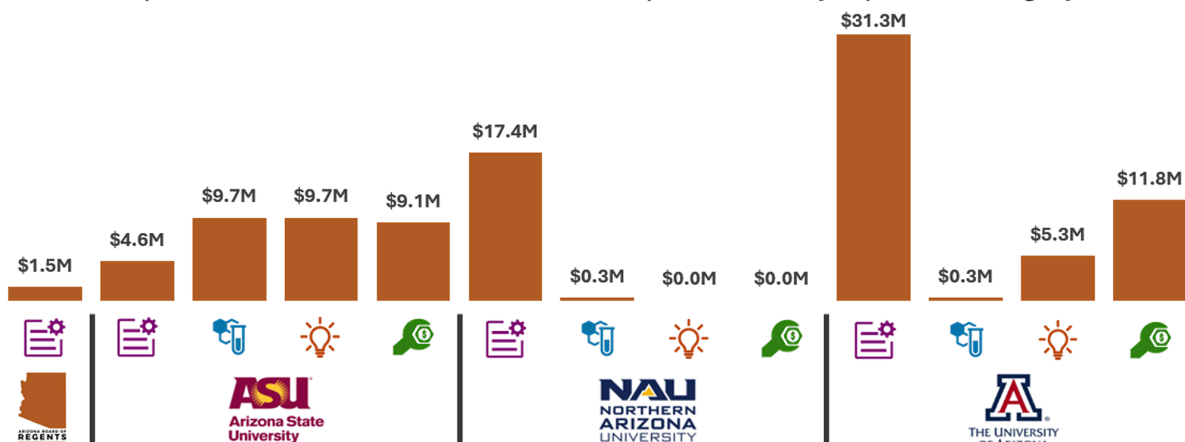
For TRIF supported research initiatives, the universities must also categorize each project or initiative from a research pipeline and infrastructure perspective as summarized in Table Enterprise.3 and Exhibit Enterprise.4 below:

- Infrastructure (defined as support resources and related services used to conduct research and technology transfer)
- Basic Research (defined as new knowledge acquisition and/or five plus years to potential commercial product development)
- Applied Research (defined as two to five years to a potential commercial product)
- Development (defined as less than two years to a commercial product)

Table Enterprise.3: FY 2026 Base Expenditure Totals by Pipeline Category

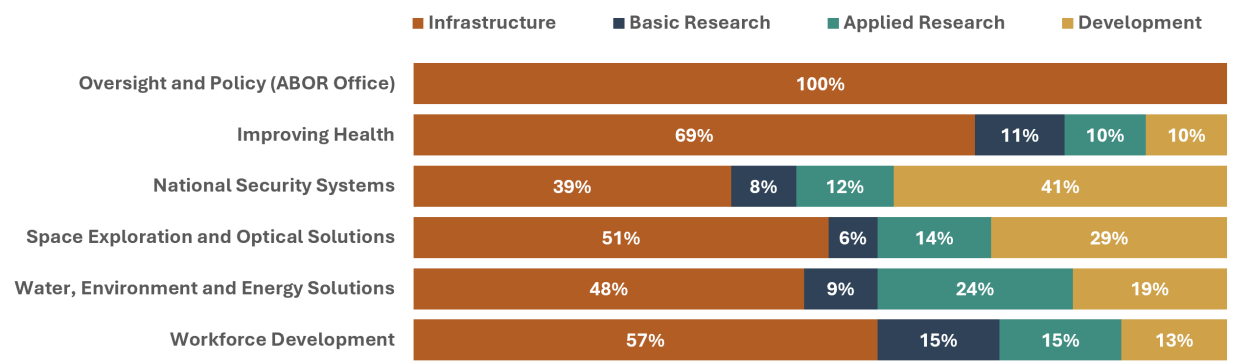
Category	FY 2026 Total
Infrastructure	\$ 54,886,353
Basic Research	\$ 10,314,950
Applied Research	\$ 15,012,056
Development	\$ 20,950,830
Total	\$ 101,164,190

Exhibit Enterprise.4: FY 2026 Institutional Base Expenditures by Pipeline Category



Each investment area had a different proportion of expenditures by research pipeline category that reflect varying needs and priorities of each area, as illustrated in Exhibit Enterprise.5 below.

Exhibit Enterprise.5: FY 2026 TRIF Investment Area Share of Expenditures by Pipeline Category



Regents Research & Community Grants

Regents’ Grants bring together Arizona public universities’ researchers with state government agencies and community organizations to tackle pressing challenges facing our state. These grants are awarded on a project-by-project basis as approved by the Board, with funds typically flowing to more than one university depending on the research team assembled for each project.

Examples of grant awards with expenditures in FY 2026 include AI for emergency response, enhancing ADEQ’s communication and engagement, inexperienced driver mitigation, critical minerals recovery from copper mine tailings, and strengthening Arizona agriculture for a water-scarce future.

The FY 2026 total expenditures for Regents Grants were \$3,502,397. Note that, in a few cases, actual expenditure was not available at the time of this report and allocated funds were used. Regents Grants are summarized in the ABOR section, and totals are also shown for the lead university in each of those respective sections.

ABOR Initiatives

Board-approved initiatives support projects at the Board Office and at the universities. The FY 2026 total expenditures on ABOR Initiatives were \$3,568,575. See the ABOR section for further details.

University Opportunity Grants

Opportunity grants support designated Board priorities in research and improving Arizona workforce and higher education access. The FY 2026 expenditures by investment area and pipeline category are summarized in Tables Enterprise.4 and Enterprise.5 below. This fiscal year, all expenditures for opportunity initiatives were at the University of Arizona.

Table Enterprise.4: FY 2026 Opportunity Grant Totals by Investment Area

Investment Area	FY 2026 Total
 Improving Health	\$ 15,653,595
 National Security Systems	\$ 1,088,368
 Space Exploration and Optical Solutions	\$ 882,611
 Water, Environment and Energy Solutions	\$ 641,404
Total	\$18,265,978

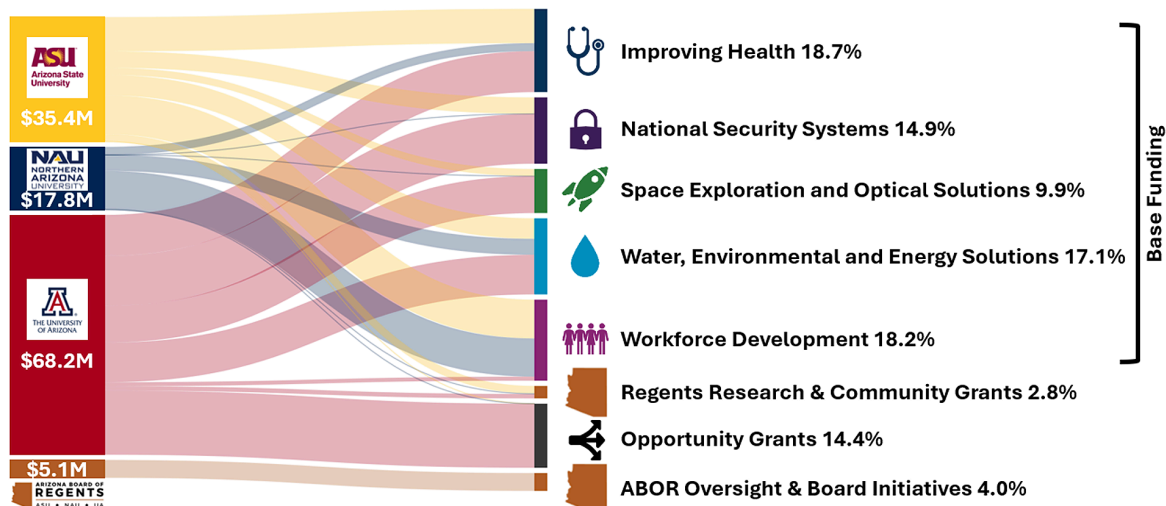
Table Enterprise.5: FY 2026 Opportunity Grant Expenditure Totals by Pipeline Category

Category	FY 2026 Total
 Infrastructure	\$ 17,972,900
 Basic Research	\$ 0
 Applied Research	\$ 0
 Development	\$ 293,078
Total	\$18,265,978

Combined Expenditure Views

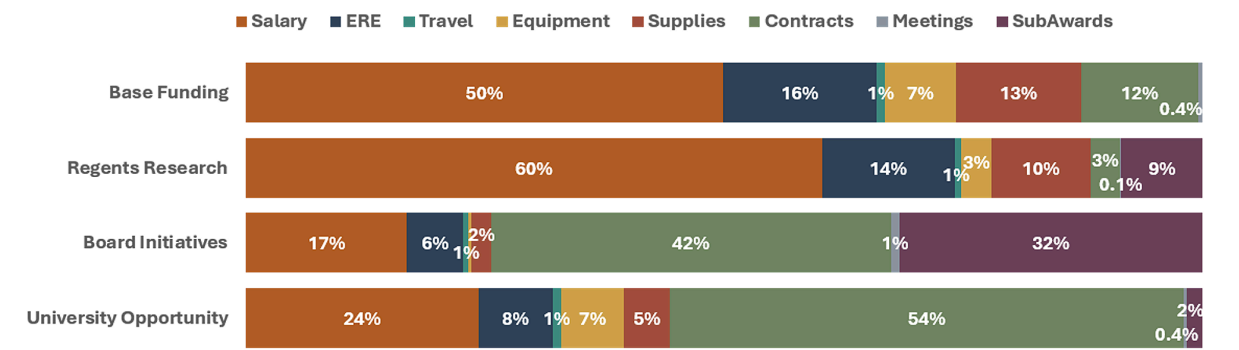
The full set of FY 2026 TRIF expenditures summarized in the sections above are complicated, especially when broken out by project area and institution. To better visualize the overall picture, these funding flows are illustrated in Exhibit Enterprise.8 below.

Exhibit Enterprise.8: FY 2026 All TRIF Expenditures by Institution and Investment Area/Type



Each project type had a different proportion of expenditures by budget category that reflect varying needs and priorities of each area, as illustrated in Exhibit Enterprise.9 below.

Exhibit Enterprise.9: FY 2026 Budget Category Share of Expenditures by Project Type

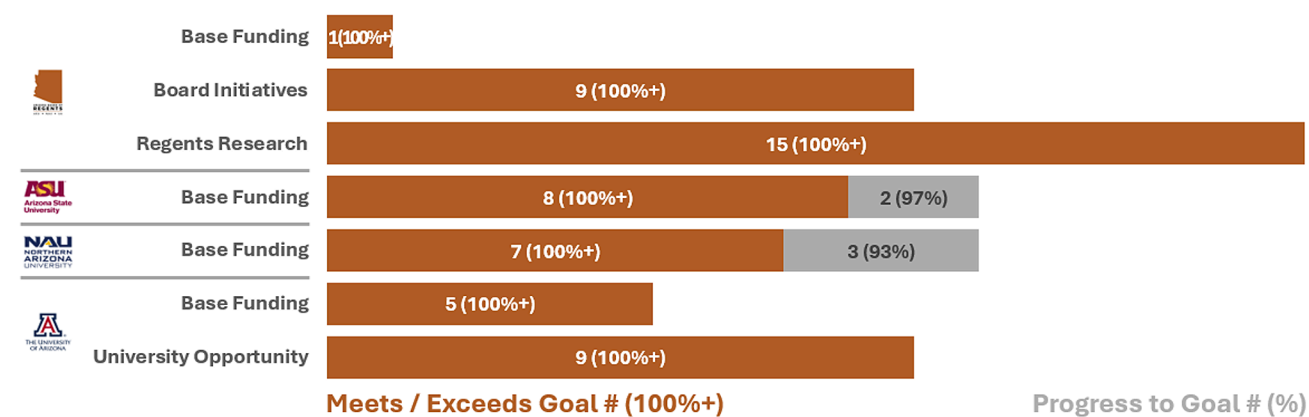


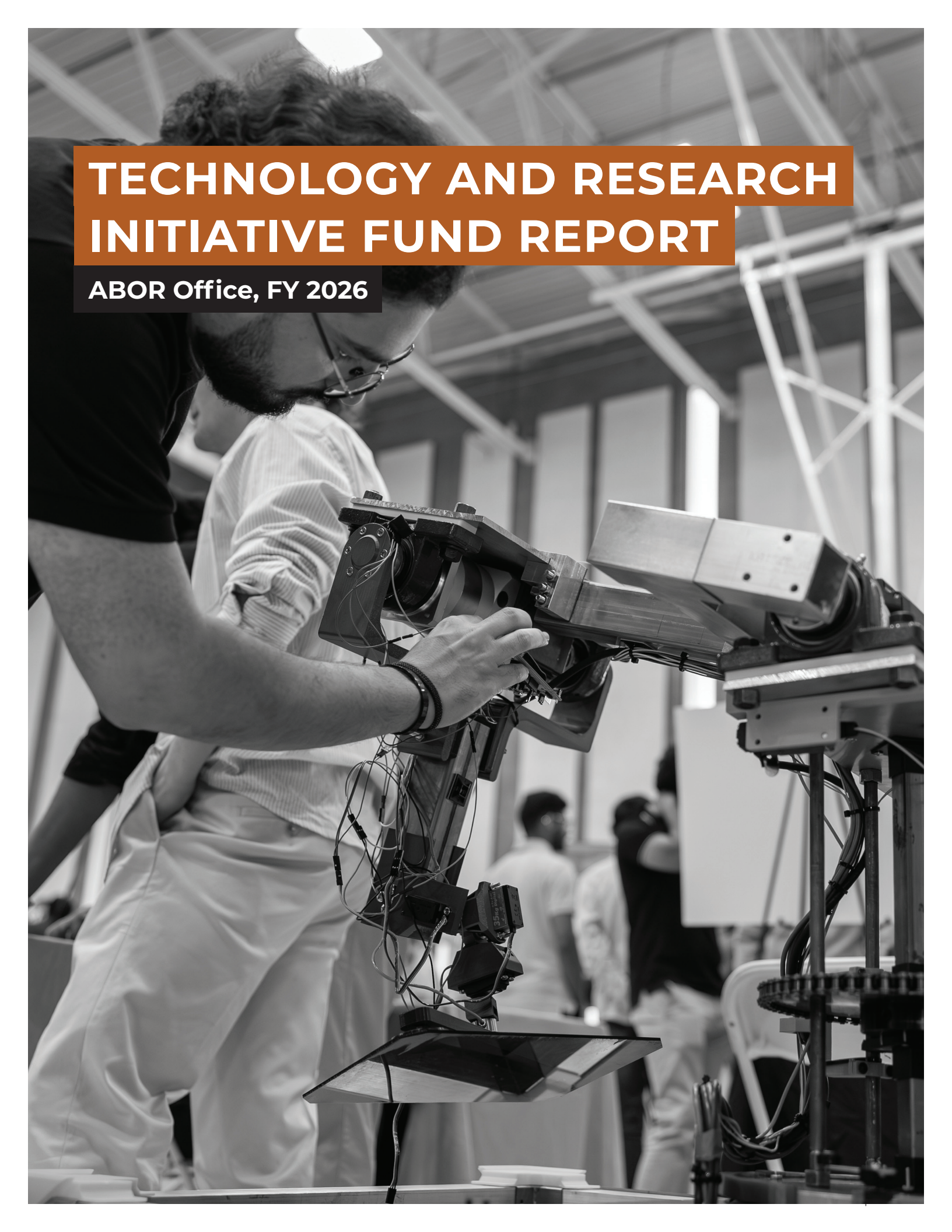
Performance Measures

At least one and up to five performance metrics are required annually for each project, as detailed in the individual project reports. The nature of projects varies immensely and therefore one-size-fits-all performance measures are not useful. Instead, meaningful quantitative metrics are established on a project-by-project basis with an annual numerical goal and actual performance data for each metric.

In FY 2026 nearly all projects met or exceeded their performance goals, averaging 100 percent or more of their target across metrics, as summarized in Exhibit Enterprise.10. A small number of projects did not fully achieve their numerical goals but averaged over 90 percent progress toward those goals across metrics.

Exhibit Enterprise.10: FY 2026 TRIF Average Metric Performance Against Project Goals by Institution and Project Type





TECHNOLOGY AND RESEARCH INITIATIVE FUND REPORT

ABOR Office, FY 2026

EXECUTIVE SUMMARY

The Technology and Research Initiative Fund (TRIF) enables the Arizona Board of Regents to advance statewide priorities in research, innovation, student success, and workforce development through coordinated investments that strengthen Arizona's public university system. During FY 2026, ABOR provided strategic oversight and administration of a diverse TRIF portfolio that included operational support, the Phoenix Bioscience Core, Tri-University General Education Assessment, Regents Research Grants, and statewide student success and attainment initiatives. Together, these investments foster collaboration among Arizona's public universities, industry, K-12 education, healthcare organizations, community partners, and state agencies to address Arizona's most pressing economic, workforce, and educational needs.

TRIF investments supported innovation across the entire student and research continuum. The Phoenix Bioscience Core strengthened Arizona's life sciences ecosystem through research collaboration, entrepreneurship, and commercialization activities. The Tri-University General Education Assessment Initiative advanced a coordinated framework for assessing student learning outcomes across Arizona's public universities. The Regents Research Grant Program funded 15 early-stage research projects with strong potential for commercialization, industry partnerships, and future external funding in areas critical to Arizona's economic competitiveness.

Beyond research, TRIF supported a coordinated portfolio of statewide student success initiatives that expand educational opportunities and improve postsecondary attainment. These efforts included the 50% by Fall FAFSA Completion Incentive Program, the FAFSA Peer Coach Program, the Arizona College Application Campaign, FAFSA Challenge, Arizona Decision Day, AZ Comeback, and the continued development of the Basic Needs and Student Wellbeing Dashboard. Together, these initiatives reduce barriers to higher education, support student persistence and completion, and strengthen Arizona's talent pipeline.

Collectively, TRIF investments demonstrate the Arizona Board of Regents' commitment to leveraging research, innovation, and student success initiatives to improve educational outcomes, accelerate economic development, and position Arizona's public universities as national leaders in discovery, workforce preparation, and public impact.

Exhibit ABOR.1: FY 2026 All TRIF Expenditures by Investment Area

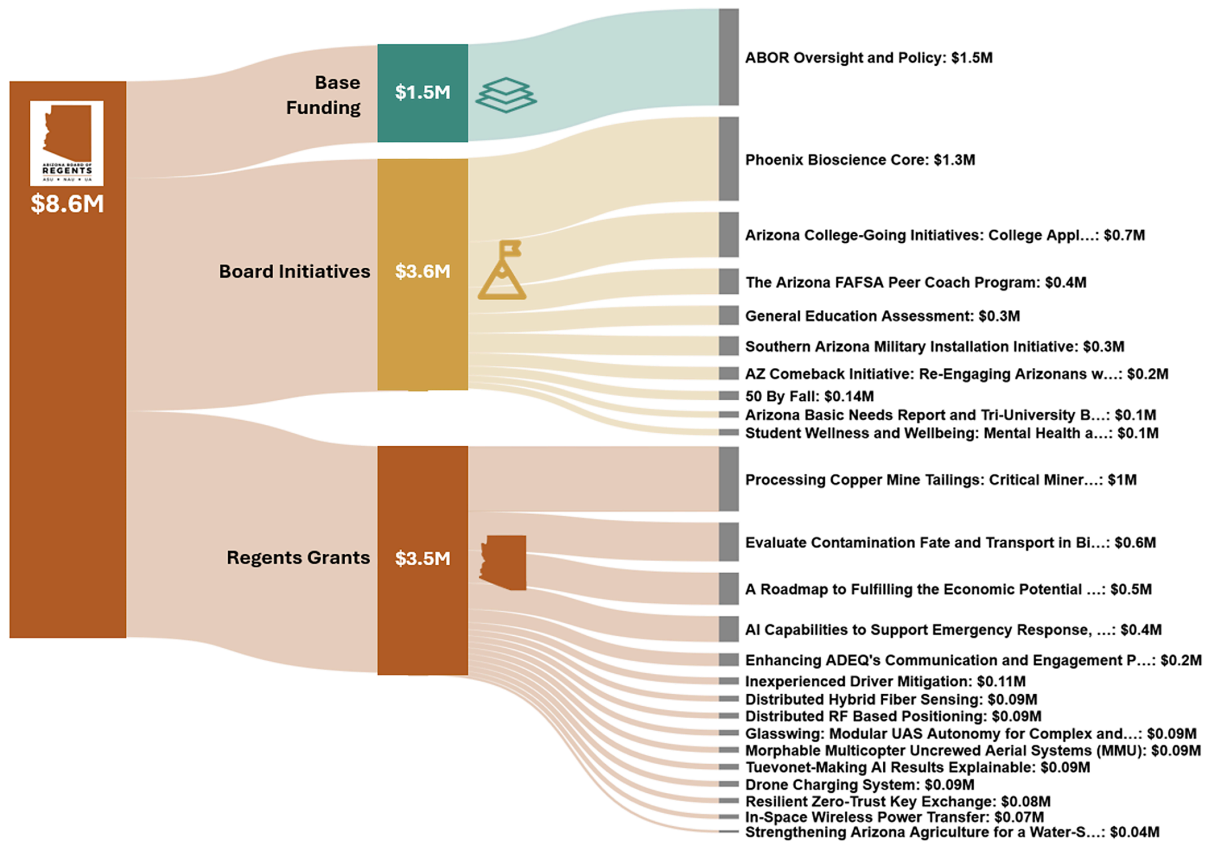


Exhibit ABOR.2: FY 2026 TRIF Average Metric Performance Against Project Goals

Base Funding	ABOR Oversight & Policy	100%+
	50 By Fall	100%+
	AZ/Tri-U Basic Needs & Student Wellbeing Dashboard	100%+
	AZ College-Going Initiatives: Apps, FAFSA & Decision	100%+
	AZ Comeback Initiative: Re-Engaging SCNC Arizonans	100%+
	General Education Assessment	100%+
	Phoenix Bioscience Core	100%+
	Southern Arizona Military Installation Initiative	100%+
	Student Wellness and Wellbeing: Mental Health	100%+
	The Arizona FAFSA Peer Coach Program	100%+
Board Initiatives	Roadmap for Tech Transfer in Life Sci. & Biomedicine	100%+
	AI to Support Emergency Response, Preparedness, ...	100%+
	Distributed Hybrid Fiber Sensing	100%+
	Distributed RF Based Positioning	100%+
	Drone Charging System	100%+
	Enhancing ADEQ's Comms & Engagement Practices	100%+
	Evaluate Contamination Fate and Transport in Biosolids	100%+
	Glasswing: Modular UAS Autonomy for Complex ...	100%+
	Inexperienced Driver Mitigation	100%+
	In-Space Wireless Power Transfer	100%+
Regents Grants	Morphable Multicopter Uncrewed Aerial Systems (MMU)	100%+
	Processing Copper Mine Tailings: Critical Minerals ...	100%+
	Resilient Zero-Trust Key Exchange	100%+
	Strengthening AZ Agriculture for a Water-Scarce Future	100%+
	Tuevonet-Making AI Results Explainable	100%+

TECHNOLOGY AND RESEARCH INITIATIVE FUND REPORT

Arizona State University, FY 2026



EXECUTIVE SUMMARY

The Technology and Research Initiative Fund has been foundational to Arizona State University's emergence as a national research and education powerhouse. TRIF investment enables projects and programs that yield tremendous benefits to Arizona and address challenges unique to our state.

Since TRIF's inception, ASU's annual research expenditures have increased more than eightfold and surpassed \$1 billion. This places the university among the top 4% of research institutions nationwide and at #5 in the nation for institutions without a medical school. Over the past 26 years, TRIF has helped ASU to attract nearly \$4 billion in external funding, a fourfold return on investment. TRIF support has trained more than 27,600 graduate students and postdoctoral scholars and 14,200 undergraduates, equipping them with the skills, knowledge and experience required to succeed in the changing job market.

In FY 2026 alone, TRIF investment fueled \$253 million in outside-related sponsored project funding. Some notable TRIF-enabled achievements at ASU in FY 2026 include:

- The Southwest Advanced Prototyping (SWAP) Hub was approved for a third year of funding from the Department of War. It is the only hub to advance all of its projects after the first year, and collaborates with over 200 partners, including major semiconductor and defense companies.
- The Julie Ann Wrigley Global Futures Laboratory received philanthropic gifts that drastically expand opportunities for students and accelerate innovation. These include \$50 million to launch the Global Institute for the Future of Energy and \$115 million, the largest gift in ASU's history, to establish the Rob Walton School of Conservation Futures.
- An ASU startup recently launched a CLIA-certified, Arizona-based lab that offers urine-based autism screening services. The new screening tool opens the door to earlier diagnosis and treatment.
- In FY 2026, the National Academy of Inventors ranked ASU No. 5 nationally and No. 9 globally among universities securing U.S. patents, ahead of Harvard, Johns Hopkins, Caltech and others.
- The J. Orin Edson Entrepreneurship + Innovation Institute continued to expand access to entrepreneurial training and resources, serving 551 new student-led ventures, 3,803 individuals and 720 businesses through community entrepreneurship initiatives, and maintained a pipeline of 200 faculty-founded ventures.
- The compact X-ray light source instrument, precursor to the Compact X-Ray Free Electron Laser (CXFEL), has successfully produced X-rays and confirmed its ability to solve protein structures. Work on novel proteins will begin in FY 2027.
- A FY 2026 report found ASU's economic impact through Skysong Innovations services from 2014–2025 reached \$2.7 billion in Arizona alone. This impact includes at least \$919 million in labor income, \$87 million in tax revenues and 14,395 job-years for Arizona communities.

TRIF remains foundational to the continued success and strength of Arizona's economy. Long-term investment in research not only draws companies to locate in our state but creates Arizona-born businesses capable of advancing breakthrough technologies. Through

research and partnerships, ASU is shaping a skilled workforce and infrastructure that enables companies to stay competitive and relevant. Businesses, in turn, deliver promising employment opportunities for our communities — a virtuous cycle of economic growth and well-being for generations to come.

Exhibit ASU.1: FY 2026 TRIF Expenditure by Project Type & Investment Area

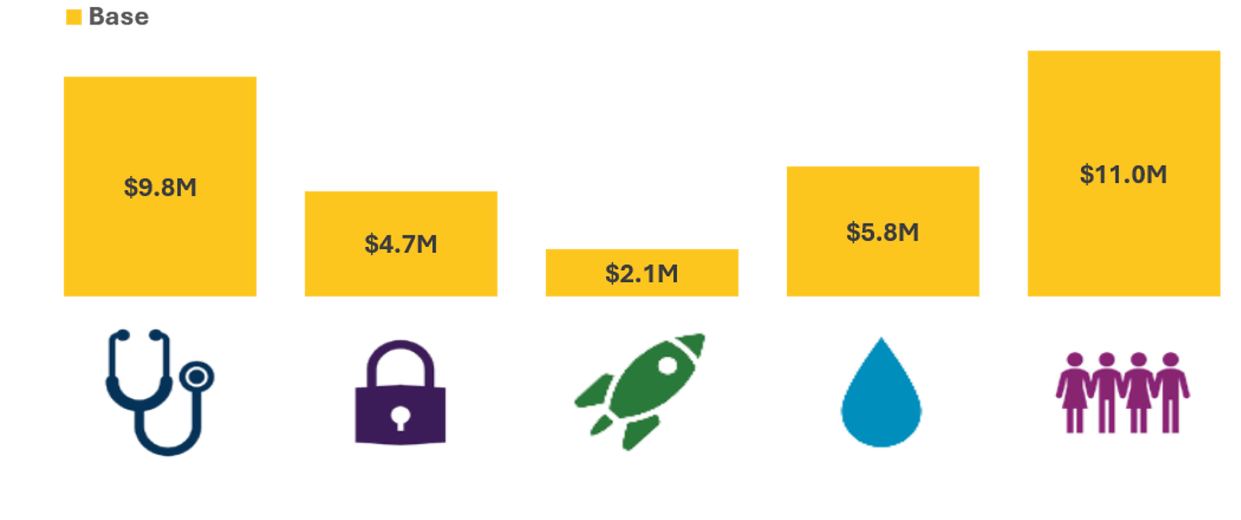


Exhibit ASU.2: FY 2026 TRIF Expenditure by Project Type & Pipeline Category

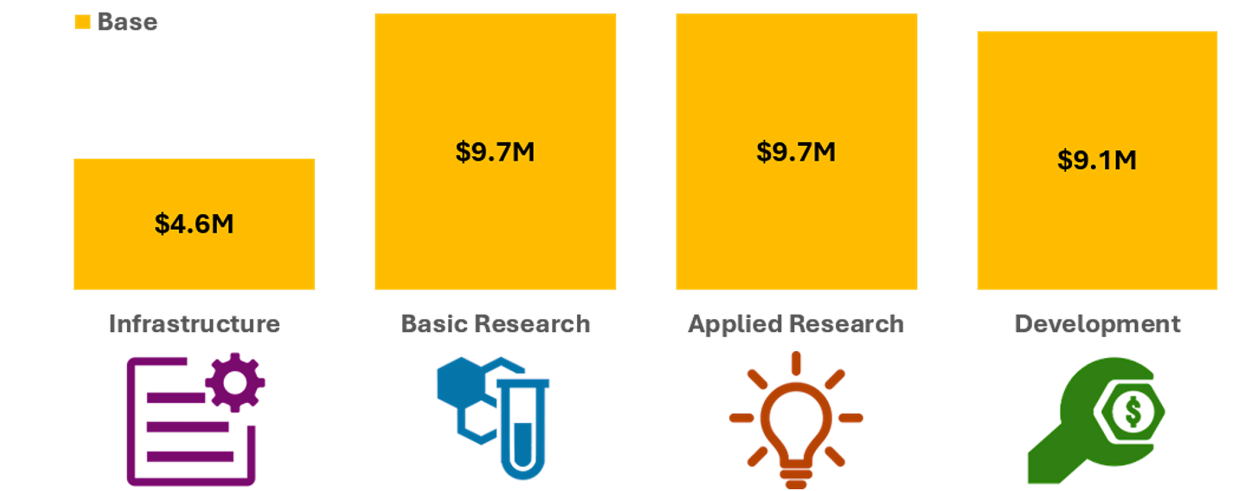


Exhibit ASU.3: FY 2026 All TRIF Expenditures by Investment Area

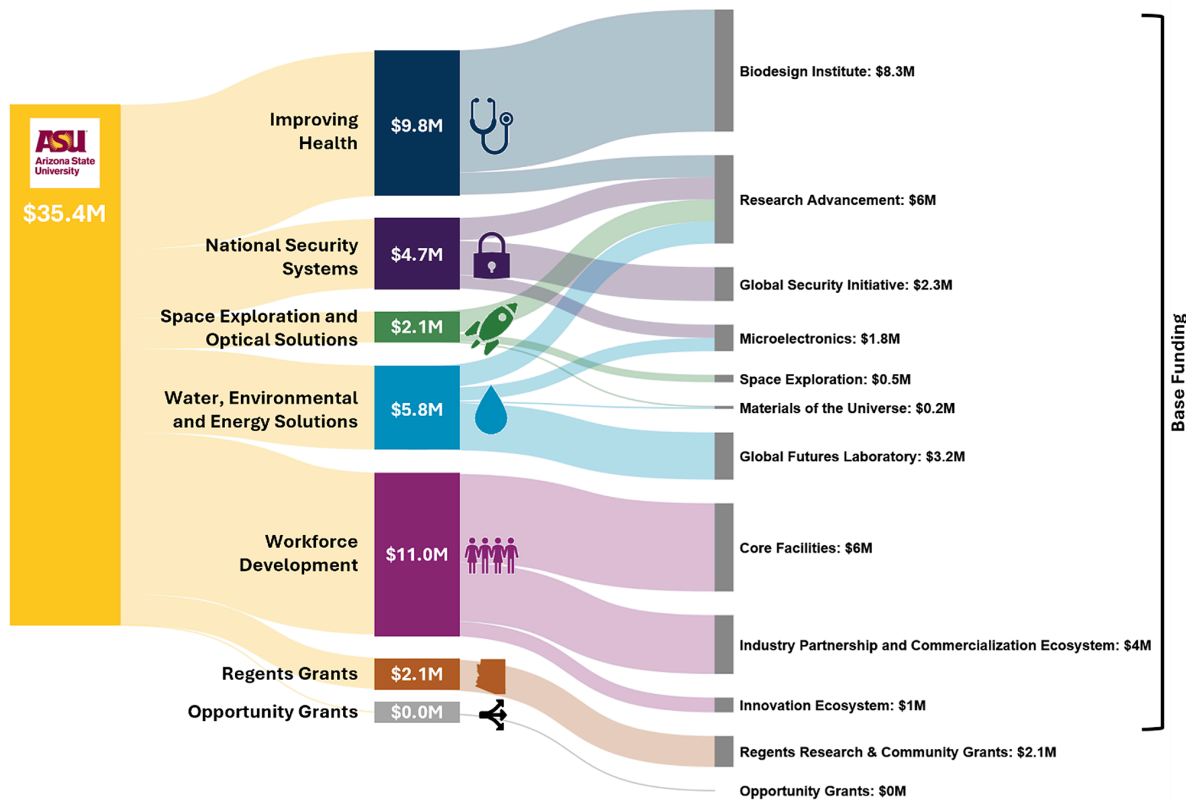
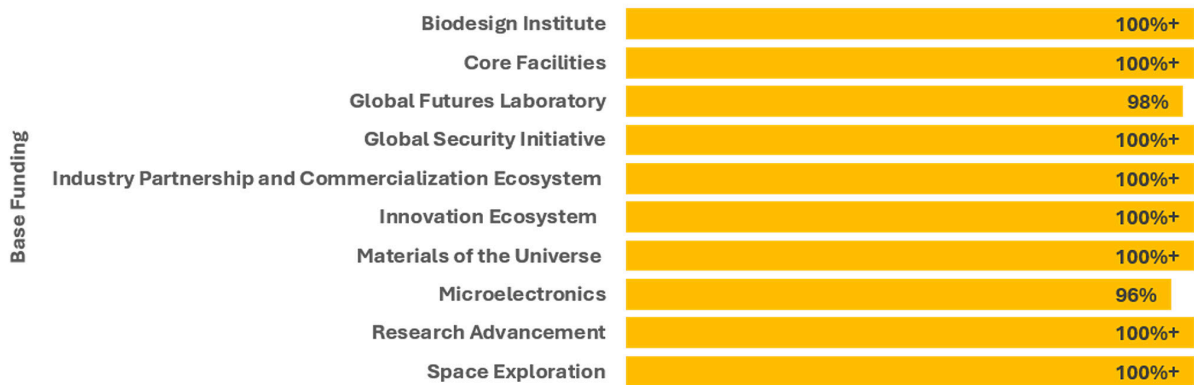
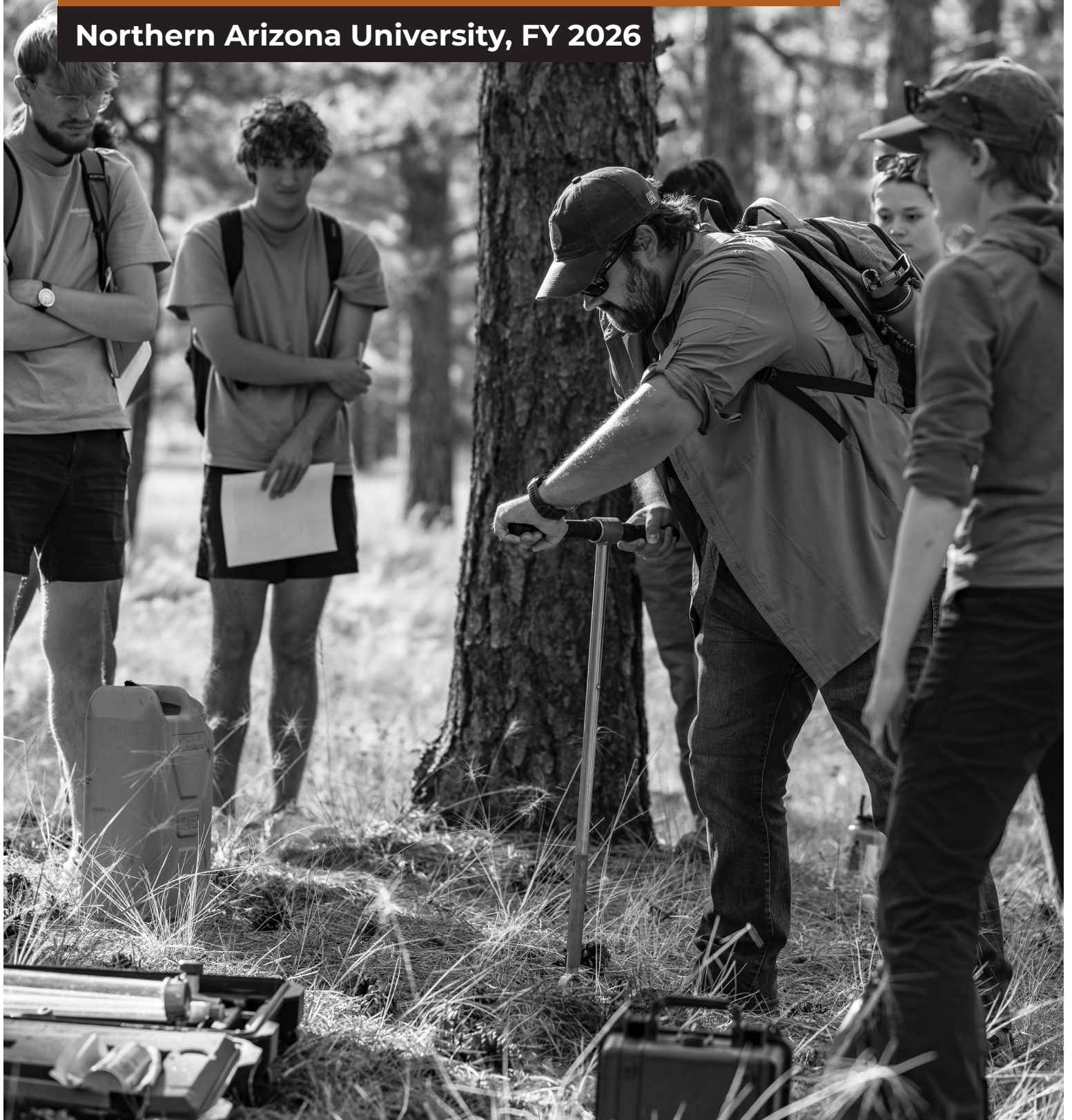


Exhibit ASU.4: FY 2026 TRIF Average Metric Performance Against Project Goals



TECHNOLOGY AND RESEARCH INITIATIVE FUND REPORT

Northern Arizona University, FY 2026



EXECUTIVE SUMMARY

TRIF investment at Northern Arizona University has played a pivotal role driving research growth and empowering student access and workforce development programs. NAU was recently recognized as an R1 research university by the Carnegie Foundation, which is the highest classification for higher education research institutions in the United States; this designation reflects NAU's strong performance in research activity and doctoral degrees awarded, which have been enabled by state of Arizona TRIF funds. NAU uses TRIF funding to invest in innovative high priority research areas that address the needs of our state, and leverages TRIF investments to grow our portfolio of externally sponsored research programs.

In FY26 NAU's TRIF investments directly empowered cutting-edge research that addresses critical issues in Arizona and beyond including the following impactful examples. Advances made by NAU Pathogen Genomics researchers in genomic surveillance and diagnostics are improving the state's capacity to detect and respond to infectious disease outbreaks, while their research insights inform public health decision-making. NAU's Community Engaged Health's research and outreach efforts supported culturally centered interventions in areas such as cancer prevention, substance use, chronic disease, and telehealth access, while Center for Native American Cancer Prevention (NACP) initiatives specifically addressed cancer disparities among Native populations through community-engaged education, screening, and workforce development. The Semiconductor and Microelectronics Research program is in the process of expanding its microelectronics ecosystem, highlighted by the development of the Microelectronics Processing and Characterization Testing (MPaCT) Lab, a \$13M shared-use facility supporting semiconductor fabrication, metrology, and characterization. The Remote Sensing and Instrument Development initiative's work included development and application of advanced sensing approaches across platforms (Unmanned Aerial Vehicles-terrestrial, satellite, and space-based systems), expansion of computing and data infrastructure, and integration of engineering and science teams to design and test new remote sensing instruments. These projects are part of an impactful TRIF investment portfolio that also encompasses critical fields of study including wildfire and environmental science, and activities with strong emphasis on fostering student success and further developing research infrastructure and programs.

Additionally, NAU uses TRIF funding to support programming that addresses workforce needs in the state of Arizona. A priority for NAU's use of TRIF dollars is training our students in science and technology fields that represent rapidly evolving sectors of Arizona's economy and long-standing workforce needs, such as healthcare, education, engineering technology and hospitality business administration. TRIF investments are essential to empower adult learners, reduce degree completion time and cost, and strengthen Arizona's workforce for the future. Additional workforce efforts focus on harnessing advancing applications for Artificial Intelligence in teaching, student learning, institutional operations, and scholarly endeavors.

NAU's investment of TRIF dollars consistently generates positive impact through the direct outcomes of the projects it supports, by attracting additional investment from federal, industry, foundation and other sponsors, and through the student training and workforce development opportunities that it creates.

Exhibit NAU.1: FY 2026 TRIF Expenditure by Project Type & Investment Area



Exhibit NAU.2: FY 2026 TRIF Expenditure by Project Type & Pipeline Category

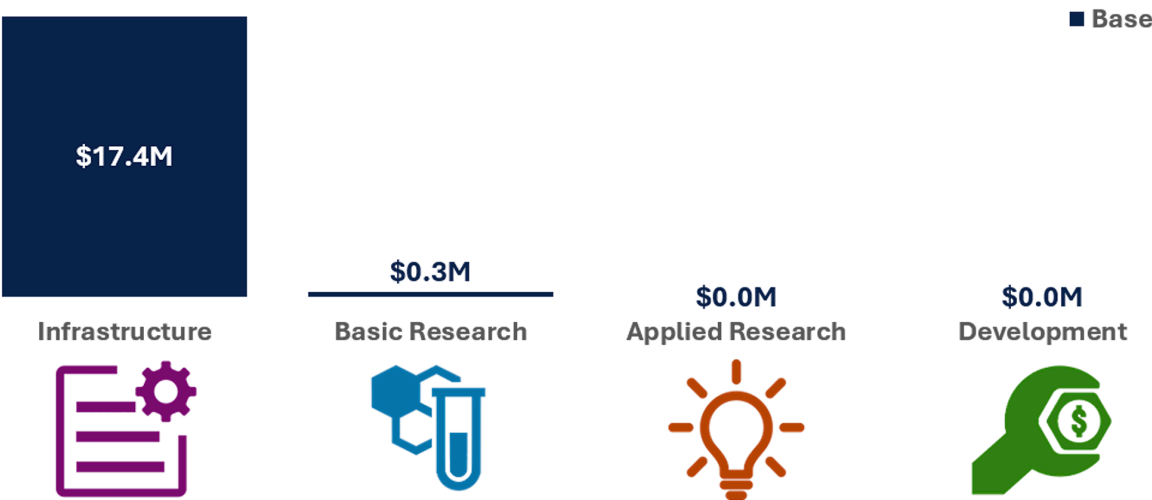


Exhibit NAU.3: FY 2026 All TRIF Expenditures by Investment Area

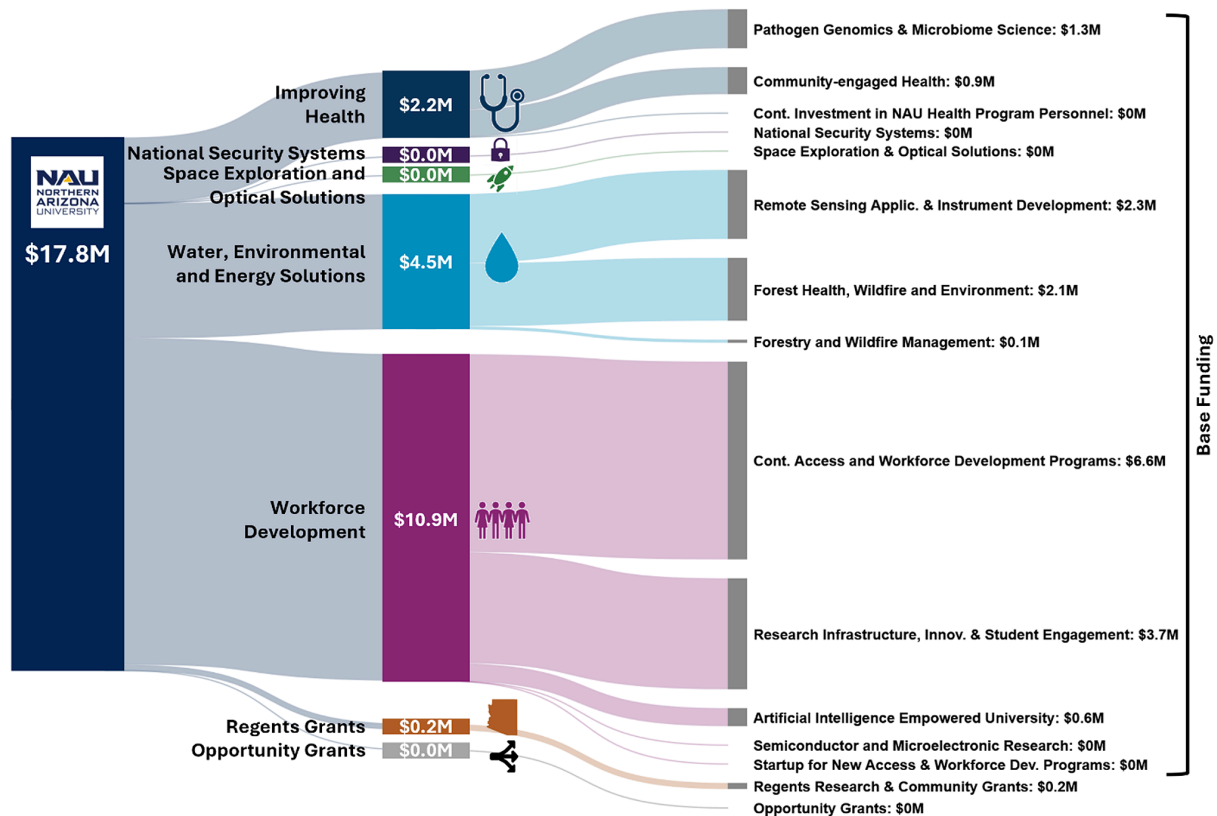
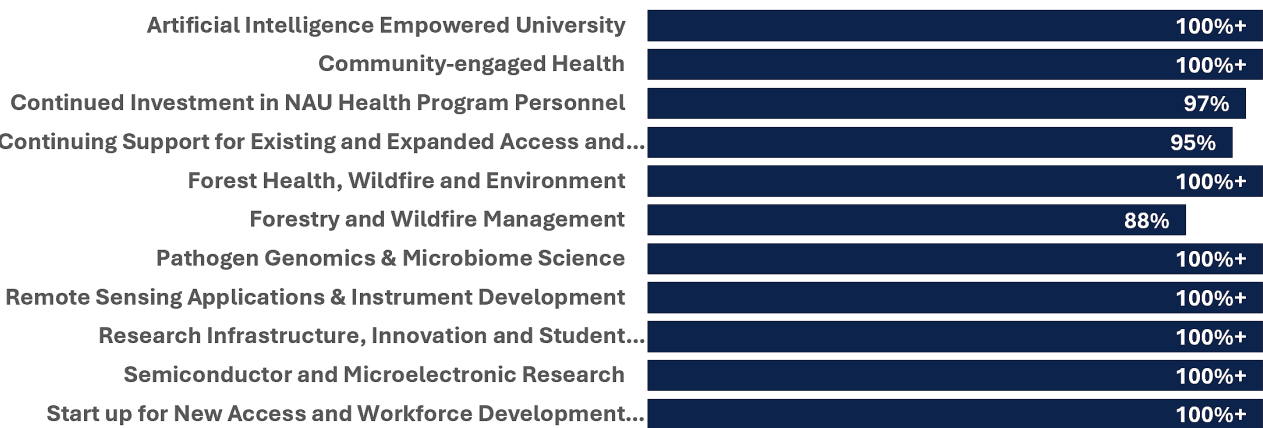


Exhibit NAU.4: FY 2026 TRIF Average Metric Performance Against Project Goals



A black and white photograph of a large astronomical telescope, likely at a university observatory. The telescope is a large, complex structure with a prominent circular opening at the top. A person, a young man with glasses and a mustache, is standing in the foreground, gesturing with his right hand towards the telescope. He is wearing a dark polo shirt with a logo that reads "J. LEMMON STICENTER". The background shows the intricate mechanical parts of the telescope, including a large circular structure at the top and various support beams.

TECHNOLOGY AND RESEARCH INITIATIVE FUND REPORT

University of Arizona, FY 2026

EXECUTIVE SUMMARY

The Technology and Research Initiative Fund, or TRIF, fuels the University of Arizona's ability to expand research, strengthen workforce development, drive economic impact and deliver tangible benefits to communities across the state. TRIF investments align with the U of A's strategic imperatives and Arizona Board of Regents priorities.

Across TRIF-funded programs, the University of Arizona advances its three strategic imperatives in powerful, interconnected ways. Student Success is strengthened through research and mentoring experiences from K-12 to graduate school, particularly for tribal populations and communities in need. Community Engagement thrives through partnerships that co-develop solutions in areas such as water, climate resilience, public health and economic growth. Research That Shapes the Future spans artificial intelligence in health, national security in space, fusion energy and sustainable mining — preparing the next generation of problem solvers and delivering lasting benefits for Arizona's people, ecosystems and economy.

In FY26, TRIF investments helped:

Accelerate research impact: TRIF seed funding repeatedly converts modest investments into major external awards and translational breakthroughs, contributing to \$939.3 million in research activity (Higher Education Research and Development, FY25, the most recent year available).

- TRIF investments contributed to 59 patents and four startups in FY26.
- TRIF-enabled results underpinned a \$30 million Schmidt Sciences award to build instruments for the Lazuli space telescope, along with a \$1.3 million Moore Foundation award in quantum materials and multiple NSF CAREER and DARPA awards.
- TRIF supported the National Institutes of Health renewal of the University of Arizona Superfund Research Center — a \$14 million grant addressing human health in arid, mining-adjacent environments — and enabled the first live imaging of the fallopian tubes with a miniature endoscope, a potential early-detection device for ovarian cancer.
- Seed grants in space and optical sciences returned an estimated 1:171 on the seed program, helping secure \$2.7 million for the Large Binocular Telescope Observatory and more than \$8 million from the U.S. Space Force.

Inspire students: TRIF strengthens Arizona's workforce pipeline through hands-on research and STEM training, reaching 16,663 students in FY26.

- Course-Based Undergraduate Research Experiences served 4,303 students; those who took them were up to three times as likely to be retained in STEM, and Arizona Science, Engineering and Math Scholars showed STEM six-year graduation rates 17% higher than the general U of A STEM population.
- Across national security projects, TRIF supported hands-on training for roughly 6,350 undergraduates, more than 315 graduate students and more than 40 postdoctoral researchers; the Cyber Operations degree has grown to more than 1,600 majors.

Recruit and retain talent: TRIF helps attract and sustain the researchers and faculty central to the university's land-grant mission, supporting 224 postdoctoral researchers and \$6.34 million in faculty startup investment in FY26.

Build infrastructure and bridge gaps: TRIF funds state-of-the-art facilities and provides early-stage support for promising projects in an unpredictable federal funding environment.

- The University of Arizona Space Institute's environmental-test complex (large thermal-vacuum chamber, dynamics lab and anechoic chamber) was commissioned and now serves external customers including Rocket Lab and NASA Goddard.
- The FASTLab semiconductor training and research cleanroom is on track to open in fall 2026, preparing students for Arizona's expanding chip-manufacturing sector.
- The Translational Bioimaging Resource added two of the most advanced AI-driven MRI systems available, expanding access to state-of-the-art imaging and anchoring the new BIO5 Brain & Body Imaging Center.

TRIF investments drive University of Arizona leadership in fields critical to Arizona and the nation. In National Security and Space, projects advance sensing, imaging, quantum networking and space exploration. Fusion research tackles engineering challenges from first-wall materials to target manufacturing and radiation detection. AI in Health transforms patient care through advanced imaging, biosensors and precision medicine. In Mining and Critical Minerals, industry collaborations create sustainable water-use strategies, improve extraction methods and advance safety technologies — ensuring Arizona remains at the forefront of innovation and its responsible application.

TRIF Opportunity Initiatives: In FY26, dedicated Opportunity funding launched three cross-disciplinary initiatives in the university's highest-priority areas.

- **AI-Driven Health Care Innovation:** In its foundational year, the initiative launched the Office of Responsible AI as the university-wide hub for responsible AI, invested more than \$900,000 in seed funding across 12 transdisciplinary teams, and convened the inaugural AI in Health Innovation Symposium (135 attendees). Its Convergent Digital Health for Remote Access rural-health project produced a provisional patent (CliniAI) and a \$750,000 invited proposal.
- **National Security in Space:** In its first year, roughly \$814,000 across six commitments anchored the establishment of the Kyl Institute for National Security and advanced the Oculus space-optics capability — a \$4 million facility award, the astrOptica spin-out and contract discussions exceeding \$100 million.
- **The Promise of Fusion Energy:** In its foundational year, the initiative established a university-wide fusion energy engineering program spanning six engineering and science disciplines and selected 16 interdisciplinary seed projects — involving industry partners and national laboratories — to begin in FY27. With fusion startup Inertia and Lawrence Livermore National Laboratory, the university secured an \$825,000 Department of Energy BRIDGE project, received a \$1 million private donation for industry-partnered fusion engineering, and joined the national STARFIRE Hub.

As federal research funding grows more uncertain, TRIF's flexible, state-based investment becomes only more essential — sustaining the facilities, talent and early-stage ideas that keep the University of Arizona competitive and position the state for continued leadership in FY27 and beyond.

Exhibit UA.1: FY 2026 TRIF Expenditure by Project Type & Investment Area

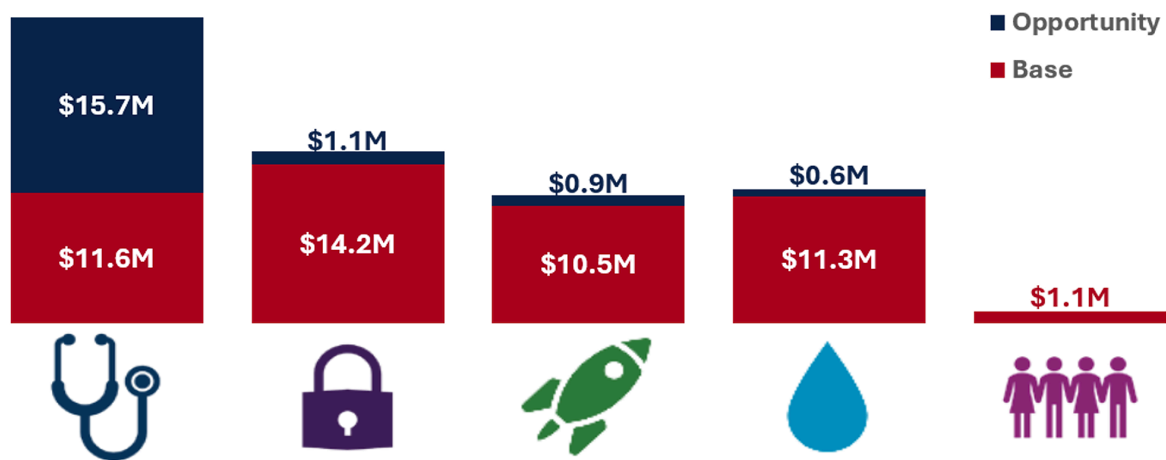


Exhibit UA.2: FY 2026 TRIF Expenditure by Project Type & Pipeline Category

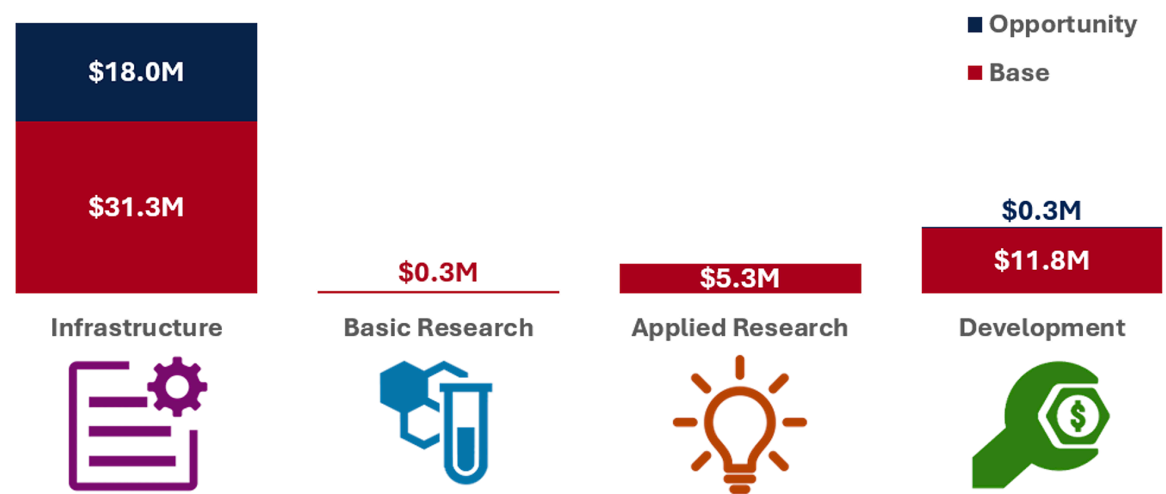


Exhibit UA.3: FY 2026 All TRIF Expenditures by Investment Area

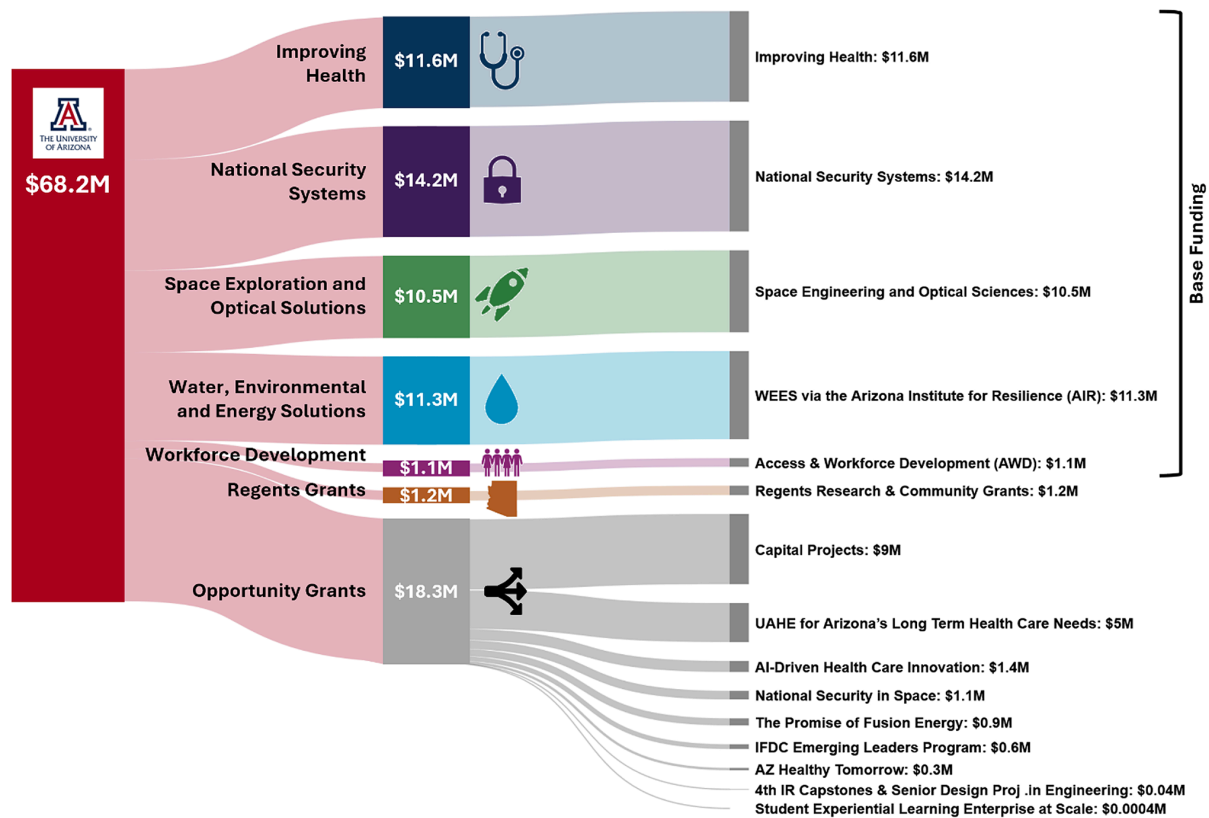


Exhibit UA.4: FY 2026 TRIF Average Metric Performance Against Project Goals

4th IR Capstones and Senior Design Projects in the...	100%+
AI-Driven Health Care Innovation	100%+
AZ Healthy Tomorrow	100%+
Capital Projects	100%+
National Security in Space	100%+
Student Experiential Learning Enterprise at Scale	100%+
The Institute for the Future of Data and Computing's...	100%+
The Promise of Fusion Energy	100%+
UArizona's Health Enterprise for Arizona's long term...	100%+
Access & Workforce Development (AWD)	100%+
Improving Health	100%+
National Security Systems	100%+
Space Engineering and Optical Sciences	100%+
Water, Environmental and Energy Solutions (WEES)...	100%+

TECHNOLOGY AND RESEARCH INITIATIVE FUND REPORT PROJECT REPORTS



PROJECT SUMMARY LIST

Inst.	Type	Project Title	FY 26 Exp.	Metrics
ABOR	Board Initiative	50 By Fall	\$ 0.14M	100%+
ABOR	Board Initiative	Arizona Basic Needs Report and Tri-University Basic Needs and Student Wellbeing Dashboard	\$ 0.10M	100%+
ABOR	Board Initiative	Arizona College-Going Initiatives: College Application, FAFSA Completion and Decision Day	\$ 0.72M	100%+
ABOR	Board Initiative	AZ Comeback Initiative: Re-Engaging Arizonans with Some College and No Credential	\$ 0.24M	100%+
ABOR	Board Initiative	General Education Assessment	\$ 0.30M	100%+
ABOR	Board Initiative	Phoenix Bioscience Core	\$ 1.27M	100%+
ABOR	Board Initiative	Southern Arizona Military Installation Initiative	\$ 0.30M	100%+
ABOR	Board Initiative	Student Wellness and Wellbeing: Mental Health as Part of Arizona's Student Wellbeing Continuum	\$ 0.10M	100%+
ABOR	Board Initiative	The Arizona FAFSA Peer Coach Program	\$ 0.39M	100%+
ABOR	Regents Grant	ASU Lead: A Roadmap to Fulfilling the Economic Potential of Technology Transfer in the Life Sciences and Biomedicine in Arizona	\$ 0.53M	100%+
ABOR	Regents Grant	ASU Lead: AI Capabilities to Support Emergency Response, Preparedness, Unit Mobilization and Course-of-Action Development	\$ 0.39M	100%+
ABOR	Regents Grant	ASU Lead: Distributed RF Based Positioning	\$ 0.09M	100%+
ABOR	Regents Grant	ASU Lead: Drone Charging System	\$ 0.09M	100%+
ABOR	Regents Grant	ASU Lead: Enhancing ADEQ's Communication and Engagement Practices	\$ 0.16M	100%+
ABOR	Regents Grant	ASU Lead Evaluate Contamination Fate and Transport in Biosolids	\$ 0.60M	100%+
ABOR	Regents Grant	ASU Lead: Inexperienced Driver Mitigation	\$ 0.11M	100%+
ABOR	Regents Grant	ASU Lead: In-Space Wireless Power Transfer	\$ 0.07M	100%+
ABOR	Regents Grant	ASU Lead: Tuevonet-Making AI Results Explainable	\$ 0.09M	100%+
ABOR	Regents Grant	NAU Lead: Glasswing: Modular UAS Autonomy for Complex and GPS-Denied Environments	\$ 0.09M	100%+
ABOR	Regents Grant	NAU Lead: Resilient Zero-Trust Key Exchange	\$ 0.08M	100%+
ABOR	Regents Grant	U of A Lead: Distributed Hybrid Fiber Sensing	\$ 0.09M	100%+
ABOR	Regents Grant	U of A Lead: Morphable Multicopter Uncrewed Aerial Systems (MMU)	\$ 0.09M	100%+
ABOR	Regents Grant	U of A Lead: Processing Copper Mine Tailings: Critical Minerals Recovery from Past, Current and Future Copper Mine Tailings	\$ 0.99M	100%+
ABOR	Regents Grant	U of A Lead: Strengthening Arizona Agriculture for a Water-Scarce Future	\$ 0.04M	100%+
ABOR	Base Funding	ABOR Operations	\$ 1.55M	100%+
ASU	Base Funding	Biodesign Institute	\$ 8.28M	100%+
ASU	Base Funding	Core Facilities	\$ 5.97M	100%+
ASU	Base Funding	Global Futures Laboratory	\$ 3.23M	98%
ASU	Base Funding	Global Security Initiative	\$ 2.25M	100%+
ASU	Base Funding	Industry Partnership and Commercialization Ecosystem	\$ 3.99M	100%+
ASU	Base Funding	Innovation Ecosystem	\$ 1.01M	100%+
ASU	Base Funding	Materials of the Universe	\$ 0.20M	100%+
ASU	Base Funding	Microelectronics	\$ 1.84M	96%
ASU	Base Funding	Research Advancement	\$ 6.04M	100%+
ASU	Base Funding	Space Exploration	\$ 0.45M	100%+
NAU	Base Funding	Artificial Intelligence Empowered University	\$ 0.58M	100%+
NAU	Base Funding	Community-engaged Health	\$ 0.93M	100%+
NAU	Base Funding	Continued Investment in NAU Health Program Personnel	\$ 0.00M	97%
NAU	Base Funding	Continuing Support for Existing and Expanded Access and Workforce Development Programs	\$ 6.63M	95%
NAU	Base Funding	Forest Health, Wildfire and Environment	\$ 2.10M	100%+
NAU	Base Funding	Forestry and Wildfire Management	\$ 0.13M	88%
NAU	Base Funding	Pathogen Genomics & Microbiome Science	\$ 1.30M	100%+
NAU	Base Funding	Remote Sensing Applications & Instrument Development	\$ 2.30M	100%+
NAU	Base Funding	Research Infrastructure, Innovation and Student Engagement	\$ 3.72M	100%+
NAU	Base Funding	Semiconductor and Microelectronic Research	\$ 0.00M	100%+
NAU	Base Funding	Start up for New Access and Workforce Development Programs	\$ 0.00M	100%+
U of A	Opportunity	4th IR Capstones and Senior Design Projects in the College of Engineering	\$ 0.04M	100%+
U of A	Opportunity	AI-Driven Health Care Innovation	\$ 1.40M	100%+
U of A	Opportunity	AZ Healthy Tomorrow	\$ 0.27M	100%+
U of A	Opportunity	Capital Projects	\$ 9.00M	100%+
U of A	Opportunity	National Security in Space	\$ 1.09M	100%+
U of A	Opportunity	Student Experiential Learning Enterprise at Scale	\$ 0.00M	100%+
U of A	Opportunity	The Institute for the Future of Data and Computing's (IFDC) Emerging Leaders Program	\$ 0.60M	100%+
U of A	Opportunity	The Promise of Fusion Energy	\$ 0.88M	100%+
U of A	Opportunity	UArizona's Health Enterprise for Arizona's long term health care needs	\$ 4.99M	100%+
U of A	Base Funding	Access & Workforce Development (AWD)	\$ 1.13M	100%+
U of A	Base Funding	Improving Health	\$ 11.58M	100%+
U of A	Base Funding	National Security Systems	\$ 14.19M	100%+
U of A	Base Funding	Space Engineering and Optical Sciences	\$ 10.48M	100%+
U of A	Base Funding	Water, Environmental and Energy Solutions (WEES) specifically through the Arizona Institute for Resilience (AIR)	\$ 11.30M	100%+

Institution	Arizona Board of Regents	 ARIZONA BOARD OF REGENTS ASU ♦ NAU ♦ U of A
Grant Type	Board Initiatives	
TRIF Investment Area		
Program Name	50 By Fall	
Project Lead	Julie Sainz	

Proposal

Problem Statement

Completing the Free Application for Federal Student Aid (FAFSA) is one of the most important steps students can take to access financial aid and pursue postsecondary education. FAFSA completion is strongly associated with higher rates of college enrollment, persistence, and degree attainment. However, thousands of Arizona high school seniors each year do not complete the FAFSA, leaving millions of dollars in federal, state, institutional, and private financial aid unclaimed and creating unnecessary barriers to higher education.

While Arizona has made significant progress in increasing FAFSA completion rates through statewide partnerships, targeted outreach, and data-driven initiatives, completion rates remain below desired levels, particularly among students attending Title I high schools and other underserved communities. Many schools continue to face challenges including limited staffing capacity, competing priorities, insufficient resources, and a lack of dedicated funding to support comprehensive FAFSA completion efforts.

The "50% by Fall" FAFSA Completion Incentive Program was developed to address these challenges by providing financial incentives that encourage schools to prioritize FAFSA completion, implement effective outreach strategies, and engage students and families early in the financial aid process. By rewarding schools for achieving meaningful FAFSA completion benchmarks, the program helps build local capacity, supports evidence-based practices, and promotes a culture of college and career readiness.

Increasing FAFSA completion is critical to Arizona's workforce and economic future. Higher FAFSA completion rates translate into greater access to financial aid, increased postsecondary enrollment, reduced financial barriers for students and families, and a stronger pipeline of educated and skilled talent. The "50% by Fall" initiative is an investment in Arizona's students, schools, and communities, ensuring that more graduates have the financial resources needed to pursue education and training beyond high school.

Program Description

The "50% by Fall" FAFSA Completion Incentive Program is a statewide initiative led by the Arizona Board of Regents to increase FAFSA completion rates among Arizona high school seniors during the 2026–2027 FAFSA cycle, with a particular focus on supporting students attending Title I high schools.

The program provides performance-based financial incentives to eligible high schools that achieve key FAFSA completion milestones. By rewarding measurable progress, the initiative encourages schools to prioritize FAFSA completion efforts, expand student and family outreach, and implement effective strategies that increase access to financial aid and postsecondary education.

Eligible participants include all Arizona Title I high schools as well as Arizona public high schools that achieved less than a 50% FAFSA completion rate during the 2025–2026 FAFSA cycle. Through this initiative, participating schools will have the opportunity to earn incentive funding while contributing to Arizona's statewide goal of increasing FAFSA completion and expanding college access for all students.

Institution Advantage

The "50% by Fall" FAFSA Completion Incentive Program provides participating schools with both financial resources and statewide recognition for increasing FAFSA completion. Beyond incentive funding, the program strengthens institutional capacity by supporting data-driven outreach, expanding family engagement, and fostering a college-going culture that encourages students to pursue education and training beyond high school. By investing in FAFSA completion, schools are better positioned to improve postsecondary outcomes, advance college and career readiness goals, and ensure more students successfully transition to their next educational opportunity.

Arizona Specific Benefit

Increasing FAFSA completion is not only a benefit for individual students—it is an investment in Arizona's economic future. By helping more students access financial aid and enroll in postsecondary education, Arizona strengthens its talent pipeline, attracts additional federal financial aid dollars into the state, reduces equity gaps in college access, and advances statewide attainment goals. The "50% by Fall" FAFSA Completion Incentive Program supports these priorities by encouraging schools to implement proven FAFSA completion strategies that help more students successfully transition from high school to higher education and the workforce.

Substantive changes to the original proposal

None

Project Continuation	In progress
Project Status	On Schedule

Progress Report

1. Work Completed

The Arizona Board of Regents (ABOR) developed and implemented the 50 by Fall FAFSA Campaign, a statewide initiative designed to accelerate FAFSA completion among Arizona high school seniors during the first three months of the 2026–27 FAFSA cycle. The campaign established a clear statewide goal of helping participating schools achieve a 50% FAFSA completion rate by December 31, 2026, while also recognizing schools that demonstrated significant year-over-year improvement.

The campaign engaged 177 high schools across Arizona, impacting an estimated 56,000 high school seniors. Throughout the implementation period, ABOR developed and distributed standardized FAFSA toolkits and implementation resources, coordinated monthly technical assistance webinars with college access partners, provided individualized technical FAFSA support to participating schools, monitored FAFSA completion progress through statewide data, and delivered regular communications highlighting progress, best practices, and interim milestones. Financial incentives were awarded to schools that achieved established FAFSA completion benchmarks, encouraging schools to prioritize FAFSA outreach and student support during the critical early months of the FAFSA cycle.

2. Milestones Achieved

The 50 by Fall FAFSA Campaign exceeded expectations by demonstrating measurable improvements in FAFSA completion across participating schools.

Key milestones achieved include:

177 Arizona high schools participated in the statewide campaign.
46 high schools** reached or exceeded the campaign goal of a 50% FAFSA completion rate by December 31.
Schools achieving the 50% milestone averaged a 62% FAFSA completion rate.
27 high schools increased FAFSA completion by 10% or more compared to the previous FAFSA cycle.
Schools earning the growth award averaged a 16.5 percentage-point increase in FAFSA completion.
41% of participating schools achieved either the 50% completion benchmark or the 10% growth benchmark with the 3-month period.

Several schools demonstrated exceptional improvement, including Ajo High School** and Antelope High School, both of which exceeded 75% FAFSA completion after improving their completion rates by 20–30 percentage points. BUHSD Institute of Online Learning achieved the largest statewide increase, improving FAFSA completion by 37 percentage points, while **Cholla High School** increased completion by 20 percentage points** through strong implementation of FAFSA outreach strategies.

District-level success further demonstrated the value of coordinated leadership. **Phoenix Union High School District had nine schools achieve at least a 50% FAFSA completion rate and two additional schools increase completion by at least 10%. All ASU Prep high schools surpassed the 50% benchmark, while Tolleson Union High School District had three schools increase FAFSA completion by at least 10%.

To recognize these accomplishments a total of \$160,750 in incentive funding was distributed to participating schools. This includes \$118,500 awarded to 46 schools meeting the 50% completion benchmark (average award per school \$2,500) and \$42,250 awarded to 27 schools demonstrating at least a 10% year-over-year increase (average award per school: \$1,600) to further support their FAFSA efforts in the Spring Semester.

3. Arizona Benefit or Impact

The 50 by Fall FAFSA Campaign produced meaningful benefits for Arizona students, schools, and the state's broader educational attainment goals by increasing access to financial aid and strengthening college-going efforts statewide.

By concentrating outreach and support during the first three months of the FAFSA cycle, the campaign helped Arizona reach a 29% statewide FAFSA completion rate by December 31, 2026, providing important early momentum toward statewide completion goals. Early FAFSA completion increases the likelihood that students will access federal, state, institutional, and private financial aid before priority deadlines, reducing financial barriers to postsecondary education.

The campaign also strengthened institutional capacity by providing schools with implementation resources, technical assistance, performance data, and financial incentives that supported local FAFSA completion efforts. Schools were able to expand student outreach, engage families more effectively, and implement evidence-based practices that will continue to benefit future graduating classes.

More broadly, increasing FAFSA completion supports Arizona's workforce and economic development priorities by helping more students enroll in postsecondary education and career training programs. As more students access financial aid and continue their education beyond high school, Arizona benefits from a stronger talent pipeline, increased educational attainment, and greater long-term economic competitiveness.

4. What Worked Well

Several components of the campaign contributed to its statewide success. The establishment of a clear, measurable statewide goal created a shared vision and motivated schools to prioritize FAFSA completion during the early months of the application cycle. Performance-based financial incentives encouraged schools to invest time and resources into FAFSA outreach while recognizing measurable achievement.

The campaign's monthly FAFSA technical assistance and FAFSA best practices webinars, jointly hosted by ABOR and BALF, created an effective statewide community of practice. Between 30 and 45 schools participated in each session, where participants shared successful outreach strategies, received timely FAFSA updates, discussed implementation challenges, and learned from peer institutions.

The distribution of standardized FAFSA toolkits and implementation resources ensured that every participating school had access to consistent, evidence-informed materials regardless of local capacity. Regular communications, individualized technical assistance, and recognition of interim milestones helped maintain momentum throughout the campaign while reinforcing accountability and continuous improvement.

Finally, strong collaboration among ABOR, BALF, school districts, counselors, college access professionals, and community partners contributed significantly to the campaign's success by aligning statewide efforts around a common objective.

5. Challenges and Lessons Learned

Although the campaign generated strong statewide engagement and measurable improvements, several challenges emerged during implementation.

Many participating schools continued to experience staffing limitations, competing priorities, and varying levels of counselor capacity, making it difficult to provide individualized FAFSA assistance to every student. Participation and outcomes also varied across schools, reflecting differences in local resources, leadership engagement, and community needs.

The campaign reinforced the importance of beginning FAFSA outreach well before the application opens and sustaining support throughout the school year. Schools that established early communication plans, leveraged FAFSA completion data to identify students needing assistance, engaged families through multiple outreach strategies, and maintained consistent follow-up achieved the strongest outcomes.

The campaign also demonstrated that regular technical assistance, ongoing communication, interim progress monitoring, and meaningful recognition help sustain school engagement over time. These lessons will inform future FAFSA initiatives by emphasizing early intervention, continuous coaching, data-driven decision-making, and targeted support for schools serving students with the greatest financial need.

Overall Project Assessment

The 50 by Fall FAFSA Campaign successfully met its primary objective of accelerating FAFSA completion during the critical early months of the 2026–27 FAFSA cycle while strengthening Arizona's statewide FAFSA infrastructure. The project combined multiple complementary strategies—including performance-based incentives, technical assistance, statewide collaboration, data-driven progress monitoring, and capacity-building resources—to create a comprehensive approach that supported both immediate FAFSA completion gains and long-term institutional improvement.

The campaign achieved broad statewide participation, engaging 177 high schools and an estimated 56,000 Arizona public high school seniors. Through coordinated implementation, 46 schools achieved a FAFSA completion rate of 50% or higher, 27 schools increased completion by at least 10 percentage points, and 41% of participating schools reached one of the campaign's incentive milestones. These outcomes demonstrate that establishing clear performance goals, paired with meaningful financial incentives and ongoing technical support, can drive measurable improvements in FAFSA completion across diverse school settings.

Beyond increasing FAFSA completion rates, the project strengthened institutional capacity by equipping schools with standardized implementation resources, monthly professional learning opportunities, personalized technical assistance, and actionable FAFSA completion data. The campaign fostered a statewide community of practice in which counselors, administrators, and college access professionals shared successful strategies, addressed implementation challenges, and continuously refined their outreach efforts. These investments created sustainable knowledge and infrastructure that will continue to benefit future FAFSA cycles.

The project also advanced Arizona's broader college attainment and workforce development priorities by helping more students access federal, state, institutional, and private financial aid. Accelerating FAFSA completion early in the cycle increases the likelihood that students meet priority financial aid deadlines, reducing financial barriers to postsecondary education and improving college enrollment opportunities. The campaign's early focus contributed to Arizona reaching a **29% statewide FAFSA completion rate by December 31, creating positive momentum for continued gains throughout the remainder of the FAFSA cycle.

Overall, the project demonstrated that a coordinated statewide strategy integrating incentives, technical assistance, data-informed decision-making, and cross-sector partnerships can produce meaningful improvements in FAFSA completion while building

sustainable capacity within Arizona's high schools. The lessons learned through the campaign provide a strong foundation for future statewide FAFSA initiatives and reinforce the importance of continued investment in early outreach, school engagement, and evidence-based student support strategies.

Investment Detail

	2026		2027		2028		Total
Infrastructure	\$	141,000	\$	0	\$	0	\$ 141,000
Basic Research	\$	0	\$	0	\$	0	\$ 0
Applied Research	\$	0	\$	0	\$	0	\$ 0
Development	\$	0	\$	0	\$	0	\$ 0
Total	\$	141,000	\$	0	\$	0	\$ 141,000

Investment Narrative

A total of \$141,000 was disbursed to school districts that achieved either a 50% FAFSA completion rate or a 10% year-over-year increase in FAFSA completion. As outlined in the Intergovernmental Agreement (IGA), these funds are intended to support schools' efforts to increase FAFSA awareness and completion during the spring semester, with the long-term goal of helping participating schools reach a 75% FAFSA completion rate.

Budget Detail

	2026		2027		2028		Total
Salaries	\$	0	\$	0	\$	0	\$ 0
ERE	\$	0	\$	0	\$	0	\$ 0
Travel	\$	0	\$	0	\$	0	\$ 0
Equipment	\$	0	\$	0	\$	0	\$ 0
Supplies & Materials	\$	0	\$	0	\$	0	\$ 0
Contracts & Consultants	\$	0	\$	0	\$	0	\$ 0
Meetings & Conferences	\$	0	\$	0	\$	0	\$ 0
Sub Awards	\$	141,000	\$	0	\$	0	\$ 141,000
Total	\$	141,000	\$	0	\$	0	\$ 141,000

Budget Narrative

A total of \$141,000 was disbursed to school districts that achieved either a 50% FAFSA completion rate or a 10% year-over-year increase in FAFSA completion. As outlined in the Intergovernmental Agreement (IGA), these funds are intended to support schools' efforts to increase FAFSA awareness and completion during the spring semester, with the long-term goal of helping participating schools reach a 75% FAFSA completion rate.

Metric

Have 100 Schools sign up to participate in the 50 by fall program

2026		2027		2028	
Projected	100	Projected		Projected	
Actual	177	Actual		Actual	

Metric

Have 50% of schools that participated reach the 50% or 10% increase milestone by 12/31/2025.

2026		2027		2028	
Projected	50%	Projected		Projected	
Actual	73%	Actual		Actual	

Institution	Arizona Board of Regents	 ARIZONA BOARD OF REGENTS ASU ♦ NAU ♦ U of A
Grant Type	Board Initiatives	
TRIF Investment Area		
Program Name	Arizona Basic Needs Report and Tri-University Basic Needs and Student Wellbeing Dashboard	
Project Lead	Roxanne Murphy	

Proposal	
Problem Statement Students at Arizona's public universities face insecurity in food, housing, financial stability, transportation, and mental health, and these unmet basic needs undermine persistence, retention, and completion. Institutions collect basic needs data in different ways, using different definitions, timeframes, and instruments, which makes it difficult to understand essential needs consistently across the university system or to compare and act on findings. Without harmonized, ethically integrated data, the state cannot reliably measure the scale of student need or connect basic needs insights to student success outcomes.	
Program Description The Arizona Board of Regents leads the annual Basic Needs Report for Arizona's public universities and is building a tri-university Basic Needs and Student Wellbeing Dashboard as its evolution. The dashboard is framed as a collaborative, public-facing complement to the report, using agreed-upon institutional measures alongside state and federal data to translate findings from ASU, NAU, and the University of Arizona into coordinated action. The work is grounded in the SHEEO Basic Needs Data Academy, a three-year national initiative supported by the ECMC Foundation with coaching from the Coleridge Initiative, The Hope Center, and WestEd's Data Integration Support Center, which is helping Arizona refine shared definitions and priority data elements. This effort is folded into the Food and Housing Workgroup to align statewide strategy, data development, and implementation.	
Institution Advantage ABOR is uniquely positioned to convene ASU, NAU, and the U of A to harmonize definitions and integrate data across institutions, work that no single campus can accomplish alone. Each university contributes complementary strengths: administrative, program, and survey-results data; item-level survey detail; and, through the ASU Basic Needs Dashboard team, geospatial, demographic, and community-level data capacity that helps ABOR understand essential needs across the system and the broader state. National technical partners bring proven data-integration expertise, and ABOR's standing Food and Housing Insecurity Committee and Student Well-being Committee provide durable governance for the work.	
Arizona Specific Benefit A harmonized tri-university dashboard gives Arizona a shared, credible picture of student basic needs and its relationship to student success, enabling coordinated action, gap analysis, best-practice replication, and policy translation across the state. Reducing food, housing, financial, and transportation insecurity supports persistence, retention, and completion, advancing Arizona's attainment goals. The public-facing dashboard increases transparency and visibility, builds statewide data capacity, and creates reusable tools and infrastructure that strengthen student support well beyond any single campus.	
Substantive changes to the original proposal None.	
Project Continuation	In progress
Project Status	On Schedule

Progress Report
1. Work Completed. In Year 1, ABOR advanced the Arizona Basic Needs Report and the tri-university Basic Needs and Student Wellbeing Dashboard as a single, coordinated infrastructure arc. ABOR was accepted into the SHEEO Basic Needs Data Academy — a three-year national initiative supported by the ECMC Foundation with coaching from the Coleridge Initiative, The Hope Center, and WestEd's Data Integration Support Center — following the November 2024 Letter of Interest submitted on behalf of ABOR and the three universities. Academy work was folded into ABOR's standing Food and Housing Workgroup so statewide strategy, data development, and implementation stayed aligned. ASU, NAU, and the University of Arizona each completed institutional data inventories cataloging administrative, program, and survey data related to food, housing, financial stability, transportation, and mental health. ABOR led a May 18 working session focused on shared definitions and priority data elements, then hosted the June 30, 2026 in-person Arizona Basic Needs Convening (10:30 a.m.–3:00 p.m.) that moved the group from framework design to action planning, including a dashboard proof-of-concept from Dr. Connor Sheehan and Dr. Aaron Flores of the ASU Basic Needs Dashboard team. ABOR also prepared the revised annual Basic Needs Report for September 2026 release and engaged The Hope Center to support data-inventory review, definition harmonization, and convening preparation. 2. Milestones Achieved. Key Year 1 milestones include: acceptance into the SHEEO Basic Needs Data Academy with a \$60,000 capacity-building sub-grant; completion of institutional data inventories at ASU, NAU, and UA; delivery of the May 18 shared-definitions working session and the June 30 in-person convening as the move-to-action milestone; a working proof-of-concept for the tri-university dashboard grounded in ASU's geospatial, demographic, and community-level data capacity; agreement on definition-harmonization anchors — a fixed USDA 6-item module and window for food, separation of housing insecurity from homelessness

with shared response options, and a common access/disruption definition for transportation rather than proxy measures; adoption of measurement discipline requiring locked timeframe, target population, unit of observation, and student-ID linkability, with prevalence measures held separate from service-utilization counts; and preparation of the revised Basic Needs Report for September 2026 release. ABOR also framed and advanced an ECMC concept centered on the tri-university dashboard as data-infrastructure that links basic-needs indicators to academic outcomes.

3. Arizona Benefit or Impact. The Year 1 work directly addresses the core problem that Arizona's three public universities have historically measured basic needs with different definitions, timeframes, and instruments, which made statewide comparison and coordinated action difficult. By harmonizing definitions, standardizing priority data elements, and building a shared dashboard infrastructure, ABOR is giving the state a credible, comparable picture of student food, housing, financial, transportation, and mental health insecurity for the first time. This positions Arizona to connect basic-needs data to persistence, retention, and completion outcomes in a later phase and directly supports the state's postsecondary attainment goals. The public-facing dashboard, when launched, will increase transparency and visibility, build statewide data capacity, and produce reusable tools and replication materials that strengthen student support well beyond any single campus. The revised Basic Needs Report will also give policymakers, university leaders, and community partners a shared factual foundation for coordinated statewide action.

4. What Worked Well. Folding Basic Needs Academy work into the existing Food and Housing Workgroup — rather than standing up a parallel governance structure — was the strongest Year 1 design choice, because it aligned statewide strategy, data development, and implementation in one venue with durable ABOR governance. Anchoring definition harmonization to established instruments (USDA 6-item module, explicit separation of housing insecurity from homelessness, a common transportation access/disruption definition) gave the three universities a shared technical foundation without requiring them to abandon existing instruments. The June 30 convening design — pre-work highlights instead of formal presentations, a 20-minute dashboard proof-of-concept to ground indicator selection in a concrete example, and a structured indicator capture worksheet — moved the group from talking about harmonization to actually making decisions. Complementary campus strengths also worked in ABOR's favor: UA's administrative/program and survey-results data, NAU's item-level survey detail, and ASU's geospatial and community-level dashboard capacity together give the state more analytic range than any single institution could offer. National technical partners — Coleridge, The Hope Center, and WestEd's DISC — added credibility and technical rigor at every stage.

5. Challenges and Lessons Learned. The largest Year 1 challenge was the underlying heterogeneity of campus data: ASU submitted instrument-level entries without breaking out food, housing, or transportation items, which limited the granularity of early cross-campus comparisons and reinforced the need for locked shared definitions before dashboard-level integration. Distinguishing prevalence measures from service-utilization counts (for example, bike-shop or food-pantry use) required deliberate measurement discipline so dashboard comparisons would not mislead. Capacity constraints outside the initiative also shaped the year: the planned October 19, 2026 Basic Needs Summit was canceled while ABOR reassessed capacity following state budget reductions to the Board and universities, and future summit language will preserve partner appreciation without overpromising a reschedule. The primary lesson is that harmonized, ethically integrated data is the deliverable — not a byproduct — and durable governance (Food and Housing Workgroup, Student Well-being Committee), disciplined definitions, and clear separation of prevalence from utilization are what make later outcomes linkage possible. Year 2 will lean into those principles rather than accelerating past them.

Overall Project Assessment

The Arizona Basic Needs Report and tri-university Basic Needs and Student Wellbeing Dashboard are progressing as one coherent infrastructure arc, exactly as the proposal narrative described. Year 1 moved the work from three campuses with different definitions and instruments toward shared definitions, priority data elements, a working dashboard proof-of-concept, and a revised Basic Needs Report on track for September 2026 release, with durable governance through the Food and Housing Workgroup and Student Well-being Committee and national technical support from Coleridge, The Hope Center, and WestEd's DISC. The parallel workstreams — Academy participation, campus data inventories, definition harmonization, dashboard proof-of-concept, the revised annual report, and ECMC concept development — reinforce rather than duplicate each other, and each strengthens the state's readiness to link basic-needs data to persistence, retention, and completion outcomes in a later phase. The most important Year 2 priorities are locking harmonized indicators, expanding the dashboard beyond proof-of-concept, releasing the revised Basic Needs Report, and preparing the internal outcomes-linkage phase within IRB and ethical-integration guardrails. Overall, ABOR is delivering on both its Institution Advantage as the only entity that can convene the three universities to harmonize this data and its Arizona Benefit as the source of a shared, credible picture of student basic needs and its relationship to student success.

Investment Detail

	2026		2027		2028		Total
Infrastructure	\$	103,200	\$	0	\$	0	\$ 103,200
Basic Research	\$	0	\$	0	\$	0	\$ 0
Applied Research	\$	0	\$	0	\$	0	\$ 0
Development	\$	0	\$	0	\$	0	\$ 0
Total	\$	103,200	\$	0	\$	0	\$ 103,200

Investment Narrative

Majority of funds were provided as sub awards to the universities to develop the report and dashboard.

Budget Detail					
	2026	2027	2028		Total
Salaries	\$ 0	\$ 0	\$ 0	\$	0
ERE	\$ 0	\$ 0	\$ 0	\$	0
Travel	\$ 0	\$ 0	\$ 0	\$	0
Equipment	\$ 0	\$ 0	\$ 0	\$	0
Supplies & Materials	\$ 700	\$ 0	\$ 0	\$	700
Contracts & Consultants	\$ 0	\$ 0	\$ 0	\$	0
Meetings & Conferences	\$ 0	\$ 0	\$ 0	\$	0
Sub Awards	\$ 102,500	\$ 0	\$ 0	\$	102,500
Total	\$ 103,200	\$ 0	\$ 0	\$	103,200
Budget Narrative					
Majority of funds were provided as sub awards to the universities to develop the report and dashboard.					

Metric					
Academy acceptance					
2026		2027		2028	
Projected	1	Projected		Projected	
Actual	1	Actual		Actual	

Institution	Arizona Board of Regents	 ARIZONA BOARD OF REGENTS ASU ♦ NAU ♦ U of A
Grant Type	Board Initiatives	
TRIF Investment Area		
Program Name	Arizona College-Going Initiatives: College Application, FAFSA Completion and Decision Day	
Project Lead	Roxanne Murphy	

Proposal

Problem Statement

Too many Arizona high school students who are capable of postsecondary success never complete the critical steps that turn college aspirations into enrollment. Financial aid applications, college applications, and enrollment decisions each present friction points where students, particularly first-generation and lower-income students, fall out of the pipeline. Fragmented, school-by-school approaches to college-going activities create uneven access and place a heavy burden on individual counselors and schools, leaving gaps in the support students need to navigate the transition from high school to college.

Program Description

The Arizona Board of Regents leads a coordinated set of statewide college-going initiatives, including the Arizona College Application Campaign, FAFSA Challenge and Arizona Decision Day. ABOR coordinates partnerships across high schools, postsecondary staff, and communities to scaffold activities and college-going milestones throughout the year. ABOR leads training, disseminates data to schools and partners, provides program resources, and offers incentives that encourage participation.

Institution Advantage

ABOR's statewide role allows it to provide the training, data, resources, and incentives that individual schools cannot assemble on their own, creating a common set of college-going activities across Arizona rather than a patchwork. By coordinating high schools, postsecondary staff, and communities under one umbrella, ABOR reduces duplication and reporting burden while making proven practices available statewide. Integration with existing campaigns and registration systems means schools can participate without new administrative overhead, and the three public universities gain a coordinated front door to prospective Arizona students.

Arizona Specific Benefit

These initiatives increase the number of Arizona students who complete the FAFSA, apply to college, and follow through on enrollment decisions, directly advancing the state's postsecondary attainment goals. By scaffolding the key transition points from high school to college and lowering barriers for first-generation and lower-income students, the work expands equitable access to Arizona's public universities. A stronger, more consistent college-going culture across Arizona high schools builds a more educated workforce and broadens economic opportunity for students and communities statewide.

Substantive changes to the original proposal

None.

Project Continuation	In progress
Project Status	On Schedule

Progress Report

Year 1 Progress Report

1. Work Completed. In Year 1, ABOR delivered three coordinated statewide college-going initiatives under the CollegeReadyAZ umbrella: the Arizona College Application Campaign (AzCAC), the Arizona FAFSA Challenge, and Arizona Decision Day. Schools registered through a single combined registration process, and CollegeReadyAZ served as the shared website connecting students, families, counselors, and community partners to college application, financial aid, and enrollment-decision resources. ABOR operated AzCAC as Arizona's affiliate of the American College Application Campaign, supporting 179 high schools in hosting school-based college application events for graduating seniors and their families. The FAFSA Challenge ran alongside AzCAC to support seniors and their families through FAFSA completion, and Arizona Decision Day capped the cycle by celebrating seniors' postsecondary decisions. Family-facing outreach included monthly Peachjar flyers pointing students and families back to CollegeReadyAZ resources, and ABOR partnered with educators, counselors, and community organizations to reach first-generation, low-income, and rural students in particular.

2. Milestones Achieved. Key Year 1 milestones include: 179 Arizona high schools participating in AzCAC across the 2025–2026 academic year; 58,068 high school seniors engaged in college application activities; delivery of the coordinated three-event calendar (application campaign → FAFSA Challenge → Decision Day) as a single school-facing experience rather than three separate asks; a combined AzCAC/FAFSA Challenge registration that reduced school reporting burden; and integration of CollegeReadyAZ as the shared website supporting all three campaigns. The portfolio also laid the groundwork for the CollegeReadyAZ Recognition Program by keeping recognition opt-in inside the existing registration flow, so schools can enter recognition by checking a box during college-going event registration rather than completing a separate form.

3. Arizona Benefit or Impact. The initiatives moved Arizona meaningfully closer to the state's 60% postsecondary attainment by 2030 goal by helping tens of thousands of seniors take the concrete next steps — application, financial aid, and enrollment decision —

that convert postsecondary intent into postsecondary action. The 58,068 seniors engaged represent a substantial share of Arizona's graduating class, with a deliberate focus on first-generation, low-income, and rural students who face the highest barriers to college-going. For participating high schools, coordinated statewide infrastructure (shared registration, CollegeReadyAZ resources, launch kits, and campaign calendars) reduced the burden of running college-going programming locally. For families, monthly Peachjar outreach and school-based events created supportive, non-judgmental on-ramps to the admissions and financial aid processes. Collectively, the portfolio strengthens Arizona's college-going culture and directly supports the state's attainment and workforce priorities.

4. What Worked Well. Treating AzCAC, the FAFSA Challenge, and Decision Day as one coordinated portfolio — rather than three separate campaigns — was the single strongest driver of Year 1 results. A combined registration process, a shared CollegeReadyAZ website, and a synchronized event calendar meant counselors and principals could plug into the full college-going arc with one decision point. Partnerships with educators, counselors, and community-based organizations extended reach into rural districts and schools serving high concentrations of first-generation and low-income students. Positioning CollegeReadyAZ as a family-facing website (rather than a platform requiring logins) kept the barrier to family engagement low, and monthly Peachjar flyers gave the campaigns a durable, low-friction channel into households. The launch-kit approach also worked well: schools received ready-to-use digital and physical assets at registration, which reduced local lift and helped events go off on time.

5. Challenges and Lessons Learned. Because CollegeReadyAZ is a website rather than a tracked platform with logins, ABOR does not have backend usage data on how students and families interacted with resources, which made it harder to quantify engagement beyond school-reported participation. Coordinating three campaigns across 179 high schools with different calendars, counselor capacity, and community contexts remains an active workstream, and rural schools in particular need continued support to run events at the same intensity as larger metro schools. FAFSA-specific challenges — including federal timing and family confidence with the form — continued to shape completion patterns and required ongoing counselor support. The primary lesson is that reducing school burden (combined registration, shared assets, one recognition opt-in inside existing forms) is what unlocks broad school participation, and Year 2 will lean further into that principle rather than adding new standalone processes.

Overall Project Assessment

Arizona's college-going initiatives are functioning as a coordinated statewide portfolio, not three parallel campaigns, and Year 1 results reflect the strength of that design. AzCAC, the FAFSA Challenge, and Decision Day operated on a shared calendar, a shared registration, and a shared family-facing website (CollegeReadyAZ), and together they engaged 58,068 seniors across 179 high schools with an explicit focus on first-generation, low-income, and rural students. The parallel workstreams — school-based events, family outreach through Peachjar, counselor and community partnerships, and the emerging CollegeReadyAZ Recognition Program — reinforce each other and reduce the burden on individual schools rather than adding to it. The most important Year 2 priorities are launching the single-tier CollegeReadyAZ Recognition to capture how schools are actually using the website, deepening support for rural and high-need schools, and continuing to align the portfolio to Arizona's 60% postsecondary attainment by 2030 goal. Overall, the initiative is delivering on its promise: reducing barriers, sparking inspiration, and ensuring more Arizona students see college as both possible and attainable — while building shared statewide infrastructure that no single school or district could sustain alone.

Investment Detail

	2026	2027	2028	Total
Infrastructure	\$ 718,894	\$ 0	\$ 0	\$ 718,894
Basic Research	\$ 0	\$ 0	\$ 0	\$ 0
Applied Research	\$ 0	\$ 0	\$ 0	\$ 0
Development	\$ 0	\$ 0	\$ 0	\$ 0
Total	\$ 718,894	\$ 0	\$ 0	\$ 718,894

Investment Narrative

Majority of funding was used for marketing and events to promote college-going initiatives.

Budget Detail

	2026	2027	2028	Total
Salaries	\$ 0	\$ 0	\$ 0	\$ 0
ERE	\$ 0	\$ 0	\$ 0	\$ 0
Travel	\$ 13,148	\$ 0	\$ 0	\$ 13,148
Equipment	\$ 0	\$ 0	\$ 0	\$ 0
Supplies & Materials	\$ 58,404	\$ 0	\$ 0	\$ 58,404
Contracts & Consultants	\$ 618,171	\$ 0	\$ 0	\$ 618,171
Meetings & Conferences	\$ 29,171	\$ 0	\$ 0	\$ 29,171
Sub Awards	\$ 0	\$ 0	\$ 0	\$ 0
Total	\$ 718,894	\$ 0	\$ 0	\$ 718,894

Budget Narrative

Majority of funding was used for marketing and events to promote college-going initiatives.

Metric

Number of participating high schools

2026		2027		2028	
Projected	150	Projected	180	Projected	200
Actual	179	Actual		Actual	

Institution	Arizona Board of Regents	 ARIZONA BOARD OF REGENTS ASU ♦ NAU ♦ U of A
Grant Type	Board Initiatives	
TRIF Investment Area		
Program Name	AZ Comeback Initiative: Re-Engaging Arizonans with Some College and No Credential	
Project Lead	Roxanne Murphy	

Proposal

Problem Statement

More than 726,000 Arizona adults have earned college credit but not yet completed a credential. These returning adults have already invested time, money, and effort in higher education, yet they remain disconnected from completion pathways. Major federal postsecondary datasets undercount returning adults because they focus on first-time, full-time students, leaving the state without reliable infrastructure to track and support this group. Without coordinated re-engagement, Arizona forgoes both the individual economic mobility of these learners and the workforce talent the state needs in high-demand fields.

Program Description

AZ Comeback is the Arizona Board of Regents' tri-university re-engagement initiative for adults with some college and no credential. ABOR serves as the statewide coordinating body and durable owner, connecting a common front-door website where adults explore high-demand career fields, see how prior credits still carry workforce value, and choose the university path that fits them, with campus re-engagement models at ASU, NAU, and the University of Arizona. The program strengthens and sustains coaching and navigator support, standardized intake and readmission workflows, warm hand-offs from the website to campuses, credit-recognition maps, and financial-friction reduction. The initiative is seeded with philanthropic investment plus university contributions through scholarships and coaching, and includes evaluation with WestEd and a statewide playbook and convenings that turn learnings into sustainable, shareable practices.

Institution Advantage

As the system-level body coordinating ASU, NAU, and the University of Arizona, ABOR can convene the three public universities under one framework rather than three disconnected efforts, serving as the durable fiscal agent, data hub, and website owner. Each university brings years of signature re-engagement programming that AZ Comeback scales and standardizes. This coordinated structure, paired with WestEd's rigorous evaluation, positions Arizona's institutions to build re-engagement infrastructure that no single campus could sustain alone.

Arizona Specific Benefit

AZ Comeback converts prior academic progress into completed credentials, advancing statewide postsecondary attainment goals while strengthening the talent pipeline for employers. Returning adults gain economic mobility, and the state builds durable data infrastructure to track and support a population that federal datasets miss. The initiative aligns higher education completion with Arizona's workforce and economic-mobility priorities, producing shareable practices that benefit learners and communities across the state.

Substantive changes to the original proposal

None.

Project Continuation	In progress
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Project Status	On Schedule
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Progress Report

1. Work Completed. In Year 1, ABOR stood up AZ Comeback as a coordinated tri-university re-engagement initiative and moved it from design to active implementation. ABOR finalized the WestEd evaluation contract and shared metrics, definitions, and the evaluation timeline with institutional research and re-engagement leads at ASU, NAU, and the University of Arizona. Campus teams identified target populations, launched rolling admission and readmission workflows across Summer 2025, Fall 2025, and Spring 2026 terms, and stood up coaching and navigator supports aligned to each campus's signature re-engagement model. ABOR launched the AZ Comeback common front-door website as the statewide surface where adults explore high-demand career fields, see how prior credits still carry workforce value, and choose a university path, with warm hand-offs into ASU, NAU, and UA. The Community of Practice ran on schedule with in-person Sessions 1–4 (May 2025, October 2025, January 2026, June 2026) and Webinar Sessions 1–3 (December 2025, March 2026, June 2026), and WestEd completed the first Fall 2025 reporting cycle in February 2026 and the Spring 2026 reporting cycle in mid-July 2026, along with student and coach focus groups in May–June 2026.

2. Milestones Achieved. Key Year 1 milestones include: executing the WestEd evaluation agreement and shared metrics framework; publishing the AZ Comeback front-door website and standing up warm hand-off pathways to each university; completing three full enrollment cycles (Summer 2025, Fall 2025, Spring 2026) under the initiative; delivering the Helios six-month check-in on August 15, 2025 and preparing the Helios interim report for the August 15, 2026 deadline; completing WestEd's Fall 2025 and Spring 2026 quantitative data collections with all three institutions; and finishing Year 1 focus groups with returning students and coaches to

inform the playbook. On the funding side, ABOR submitted the FIPSE Postsecondary Student Success Grant application on June 26, 2026 using AZ Comeback as the statewide spine, with letters of support from the three universities, Helios, and the Governor's Office — an important sustainability milestone for a project explicitly designed to build durable infrastructure beyond seed philanthropy.

3. Arizona Benefit or Impact. AZ Comeback advances Arizona's postsecondary attainment agenda by moving adults with prior credit closer to completed credentials at ASU, NAU, and UA, and by aligning that completion with high-demand career fields tied to the state's workforce priorities. Returning learners gain warm, coordinated re-entry rather than three disconnected campus experiences, with coaching, credit-recognition maps, and financial-friction reduction shortening the distance between prior progress and a finished credential. At the system level, ABOR is building shared re-engagement infrastructure — common metrics, a statewide front door, a durable data hand-off, and a WestEd-evaluated model — that no single campus could sustain alone and that Arizona's more than 726,000 adults with some college and no credential do not currently see reflected in first-time, full-time federal data systems. The initiative also strengthens Arizona's competitiveness for federal completion funding, as evidenced by the FIPSE PSSG submission built on the AZ Comeback spine.

4. What Worked Well. The single-framework, three-campus model has been the strongest driver of progress: ABOR's role as durable fiscal agent, data hub, and website owner gave the universities a coordinated structure to plug their existing re-engagement programs into, rather than starting a new campus effort from scratch. The Community of Practice cadence — four in-person sessions plus a webinar series — created a working rhythm where ASU, NAU, and UA teams could share workflows, escalate obstacles, and align on shared definitions with WestEd in real time. Embedding WestEd as the evaluator from Year 1, with metrics agreed early and reporting cycles tied to institutional academic calendars, meant that data collection kept pace with implementation instead of trailing it. The philanthropic seed plus university contributions through scholarships and coaching created enough shared skin in the game to sustain participation, and Helios's six-month check-in structure kept the project team disciplined about surfacing risks early.

5. Challenges and Lessons Learned. The most persistent challenge has been the data infrastructure gap the initiative was designed to close: because federal postsecondary datasets undercount returning adults, each campus had to translate its own student information system into the shared WestEd metrics, which lengthened the Fall 2025 reporting cycle and required extra alignment work before Spring 2026. Standardizing intake, readmission, and credit-recognition workflows across three research universities with different academic calendars and internal policies proved harder than initial planning assumed and remains an active workstream. Rolling enrollment worked well for reach but complicated cohort definitions for evaluation, and the team is refining how near-completers with 60–89 credits are identified so that Year 2 analyses have cleaner comparison groups. The primary lesson is that shared infrastructure — common definitions, standardized workflows, and a durable statewide owner — is not a byproduct of the work but the core deliverable, and Year 2 will double down on codifying those elements into the playbook so they outlast the seed funding.

Overall Project Assessment

AZ Comeback is tracking on scope and on schedule against its Year 1 design and is doing what the proposal narrative promised: converting three campus-level re-engagement efforts into a coherent statewide initiative with a common front door, shared metrics, and a durable ABOR-led coordinating structure. The parallel workstreams — statewide website and warm hand-offs, campus coaching and readmission workflows, WestEd evaluation, the Community of Practice, and playbook development — are progressing in an interlocking way, with each reinforcing the others rather than running as isolated tasks. The submitted FIPSE PSSG application, built directly on the AZ Comeback spine and layering a career-connected component onto core re-engagement operations, is a meaningful signal that the initiative is not only implementing its Year 1 plan but is already positioned to scale and sustain. The most important next-year priorities are tightening data infrastructure and standardized workflows so Year 2 outcomes are cleanly measurable, translating focus group and Year 1 evaluation findings into the statewide playbook, and continuing to convert prior academic progress into completed credentials for returning adults across ASU, NAU, and UA. Overall, the project is delivering on the Institution Advantage and Arizona Benefit set out in the proposal and is on a strong trajectory into Years 2 and 3.

Investment Detail

	2026	2027	2028	Total
Infrastructure	\$ 244,746	\$ 0	\$ 0	\$ 244,746
Basic Research	\$ 0	\$ 0	\$ 0	\$ 0
Applied Research	\$ 0	\$ 0	\$ 0	\$ 0
Development	\$ 0	\$ 0	\$ 0	\$ 0
Total	\$ 244,746	\$ 0	\$ 0	\$ 244,746

Investment Narrative

Majority of funds were used for marketing and promotion of post-secondary options in Arizona.

Budget Detail					
	2026	2027	2028		Total
Salaries	\$ 0	\$ 0	\$ 0	\$	0
ERE	\$ 0	\$ 0	\$ 0	\$	0
Travel	\$ 0	\$ 0	\$ 0	\$	0
Equipment	\$ 0	\$ 0	\$ 0	\$	0
Supplies & Materials	\$ 454	\$ 0	\$ 0	\$	454
Contracts & Consultants	\$ 244,293	\$ 0	\$ 0	\$	244,293
Meetings & Conferences	\$ 0	\$ 0	\$ 0	\$	0
Sub Awards	\$ 0	\$ 0	\$ 0	\$	0
Total	\$ 244,746	\$ 0	\$ 0	\$	244,746
Budget Narrative					
Majority of funds were used for marketing and promotion of post-secondary options in Arizona.					

Metric					
Number of students served					
2026		2027		2028	
Projected	370	Projected	370	Projected	
Actual	743	Actual		Actual	

Institution	Arizona Board of Regents	 ARIZONA BOARD OF REGENTS ASU ♦ NAU ♦ U of A
Grant Type	Board Initiatives	
TRIF Investment Area		
Program Name	General Education Assessment	
Project Lead	Andrew Comrie	

Proposal	
Problem Statement In June 2019, the board adopted a new General Education Policy (2-210), clarified by amendment in February 2021, that articulated requirements for the three Arizona public universities' general education programs. The policy mandates each university to assess its general education program's academic outcomes. Effective general education programs positively benefit the quality of education and support Board attainment goals.	
Program Description A Tri-University General Education Assessment group developed a coordinated approach to assessing the four board-identified areas – written communication, quantitative reasoning, critical thinking, and civic knowledge. The universities carry out rubric development and refinement, artifact sampling, rating, analysis, and reporting for one assessment topic per year. General education represents about one quarter of the undergraduate curriculum and each university invests significant resources into developing and delivering their program. This project ensures that each university is supported, in part, to assess its general education program to meet Board goals and support student attainment.	
Institution Advantage Through the annual assessment process, each university and the Board gain insights into the performance of the general education programs and ways in which they can be improved.	
Arizona Specific Benefit The Board's Tri-University Assessment process positions Arizona as a national leader in General Education assessment. The four assessments are aimed at measuring student learning (accountability) as well as identifying areas for teaching and learning support (improvement). The group develops and refreshes its assessment instruments annually, refining the process in each cycle to improve general education at Arizona's public universities.	
Substantive changes to the original proposal None	
Project Continuation	In progress
Project Status	On Schedule

Progress Report	
Work Completed: In FY 2026 the tri-university general education assessment group met regularly through the year. The group finalized analysis of the civic knowledge assessment at all three institutions. It also refined the rubric and each university initiated artifact sampling and scoring for the next assessment in written communication.	
Milestones Achieved: Presented the civic knowledge assessment report to the Board in November 2025.	
Arizona Benefit or Impact: Demonstrated that students and the program were meeting or exceeding expectations overall. Provided assessment feedback to the universities for further improvement of the general education programs.	
What Worked Well: The tri-university assessment group is particularly collaborative and has made significant advances in the assessments.	
Challenges and Lessons Learned: Assessing these large programs is a complex undertaking, even more so because of the coordination across the three universities. It takes considerable university staff time and effort to successfully complete the entire assessment cycle each year.	
Overall Project Assessment FY 2026 marked the end of the first assessment cycle with the civic knowledge report and the start of the next cycle with written communication. Overall the general education assessment project has demonstrated success and it has advanced the Board's attainment goals.	

Investment Detail					
	2026	2027	2028	Total	
Infrastructure	\$ 300,000	\$ 0	\$ 0	\$	300,000
Basic Research	\$ 0	\$ 0	\$ 0	\$	0
Applied Research	\$ 0	\$ 0	\$ 0	\$	0
Development	\$ 0	\$ 0	\$ 0	\$	0
Total	\$ 300,000	\$ 0	\$ 0	\$	300,000
Investment Narrative					
Each university received \$100,000 in FY 2026.					
Budget Detail					
	2026	2027	2028	Total	
Salaries	\$ 0	\$ 0	\$ 0	\$	0
ERE	\$ 0	\$ 0	\$ 0	\$	0
Travel	\$ 0	\$ 0	\$ 0	\$	0
Equipment	\$ 0	\$ 0	\$ 0	\$	0
Supplies & Materials	\$ 0	\$ 0	\$ 0	\$	0
Contracts & Consultants	\$ 0	\$ 0	\$ 0	\$	0
Meetings & Conferences	\$ 0	\$ 0	\$ 0	\$	0
Sub Awards	\$ 300,000	\$ 0	\$ 0	\$	300,000
Total	\$ 300,000	\$ 0	\$ 0	\$	300,000
Budget Narrative					
Each university received \$100,000 in FY 2026.					

Metric			
Complete Annual Tri-University Assessment			
2026		2027	2028
Projected	1	Projected 1	Projected 1
Actual	1	Actual	Actual

Institution	Arizona Board of Regents	 ARIZONA BOARD OF REGENTS ASU ♦ NAU ♦ U of A
Grant Type	Board Initiatives	
TRIF Investment Area		
Program Name	Phoenix Bioscience Core	
Project Lead	Chad Sampson, Executive Director, ABOR	

Proposal

Problem Statement

Arizona's growing bioscience and healthcare sectors depend on strong collaboration among universities, healthcare systems, research institutions, industry, entrepreneurs, and government partners. Without a coordinated organization to connect these stakeholders, opportunities for research collaboration, commercialization, workforce development, and economic growth can be fragmented, limiting Arizona's ability to compete nationally for talent, investment, and innovation.

Program Description

The Phoenix Bioscience Core is a collaborative initiative that brings together Arizona's public universities, healthcare organizations, research institutions, bioscience companies, entrepreneurs, and community partners to advance research, innovation, technology commercialization, workforce development, and economic growth. During the 2025–2026 academic year, Technology and Research Initiative Fund (TRIF) support provided the operational infrastructure necessary to coordinate partnerships, facilitate stakeholder engagement, support entrepreneurial programming, promote Arizona's bioscience ecosystem, and strengthen collaboration across the state's life science community.

Institution Advantage

By leveraging the collective strengths of Arizona's public universities, healthcare organizations, research institutions, industry partners, and entrepreneurs, the Core creates opportunities that no single institution could achieve independently. This collaborative approach accelerates research partnerships, supports technology commercialization, strengthens workforce development, and enhances Arizona's bioscience ecosystem.

Arizona Specific Benefit

The Phoenix Bioscience Core strengthens Arizona's innovation economy by supporting research collaboration, startup development, commercialization, and workforce initiatives that improve health outcomes and drive economic growth.

Substantive changes to the original proposal

None

Project Continuation	Completed
Project Status	On Schedule

Progress Report

1. Work Completed

During the reporting period, TRIF funding supported the continued operation of the Phoenix Bioscience Core through program coordination, stakeholder engagement, communications, and partnership development. The Core also supported the expansion of XLR8 PBC, its health technology accelerator, providing mentorship, commercialization support, and strategic resources to emerging bioscience companies while strengthening collaboration among Arizona's universities, healthcare organizations, research institutions, and industry partners.

2. Milestones Achieved

Key milestones included the successful implementation and expansion of the XLR8 PBC accelerator program, continued engagement with startup companies and industry mentors, and expanded collaboration across Arizona's bioscience ecosystem. The program also increased opportunities for students to gain real-world experience through internships supporting health technology startups and innovation-focused organizations.

3. Arizona Benefit or Impact

The Phoenix Bioscience Core continues to strengthen Arizona's bioscience ecosystem by supporting research collaboration, entrepreneurship, technology commercialization, and workforce development. These efforts contribute to economic growth, provide experiential learning opportunities for students, and help position Arizona as a destination for bioscience innovation and investment.

4. What Worked Well

The collaborative partnership model continued to be the program's greatest strength by bringing together universities, healthcare organizations, research institutions, entrepreneurs, investors, and industry leaders around shared goals. The combination of entrepreneurial programming, mentorship, and cross-sector collaboration created new opportunities for innovation, commercialization, and workforce development.

5. Challenges and Lessons Learned

As a statewide collaborative initiative, maintaining long-term sustainability and demonstrating measurable outcomes remain

important priorities. Continued emphasis on performance metrics, strategic partnerships, and documenting commercialization and workforce outcomes will help demonstrate the long-term value of TRIF investments while informing future program development.

Overall Project Assessment

Project was successfully completed as outlined in proposal.

Investment Detail

	2026	2027	2028	Total
Infrastructure	\$ 1,267,016	\$ 0	\$ 0	\$ 1,267,016
Basic Research	\$ 0	\$ 0	\$ 0	\$ 0
Applied Research	\$ 0	\$ 0	\$ 0	\$ 0
Development	\$ 0	\$ 0	\$ 0	\$ 0
Total	\$ 1,267,016	\$ 0	\$ 0	\$ 1,267,016

Investment Narrative

Funds were used to manage operations, develop partnerships, and promote research initiatives at PBC.

Budget Detail

	2026	2027	2028	Total
Salaries	\$ 550,327	\$ 0	\$ 0	\$ 550,327
ERE	\$ 191,856	\$ 0	\$ 0	\$ 191,856
Travel	\$ 5,504	\$ 0	\$ 0	\$ 5,504
Equipment	\$ 10,238	\$ 0	\$ 0	\$ 10,238
Supplies & Materials	\$ 5,534	\$ 0	\$ 0	\$ 5,534
Contracts & Consultants	\$ 503,310	\$ 0	\$ 0	\$ 503,310
Meetings & Conferences	\$ 245	\$ 0	\$ 0	\$ 245
Sub Awards	\$ 0	\$ 0	\$ 0	\$ 0
Total	\$ 1,267,016	\$ 0	\$ 0	\$ 1,267,016

Budget Narrative

Funds were used to manage operations, develop partnerships, and promote research initiatives at PBC.

Metric

Number of startup companies participating in the Phoenix Bioscience Core's XLR8 accelerator.

	2026	2027	2028
Projected	9	Projected	Projected
Actual	9	Actual	Actual

Institution	Arizona Board of Regents	 ARIZONA BOARD OF REGENTS ASU ♦ NAU ♦ U of A
Grant Type	Board Initiatives	
TRIF Investment Area		
Program Name	Southern Arizona Military Installation Initiative	
Project Lead	Chad Sampson, Executive Director, ABOR	

Proposal	
Problem Statement	
Arizona's public universities have significant defense-related research capabilities, but greater coordination and targeted investment are needed to connect those capabilities with military priorities, expand Department of Defense partnerships and funding, and address near-term challenges facing strategically important installations such as Fort Huachuca.	
Program Description	
Building on the Board's systemwide military initiative launched in November 2024, the Southern Arizona Military Installation Initiative provides targeted funding to accelerate high-impact research and near-term defense solutions supporting Fort Huachuca and other Southern Arizona military priorities.	
Institution Advantage	
Arizona's three public universities collectively provide significant expertise in cybersecurity, intelligence, aerospace, hypersonics, artificial intelligence, defense technologies, secure research, and workforce development, creating a strong platform for expanded partnerships with the Department of Defense.	
Arizona Specific Benefit	
The initiative supports the readiness and long-term competitiveness of Arizona's military installations while creating opportunities to attract additional federal defense investment, expand university research, prepare students for high-demand defense careers, and strengthen Arizona's aerospace and defense economy.	
Substantive changes to the original proposal	
None	
Project Continuation	Completed
Project Status	On Schedule

Progress Report
Work Completed: Following Board approval of Regent Initiative funding in February, the Southern Arizona Military Installation Initiative advanced its initial phase of work supporting Fort Huachuca, including research and technical efforts related to the electronic berm and other near-term defense priorities, with progress presented to the Board in April 2026. Milestone Achieved: The initiative progressed from the Board's November 2024 systemwide commitment to expand military and defense collaboration to targeted Regent Initiative funding for Southern Arizona, followed by the launch of initial work supporting Fort Huachuca and an April 2026 Board update on progress. Arizona Benefit or Impact: The initiative strengthens the readiness and long-term viability of Fort Huachuca—one of Arizona's most important military and economic assets, while leveraging university research to support national security, defense innovation, and Southern Arizona's aerospace and defense economy. What Worked Well: Direct collaboration among university researchers, military leadership, and technical experts has helped align university capabilities with real-world operational needs and identify research and technology solutions that can provide near-term value to Fort Huachuca. Challenges and Lessons Learned: As an initial investment, the project has demonstrated the importance of starting with targeted, mission-driven projects, learning from their implementation, and using those results to identify opportunities for additional research, partnerships, and investment that can support Fort Huachuca over the long term.
Overall Project Assessment The goals of the project were successfully completed.

Investment Detail					
	2026	2027	2028	Total	
Infrastructure	\$ 0	\$ 0	\$ 0	\$	300,000
Basic Research	\$ 0	\$ 0	\$ 0	\$	0
Applied Research	\$ 300,000	\$ 0	\$ 0	\$	0
Development	\$ 0	\$ 0	\$ 0	\$	0
Total	\$ 300,000	\$ 0	\$ 0	\$	300,000
Investment Narrative					
The Board provided an initial Regent Initiative investment to launch the Southern Arizona Military Installation Initiative, supporting targeted research and near-term defense solutions while establishing a foundation for future partnerships and investment.					
Budget Detail					
	2026	2027	2028	Total	
Salaries	\$ 0	\$ 0	\$ 0	\$	0
ERE	\$ 0	\$ 0	\$ 0	\$	0
Travel	\$ 0	\$ 0	\$ 0	\$	0
Equipment	\$ 0	\$ 0	\$ 0	\$	0
Supplies & Materials	\$ 0	\$ 0	\$ 0	\$	0
Contracts & Consultants	\$ 0	\$ 0	\$ 0	\$	0
Meetings & Conferences	\$ 0	\$ 0	\$ 0	\$	0
Sub Awards	\$ 300,000	\$ 0	\$ 0	\$	300,000
Total	\$ 0	\$ 0	\$ 0	\$	0
Budget Narrative					
The project was implemented via a sub award to the University of Arizona.					

Metric					
Number of research and technical projects supported through the initiative.					
2026		2027		2028	
Projected	1	Projected		Projected	
Actual	1	Actual		Actual	

Institution	Arizona Board of Regents	 ARIZONA BOARD OF REGENTS ASU ♦ NAU ♦ U of A
Grant Type	Board Initiatives	
TRIF Investment Area		
Program Name	Student Wellness and Wellbeing: Mental Health as Part of Arizona's Student Wellbeing Continuum	
Project Lead	Roxanne Murphy	

Proposal	
Problem Statement Student mental health is a central and growing concern across Arizona's public universities, closely tied to students' basic needs, physical safety, and overall wellbeing. Mental health challenges affect students' ability to persist and complete, yet mental health has too often been addressed in isolation from the broader conditions that shape student wellbeing. Arizona needs a coordinated, evidence-informed approach that treats mental health as one connected part of a wellbeing continuum, grounded in student voice and consistent data across institutions.	
Program Description The Arizona Board of Regents addresses student mental health as part of an integrated student wellbeing continuum that connects basic needs, mental health, physical safety, hazing, and substance misuse under a single governance frame. Using the Student Regents' listen-learn-build model, the work moves from student voice, gathered through campus listening sessions, to evidence-informed Board discussion and action. Mental health is included as a priority data element in the shared definitions and indicators being developed through the SHEEO Basic Needs Data Academy and the tri-university dashboard work, so that mental health can be understood alongside food, housing, financial stability, and transportation. The revised Basic Needs Report holistically captures the work underway in the Basic Needs Academy and the Student Mental Health and Wellness Subcommittee, and the Board's wellness materials frame safety and wellbeing as a continuum rather than separate initiatives.	
Institution Advantage ABOR can connect mental health to the full range of factors that shape student wellbeing across ASU, NAU, and the University of Arizona, rather than treating it as an isolated service line. The Student Regents' listening-session model brings authentic student voice from all three campuses into system-level decision-making, and the tri-university dashboard infrastructure allows mental health to be measured with shared definitions alongside other wellbeing indicators. ABOR's governance structure, including the Student Mental Health and Wellness Subcommittee, provides a durable home for sustained, cross-institutional attention to student mental health.	
Arizona Specific Benefit Integrating mental health into a coordinated student wellbeing continuum helps Arizona's universities support the whole student, strengthening the conditions for persistence, retention, and completion. Grounding the work in student voice and consistent, comparable data ensures that state and institutional responses reflect real student needs and can be tracked over time. By connecting mental health with basic needs and safety under one framework, ABOR builds a more resilient, supportive environment for students across Arizona and advances the state's broader attainment and wellbeing goals.	
Substantive changes to the original proposal None.	
Project Continuation	In progress
Project Status	On Schedule

Progress Report
1. Work Completed. In Year 1, ABOR advanced student mental health as one connected part of an integrated student wellbeing continuum spanning basic needs, mental health, physical safety, hazing, and substance misuse, under a single governance frame anchored by the Student Mental Health and Wellness Subcommittee, the Food and Housing Insecurity Committee, and the Student Well-being Committee. Using the Student Regents' listen-learn-build model, ABOR supported campus student mental health listening sessions across ASU, NAU, and the University of Arizona — including the University of Arizona session on March 21, 2025 and the NAU session with approximately 30 student leaders — and convened a tri-university staff convening to translate student voice into a coordinated staff-facing roadmap. ABOR led thematic analysis of the listening-session data (reading each source on its own terms, then testing recurring themes across formats and against the staff roadmap) and compiled a student mental health report covering session setup, thematic analysis, cross-campus themes, one page for each university, the tri-university staff convening, and recommendations, then routed the draft to collaborators for review. Mental health was formally included as a priority data element in the shared definitions and indicators being developed through the SHEEO Basic Needs Data Academy and tri-university dashboard work, and Board materials were revised to frame safety, hazing, and substance misuse as the next chapter in the wellbeing continuum rather than as separate initiatives. 2. Milestones Achieved. Key Year 1 milestones include: completion of student mental health listening sessions across all three universities using the Student Regents' listen-learn-build model; delivery of the tri-university staff convening to translate student voice into a coordinated roadmap; completion of the compiled student mental health listening-session report with cross-campus themes

and per-university pages; formal inclusion of mental health as a priority indicator in the tri-university Basic Needs and Student Wellbeing Dashboard definition-harmonization work; delivery of Board materials that reframe safety, hazing, and substance misuse as part of one wellbeing continuum rather than a separate track; a completed gap analysis between the Stop Campus Hazing Act and ABOR policy; and Board-level advancement of the current direct ask — whether to advance further analysis of Board policies on student-organization recognition, accountability, and reporting at a future public meeting. Mental health is also integrated into the revised annual Basic Needs Report, on track for September 2026 release.

3. Arizona Benefit or Impact. Treating mental health as one part of a coordinated wellbeing continuum — rather than as an isolated service line — helps Arizona's universities support the whole student and strengthens the conditions for persistence, retention, and completion. Grounding the work in student voice through the Student Regents' listening sessions ensures that state and institutional responses reflect what students actually said they need, and integrating mental health into shared dashboard indicators means Arizona will be able to track mental health alongside food, housing, financial stability, and transportation over time with comparable definitions. For students, this means help-seeking protections, culture-change work carried by peers and leaders rather than top-down campaigns, and coordinated support that recognizes how basic needs, safety, and mental health interact. For the state, it means one continuum-based framework for student wellbeing that supports Arizona's attainment goals and produces durable governance rather than one-off initiatives.

4. What Worked Well. The single strongest Year 1 design choice was the continuum framing itself — describing safety, hazing, and substance misuse as the next chapter in a continuum that includes basic needs, mental health, and physical safety, rather than as a separate swerve. This let ABOR use one governance structure, one set of shared indicators, and one student-voice methodology across the whole portfolio. The Student Regents' listen-learn-build model worked well because it produced authentic, verbatim student voice from all three campuses and gave Board discussion a factual, student-grounded foundation. Thematic analysis discipline — reading each source on its own terms first, then testing recurring themes across formats and against the tri-university staff roadmap — kept cross-campus synthesis honest and prevented over-fitting. Neutral policy framing (student listening sessions, the Stop Campus Hazing Act, and Arizona's Jack's Law as neutral doors into student-organization policy, without naming organizations or discussing investigations) kept Board materials focused on culture change rather than compliance theater. Integrating mental health into the Basic Needs Academy and dashboard work also worked well, because it prevented a parallel data track and gave mental health the same measurement discipline as other wellbeing indicators.

5. Challenges and Lessons Learned. Drafting Board and script materials in this space required constant attention to language and framing: repeated framing of specific student organizations as the problem, written choreography for named regents, unverified federal-law timelines, and "fear" language (where "lack of clarity" or "confusion" more accurately reflects what students said) all had to be reworked in leadership review, and role-based prompts proved safer than scripting named regents in a discoverable written document. Verbatim student quotes were preserved where language mattered most. Coordinating listening sessions and thematic analysis across three universities with different calendars and student populations required deliberate sequencing, and the gap analysis between the Stop Campus Hazing Act and ABOR policy was completed but not yet built into a final Word brief pending authorization. The primary lesson is that student-voice work is durable only when governance, framing, and measurement stay disciplined across the whole continuum — student voice grounds the work, shared indicators make it trackable, and continuum framing keeps mental health from being addressed in isolation from the conditions that shape it.

Overall Project Assessment

Arizona's student wellness and wellbeing work is progressing as one coordinated continuum, exactly as the proposal narrative described. Year 1 moved mental health from an isolated service-line frame into an integrated wellbeing continuum that connects basic needs, mental health, physical safety, hazing, and substance misuse under a single governance structure — the Student Mental Health and Wellness Subcommittee, the Food and Housing Insecurity Committee, and the Student Well-being Committee — and under one methodology grounded in the Student Regents' listen-learn-build model. Parallel workstreams — campus listening sessions, tri-university staff convening, the compiled listening-session report, dashboard indicator integration, continuum-framed Board materials, and the Stop Campus Hazing Act policy gap analysis — reinforce rather than duplicate each other, and each strengthens Arizona's ability to understand mental health alongside food, housing, financial stability, and transportation with comparable definitions over time. Year 2 priorities are finalizing the compiled listening-session report, locking mental health as a harmonized indicator in the tri-university Basic Needs and Student Wellbeing Dashboard, advancing the current Board-level ask on student-organization recognition and accountability, and preserving continuum framing across ABOR's wellness portfolio. Overall, ABOR is delivering on both its Institution Advantage as the only entity that can connect mental health to the full range of wellbeing factors across ASU, NAU, and UA and its Arizona Benefit as the source of a coordinated, student-voice-grounded, data-consistent approach to student wellbeing statewide.

Investment Detail

	2026		2027		2028		Total
Infrastructure	\$	100,000	\$	0	\$	0	\$ 100,000
Basic Research	\$	0	\$	0	\$	0	\$ 0
Applied Research	\$	0	\$	0	\$	0	\$ 0
Development	\$	0	\$	0	\$	0	\$ 0
Total	\$	100,000	\$	0	\$	0	\$ 100,000

Investment Narrative

A 100,000 award was provided to ASU to assist in the listening sessions held across the state.

Budget Detail

	2026		2027		2028		Total
Salaries	\$	0	\$	0	\$	0	0
ERE	\$	0	\$	0	\$	0	0
Travel	\$	0	\$	0	\$	0	0
Equipment	\$	0	\$	0	\$	0	0
Supplies & Materials	\$	0	\$	0	\$	0	0
Contracts & Consultants	\$	0	\$	0	\$	0	0
Meetings & Conferences	\$	0	\$	0	\$	0	0
Sub Awards	\$	100,000	\$	0	\$	0	100,000
Total	\$	100,000	\$	0	\$	0	100,000

Budget Narrative

A 100,000 award was provided to ASU to assist in the listening sessions held across the state.

Metric

Listening sessions across three campuses

2026		2027		2028	
Projected	3	Projected	3	Projected	3
Actual	3	Actual		Actual	

Institution	Arizona Board of Regents	 ARIZONA BOARD OF REGENTS ASU ♦ NAU ♦ U of A
Grant Type	Board Initiatives	
TRIF Investment Area		
Program Name	The Arizona FAFSA Peer Coach Program	
Project Lead	Julie Sainz	

Proposal

Problem Statement

Arizona continues to face significant challenges in FAFSA completion among high school seniors, consistently ranking near the bottom nationally. As a result, Arizona students leave more than \$100 million in Federal Pell Grants unclaimed each year because they did not complete the form. Low FAFSA completion rates in Arizona are driven by several factors, including limited awareness of the financial aid opportunities available through the FAFSA, misconceptions about eligibility and the application process, and insufficient access to personalized support for students and families navigating the form.

The FAFSA Peer Coach Program was developed to address these barriers through a proven peer-to-peer engagement model. By empowering trained high school seniors to serve as FAFSA ambassadors within their schools, the program increases awareness of financial aid opportunities, dispels common myths and misconceptions surrounding the FAFSA, and connects students and families with the resources and assistance needed to successfully complete the application. Through peer outreach, targeted support, and school-based engagement, the program helps expand access to financial aid and supports Arizona's efforts to improve college-going and postsecondary attainment outcomes statewide.

Program Description

The FAFSA Peer Coach Program is a statewide initiative designed to increase FAFSA completion and college-going rates by leveraging the power of peer-to-peer engagement. The program trains high school students to serve as FAFSA Peer Coaches who promote FAFSA awareness, share accurate information about financial aid opportunities, and connect their classmates and families with resources and support to complete the Free Application for Federal Student Aid (FAFSA).

Established during the 2022–23 school year as a pilot program serving 24 high schools across Arizona, the FAFSA Peer Coach Program was created to address persistent barriers to FAFSA completion, including lack of awareness, misinformation about financial aid eligibility, and limited access to individualized support. Through training, outreach activities, peer mentoring, and FAFSA completion events, Peer Coaches help normalize conversations about financial aid and encourage students to take critical steps toward postsecondary education.

Since its launch, the program has demonstrated strong results and has become a proven model for increasing FAFSA awareness and engagement among students. As a result of its success, the program has expanded from the original 24 pilot schools to 54 high schools statewide while retaining all of the original pilot schools. This sustained participation reflects the value schools and communities have found in the program and its effectiveness in supporting students through the financial aid process.

Today, the FAFSA Peer Coach Program serves students Maricopa and Pima Counties. By combining student leadership, peer influence, and targeted FAFSA support, the program continues to strengthen college access efforts and help more Arizona students access the financial resources available to pursue postsecondary education and training opportunities.

Institution Advantage

The FAFSA Peer Coach Program strengthens college-going cultures by increasing awareness of postsecondary opportunities, financial aid, and career pathways through peer-led outreach, presentations, FAFSA events, and student engagement activities. By making these conversations more visible and accessible, the program helps students view education and training after high school as an attainable next step.

While the program focuses on increasing FAFSA completion and financial aid awareness, it remains institution-agnostic and pathway-agnostic. The program does not promote any specific college, university, training provider, or degree program. Instead, it equips students with the information and resources needed to make informed decisions about the postsecondary pathway that best aligns with their goals, whether that includes a university, community college, trade school, apprenticeship, workforce training program, or military service.

The program also advances school and district goals related to student success, postsecondary enrollment, and college and career readiness. Participating schools benefit from access to training, technical assistance, statewide resources, and a network of FAFSA practitioners that enhance local college access efforts.

In addition, the program develops student leadership by providing Peer Coaches with opportunities to build skills in communication, public speaking, event planning, teamwork, and peer mentoring. Together, these benefits make the FAFSA Peer Coach Program an effective and sustainable strategy for increasing financial aid access, supporting student success, and preparing Arizona students for their chosen postsecondary pathway.

Arizona Specific Benefit

The FAFSA Peer Coach Program provides significant benefits to Arizona by increasing student access to financial aid, supporting postsecondary enrollment, and strengthening the state's education and workforce pipeline. By utilizing a peer-to-peer model, the program reaches students through trusted messengers who can effectively raise awareness about financial aid opportunities, address misconceptions, and encourage FAFSA completion among their classmates.

Increasing FAFSA completion is critical for Arizona because the FAFSA serves as the gateway to federal grants, work-study opportunities, student loans, and many state, institutional, and private scholarships. Each year, Arizona students leave more than \$100 million Federal Pell grants alone due to not completing the FAFSA. By helping more students access these resources, the FAFSA Peer Coach Program reduces financial barriers to higher education and expands opportunities for students to pursue certificates, workforce training programs, and college degrees.

The program also supports Arizona's broader postsecondary attainment and workforce development goals. Research consistently demonstrates that students who complete the FAFSA are significantly 74% more likely to enroll in postsecondary education immediately after high school. As more students enroll in and complete postsecondary credentials, Arizona benefits from a more educated workforce, increased earning potential for residents, and greater economic competitiveness.

In addition to increasing FAFSA completion, the program develops student leadership and civic engagement skills among participating Peer Coaches. Student leaders gain experience in communication, outreach, event planning, and mentoring, helping them build valuable skills that support their own educational and career success.

By expanding access to financial aid, increasing postsecondary enrollment, developing student leaders, and supporting Arizona's long-term attainment goals, the FAFSA Peer Coach Program represents a cost-effective and scalable strategy for improving educational outcomes and strengthening the state's future workforce.

Substantive changes to the original proposal

None

Project Continuation	In progress
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Project Status	On Schedule
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Progress Report

1. Work Completed

During the 2025–26 school year, the Arizona Board of Regents (ABOR) successfully implemented the FAFSA Peer Coach Program across 11 school districts in Maricopa and Pima counties, supporting 50 high schools, 61 Peer Coach Advisors (school counselors), and 220 student FAFSA Peer Coaches. The ABOR Director of FAFSA and College Access Initiatives coordinated all aspects of the program, including the development and delivery of advisor and peer coach trainings, FAFSA training, program resources, and implementation guidance. Each participating school developed a strategic plan to increase its FAFSA completion rate by 5 percentage points over the previous FAFSA cycle. Throughout the year, individualized program check-ins, ongoing technical assistance, continued professional development, and regular data reporting and performance tracking were provided to ensure schools remained on track to achieve their goals.

2. Milestones Achieved

The FAFSA Peer Coach Program achieved significant outcomes during the 2025–26 school year. Participating schools concluded the FAFSA cycle with an average FAFSA completion rate of 60%, exceeding Arizona's statewide average by 18 percentage points. Schools successfully implemented peer-to-peer outreach campaigns, hosted FAFSA completion events, and expanded student engagement efforts that increased awareness of financial aid opportunities and college access resources. These results continue to demonstrate the effectiveness of the Peer Coach model as a scalable strategy for improving FAFSA completion and strengthening college-going cultures in Arizona high schools.

3. Arizona Benefit and Impact

The FAFSA Peer Coach Program continues to generate meaningful benefits for Arizona students, schools, and communities by increasing access to financial aid and expanding postsecondary opportunities. Higher FAFSA completion rates help more students qualify for federal, state, institutional, and private financial aid, reducing financial barriers to higher education and workforce training. The program also strengthens school capacity by equipping counselors and student leaders with the knowledge, tools, and resources needed to support their peers. Through its institution-agnostic approach, the program empowers students to pursue the postsecondary pathway that best aligns with their individual goals, whether that includes a university, community college, trade school, apprenticeship, military service, or workforce training program.

4. What Worked Well

One of the program's greatest strengths was the collaborative partnership between participating schools, districts, community-based organizations, and higher education institutions. These partnerships expanded access to FAFSA workshops, volunteer support, and financial aid expertise, creating a community of support that enhanced local outreach efforts. The combination of comprehensive training, consistent communication, strategic planning, ongoing coaching, and data-driven performance monitoring enabled schools to make informed decisions, quickly identify areas needing additional support, and remain focused on achieving their FAFSA

completion goals. The peer-to-peer engagement model also continued to prove highly effective in increasing student awareness, reducing misconceptions about financial aid, and encouraging FAFSA completion.

5. Challenges and Lessons Learned

As the FAFSA Peer Coach Program continues to expand, the primary challenge has been managing the scale and complexity of the initiative with a single program lead responsible for statewide coordination. Supporting 50 high schools, 61 advisors, 220 Peer Coaches, ongoing trainings, technical assistance, data analysis, program monitoring, communications, and partnership development has highlighted the need for additional staffing capacity to sustain program quality and support future growth. The continued success of the program demonstrates strong demand and effectiveness; however, long-term sustainability will require additional personnel and resources to maintain high-quality implementation while expanding access to additional schools across Arizona.

Overall Project Assessment

The FAFSA Peer Coach Program has successfully advanced the objectives outlined in the original proposal and has demonstrated measurable progress in increasing FAFSA completion and strengthening college access across Arizona. During the 2025–26 school year, the program supported 50 high schools across 11 school districts in Maricopa and Pima counties through a comprehensive model that combined advisor and student leader training, strategic planning, ongoing technical assistance, data-driven performance monitoring, and peer-to-peer engagement. The integration of these components created a sustainable framework that enabled participating schools to implement targeted FAFSA completion strategies while building long-term capacity to support students and families.

The project exceeded its primary performance objective, with participating schools achieving an average FAFSA completion rate of 60%—18 percentage points higher than Arizona's statewide average. These outcomes demonstrate that the Peer Coach model is an effective, evidence-based approach to increasing financial aid awareness and FAFSA completion. Beyond improving completion rates, the program strengthened college-going cultures by empowering student leaders, expanding the knowledge and capacity of school counselors, and ensuring students had access to accurate financial aid information and individualized support.

A key factor in the program's success has been the development of strong partnerships among school districts, community organizations, higher education institutions, and financial aid professionals. These collaborations expanded access to FAFSA completion events, volunteer assistance, and community resources, creating a coordinated support network that amplified local outreach efforts. The program's institution-agnostic approach also ensured that students were encouraged to pursue the postsecondary pathway that best aligned with their individual goals, whether through a university, community college, trade school, apprenticeship, military service, or workforce training program.

As the program has grown, it has also demonstrated the importance of ongoing implementation support. Regular trainings, individualized school check-ins, performance dashboards, and continuous data analysis enabled participating schools to monitor progress, identify challenges early, and make informed adjustments throughout the FAFSA cycle. These continuous improvement practices have been instrumental in maintaining strong program outcomes while fostering consistency across participating schools.

The program's greatest challenge moving forward is sustaining and expanding this high level of support with limited staffing. As participation has grown substantially, a single program lead has remained responsible for statewide program management, training, technical assistance, data analysis, communications, partnership development, and performance monitoring. While the program has successfully met its objectives, additional staffing and resources will be essential to maintain program quality, support future expansion, and extend the benefits of this proven model to more schools and students across Arizona.

Investment Detail

	2026	2027	2028	Total
Infrastructure	\$ 393,720	\$ 0	\$ 0	\$ 393,720
Basic Research	\$ 0	\$ 0	\$ 0	\$ 0
Applied Research	\$ 0	\$ 0	\$ 0	\$ 0
Development	\$ 0	\$ 0	\$ 0	\$ 0
Total	\$ 393,720	\$ 0	\$ 0	\$ 393,720

Investment Narrative

During the 2025–26 school year, the Board invested \$393,719.90 in the FAFSA Peer Coach Program. This investment supported partnerships with 50 public high schools, engaging 61 school advisors and 220 student Peer Coaches who received training and ongoing support to increase FAFSA awareness and completion efforts on their campuses.

Through peer-to-peer outreach, advisor support, and targeted FAFSA completion initiatives, participating schools and districts increased the number of students completing the FAFSA. Collectively, the FAFSA Peer Coach Program serves schools that represent nearly 50% of Arizona's public high school enrollment, making it a significant contributor to the state's overall FAFSA completion rate. By expanding access to financial aid information and helping students complete this critical application, the program continues to strengthen college access and postsecondary affordability for Arizona students.

Budget Detail					
	2026	2027	2028		Total
Salaries	\$ 0	\$ 0	\$ 0	\$	0
ERE	\$ 0	\$ 0	\$ 0	\$	0
Travel	\$ 0	\$ 0	\$ 0	\$	0
Equipment	\$ 0	\$ 0	\$ 0	\$	0
Supplies & Materials	\$ 1,020	\$ 0	\$ 0	\$	1,020
Contracts & Consultants	\$ 0	\$ 0	\$ 0	\$	0
Meetings & Conferences	\$ 0	\$ 0	\$ 0	\$	0
Sub Awards	\$ 392,700	\$ 0	\$ 0	\$	392,700
Total	\$ 393,720	\$ 0	\$ 0	\$	393,720

Budget Narrative

During the 2025–26 school year, the Board invested \$393,719.90 in the FAFSA Peer Coach Program. This investment supported partnerships with 50 public high schools, engaging 61 school advisors and 220 student Peer Coaches who received training and ongoing support to increase FAFSA awareness and completion efforts on their campuses.

Through peer-to-peer outreach, advisor support, and targeted FAFSA completion initiatives, participating schools and districts increased the number of students completing the FAFSA. Collectively, the FAFSA Peer Coach Program serves schools that represent nearly 50% of Arizona's public high school enrollment, making it a significant contributor to the state's overall FAFSA completion rate. By expanding access to financial aid information and helping students complete this critical application, the program continues to strengthen college access and postsecondary affordability for Arizona students.

Metric

Have at least 50% of the participating schools increase their FAFSA completion rate by 5% or higher compared to the previous school year

2026		2027		2028	
Projected	27	Projected		Projected	
Actual	48	Actual		Actual	

Metric

Have 100% participation from all FAFSA peer coach advisors and peer coaches attend the in-person FAFAS and program orientation training

2026		2027		2028	
Projected	281	Projected		Projected	
Actual	281	Actual		Actual	

Institution	Arizona Board of Regents	 ARIZONA BOARD OF REGENTS ASU ♦ NAU ♦ U of A
Grant Type	Regents Research	
TRIF Investment Area		
Program Name	A Roadmap to Fulfilling the Economic Potential of Technology Transfer in the Life Sciences and Biomedicine in Arizona	
Project Lead	Don Siegel (ASU)	

Proposal

Problem Statement

Arizona's universities have developed vast innovation and entrepreneurial ecosystems on campuses and in surrounding regions. On the surface, we appear to be doing well, based on standard technology transfer metrics, such as federal funding of research, as well as counts of invention disclosures, patents, licenses, and startups. Despite these successes, we can do better, especially in terms of achieving the full economic potential of technology transfer from Arizona's research universities, whose annual research expenditures exceed \$2B. Our objective is to identify a set of policies that will result in more faculty engagement in technology transfer, better ways to manage this process, and help universities better economic outcomes from technology transfer, including entrepreneurial growth.

Program Description

Academic experts on technology transfer at ASU, UA, and NAU will conduct an in-depth analysis of technology transfer at the three universities, with an eye towards improving how we manage technology transfer and formulate and implement public and managerial policies to increase the impact of technology transfer on economic development in Arizona. Our focus is on life sciences and biomedicine, and especially, entities such as the Phoenix Bioscience Core and growing public and private investment in health care in Arizona.

We start at the individual level, since research to understand technology transfer has largely ignored psychological/behavioral and organizational aspects of scientists' engagement, despite the fact that technology transfer starts with scientists' motivation to engage, especially since technology transfer is generally not viewed as a "normal" role for university scientists. Indeed, only a small percentage of faculty members, post-docs, and students in Arizona actually engage in technology transfer activities, especially women and minorities. Accordingly, we seek to increase that percentage of engagement. Tribal communities are also largely missing from technology transfer and conventional technology-based economic development programs. We will explore reasons for this lack of involvement and identify tactics for increasing engagement.

In addition, it is well-known that patenting, licensing, and startups arising from technology transfer largely fail to achieve economic development through new products and sustainable job creation. That is, while many university-based startups and licensing agreements have been established, few end up generating new products and long-term jobs. Through a collaborative effort involving all three state public universities, we will conduct an in-depth analysis of startups and technology licensing to track their activity and the reasons for success or failure, as well as sustainability and growth, with special attention to private sector activity in the life sciences and biomedicine space. A critical part of our eco-system analysis would include the design of supply chains and their effective management.

We will employ mixed-methods, including extensive interviews, focus groups, surveys, and econometric analyses. Regarding the latter, we will apply techniques used in other regions that have developed a life sciences and biomedicine cluster (i.e., the Research Triangle Park region). Specifically, we will build a large database of technology-intensive entrepreneurial firms that will include data on company founders, career development, R&D activity (e.g., patents), employment, including interactions with university students, postdocs, and faculty, and overall engagement with the entrepreneurial and existing industry ecosystem.

Our data collection and analysis will occur at multiple levels: individuals (scientists/entrepreneurs), research units (lab or departments), organizations (universities/firms/non-profits), and geographic entities (cities, towns, counties, regions). Both primary and secondary data will be collected and analyzed. The ultimate goal of our project is to advance the bioeconomy and biomedical enterprises in Arizona through more effective technology transfer.

Institution Advantage

The research team has considerable expertise in the study of technology transfer, science policy, and academic entrepreneurship and the study of this phenomenon at the individual, organizational, and regional levels from a variety of disciplinary perspectives: economics, sociology, strategy and entrepreneurship, engineering and technology management, organizational behavior, and supply chain management. We also have a thorough understanding of the key stakeholders in each university's innovation and entrepreneurial ecosystems. On the external/community side, the research team was able to develop strong connections to the Flinn Foundation, AZTC, Phoenix Bioscience Core, AZBio, the Medical Device Manufacturing Multiplier Strategy Development Consortium (MDM2), and the entrepreneurial community in Phoenix and Tucson. The fact all three universities are involved in the project is also helpful, in terms of building support for data collection efforts.

Arizona Specific Benefit

The managerial and policy changes we will propose, based on extensive interviews and comprehensive scientist and firm/external surveys, will benefit Arizona's universities, firms, and entrepreneurs, especially in the growing life sciences, biomedicine, and health care sector, where substantial firms and job growth is expected. We believe that our project will result in more faculty and students getting involved in technology transfer and academic entrepreneurship. Taxpayers and universities will benefit from any revenue that

arises for commercialization, through greater economic development. We are also confident that the managerial and policy changes that will enable more firms (both start-ups and established) in this vital, growth sector, to achieve success.

The following outcomes will also result: 1) improve our understanding of incentives (or disincentives) that drive behaviors toward (or away from) technology transfer and economic development, e.g., disclosing inventions by faculty; work with universities by industry; 2) Increase engagement in technology transfer at colleges and universities and in tribal communities -key focus on women and minority academic entrepreneurs and increasing post-doc involvement ; 3) Increase engagement in technology transfer at firms; 4) Increase effectiveness of startups; 5) Increase the effectiveness of managing individual and organizational processes associated with technology transfer; 6) Identify and enhance efficiency of supply chain issues in technology transfer, especially related to the life sciences and biomedicine/PBC; 7) benchmark the most successful technology-intensive entrepreneurial firms

Substantive changes to the original proposal

Based on our launch meeting, the 32 extensive interviews of key stakeholders, and allocation of funds for gift cards, we had a unique opportunity to conduct the most comprehensive survey ever of faculty engagement in technology transfer and academic entrepreneurship. A key change from our proposal was that we underestimated how much we would spend on gift cards, That is because we underestimated what our response rate would be. For the first wave of the faculty survey, we had a 22.2% response rate, which was substantially higher than the 9.5% we projected. Of course, our high response rate means that we have excellent data. Three exogenous events also led to changes from our proposal, which we incorporated into both our scientist and external surveys. These are: (1) the growing importance of AI; (2) the movement towards open science, which affects IP creation; and (3) changes in the federal funding landscape. We were also slowed down a bit because of complicated IRB/institutional issues, i.e., we had to have both surveys and all research approved, dealing with IRB at both ASU and UA, and securing ASU affiliations for UA faculty, grad students, and post-docs.

Project Continuation	In progress
Project Status	On Schedule

Progress Report

Work Completed. The ASU/UA/NAU research team launched this project with a “kick-off” meeting. The kickoff meeting began with an address from our keynote speaker, Regent Fred Duval. The purpose of this meeting was to convene key Arizona stakeholders involved in technology transfer (henceforth, TT) and academic entrepreneurship, to introduce them to the research team and project, learn about their perspectives on TT, and secure support for our data collection efforts. Participants included representatives from organizations in the life sciences, biomedicine and technology sectors, such as AZBIO, GPEC, AZTC, Mayo, Flinn Foundation; the Phoenix Bioscience Core (PBC) and the City of Phoenix; the VPs of Research from ASU, UA, and NAU; and selected entrepreneurs and firms. The research team then conducted 32 extensive interviews with university scientists and industry scientists engaged in TT, key leaders in Arizona’s life sciences and biomedicine community, government and nonprofit officials, and entrepreneurs. The Pls also met with the Medical Device Manufacturing Cluster group at GPEC. We used the kick-off meeting and the interviews to design and implement a groundbreaking survey of Arizona university scientists, conducted in three waves (October 2025, February 2026, May 2026)), as well as an external survey of Arizona firms, entrepreneurs, and some nonprofit organizations in the life sciences, biomedicine, health care, and other technology-based industries. Data collection on the scientist survey was completed in May, and we have drafted a report on preliminary report/analysis of the scientist data, which we shared with Dr. Polasko. We also initiated analysis of national data on the dynamics of university-industry collaboration (UIC) in the life sciences and biomedicine, which we will use in our benchmarking analysis. Based on these data and the scientist surveys, we presented a paper on the impact of federal funding shocks on scientists’ interest and engagement in TT at the International Conference on the Science of Science and Innovation in Colorado in June. Data collection for our two-wave external survey is ongoing. Finally, the team completed the first stage of national data analysis on UIC, using data on coauthored publications to assess the relative benefits of cross-sector collaboration for innovation and impact in the life sciences and biomedicine.

Milestones achieved. Our most significant milestone to date is completion of the scientist surveys, which were by far the most comprehensive surveys of the antecedents and consequences of TT ever conducted. As noted earlier, another milestone is our draft report of preliminary findings from the scientist survey, which we sent to Dr. Polasko. Until that report has been fully vetted, we are reluctant to report specific findings. However, some general findings are that faculty members at Arizona’s universities, both within and beyond the biomedical and life sciences, broadly support research translation, TT, and especially, the social impact of their innovations. However, many perceive gaps relating to communication, incentives, institutional support, and clarity around TT processes. Over one-third of scientists indicated familiarity with the PBC, with 35% reporting direct engagement with organizations associated with the PBC.

Arizona Benefit or Impact. Four graduate students and three postdocs at ASU and UA have been actively engaged in this project, including an entire doctoral dissertation based on the scientist survey. The project has also led to new collaborations across Arizona’s three universities. The ASU and UA teams have complementary expertise on the scientific study of TT, science policy, and innovation. Working together positions us to further grow our state’s leadership in these areas, which are also ongoing priorities for federal agencies and national foundations investing in research in these areas. The NAU team, although only tangentially involved in the research/analysis, has been extremely supportive. Given their focus on operational aspects of TT, they have interacted with Skysong Innovations at ASU and Tech Launch Arizona at UA, in order to share best practices across the three universities in TT. In the year ahead, we plan to complete data collection and analysis and report on lessons learned at a second convening of TT stakeholders. We also intend to weigh in on institutional policies to advance TT, using our own data and national benchmarks. In sum, during the next fiscal year, we will develop an evidence-based set of recommendations to improve the effectiveness of TT in the life sciences and biomedicine in Arizona.

What Worked Well. Our stakeholder engagement and in-depth interviews, along with our previous experience leading surveys of other universities and the NIH, were extremely useful to us in designing both our comprehensive survey of Arizona university scientists and our external survey of firms. Our scientist survey measures aspects of these activities that have been ignored in previous studies, including key scientific workplace and psychological issues, such as incentives, prosocial motivation, organizational justice, championing/leadership, role conflict/identity, invention withholding, open science, and the impact of recent changes in the federal funding landscape. This enables more actionable insights for institutional policy on how to create more conducive environments to motivate effective TT engagement. We were also able to secure a very high response rate for an online survey: 22% responded in Time 1 (in our previous surveys of university scientists, the response rate was never higher than 10%). Nearly 70% of respondents at Time 1 persisted through Time 3, and the majority indicated willingness to participate in follow-up in-depth interviews that we will conduct this fall. We attribute this to our provision of participant incentives (\$20 Amazon gift cards in each survey wave) and to the support and endorsement of the survey by ABOR and university leaders, conveying its legitimacy and significance to respondents. Our decision to field the survey across all disciplines also worked well: Approximately 32% of respondents are in the life sciences, biomedicine, or health; 22% in other STEM fields; 25% in the social sciences, and 20% in other fields. This provides a sufficiently large sample to analyze our focal population of biomedical, health, and life scientists, while also enabling comparisons with scientists in other fields so that we can pinpoint what TT perspectives, experiences, and needs are divergent or convergent across fields, which will benefit the overall TT enterprise.

Challenges and Lessons Learned. Key challenges included complications and delays in securing institutional data, contact lists, and IRB approval across multiple institutions for the surveys. Assistance from the top research officials at the three universities helped us to resolve these challenges. We also encountered challenges with national administrative data on university research and impact housed at the University of Michigan that we had intended to use for benchmarking. The data we were ultimately able to access proved not to be useful due to privacy constraints and delays in release of crucial patent and innovation measures. We are also unable to utilize some institutional data at Arizona universities that would have been helpful for our aims (due to ABOR policy restrictions on use of individual-level employee data for research purposes). We pivoted to using publicly available data that can support some of our aims and are currently seeking access to analogous restricted data through a different national consortium. Profound changes to the federal funding landscape also presented challenges, both for our team (e.g. contributing factor to challenges accessing national data) and for the scientists and broader innovation landscape that we are studying. We turned this challenge into an opportunity by adding measures to our survey of how university scientists have been impacted by disruptions to federal funding. Our preliminary findings suggest that such disruptions prompt increased interest and engagement in TT activities and pursuit of industry funding.

Overall Project Assessment

We believe that our project has been quite successful so far, in terms of the quality of the "kick-off" event, breadth and quality of the data we have collected, the connections we have to the life sciences and biomedicine community, the internal connections among researchers at the three universities. Our preliminary findings, based on the comprehensive scientist surveys, are also quite illuminating. Our project has also provided the basis for a doctoral dissertation and several research projects involving four graduate students and three postdocs at ASU and UA. We have also established new collaborations across Arizona's three universities, which positions us to provide a set of feasible, actionable, evidence-based recommendation to enhance TT and academic entrepreneurship related to life sciences, biomedicine, and health and the economic outcomes associated with these activities in this important, growing sector. Stay tuned for more. The best is yet to come.

What Worked Well. Our stakeholder engagement and in-depth interviews, along with our previous experience leading surveys of other universities and the NIH, were extremely useful to us in designing both our comprehensive survey of Arizona university scientists and our external survey of firms. Our scientist survey measures aspects of these activities that have been ignored in previous studies, including key scientific workplace and psychological issues, such as incentives, prosocial motivation, organizational justice, championing/leadership, role conflict/identity, invention withholding, open science, and the impact of recent changes in the federal funding landscape. This enables more actionable insights for institutional policy on how to create more conducive environments to motivate effective TT engagement. We were also able to secure a very high response rate for an online survey: 22% responded in Time 1 (in our previous surveys of university scientists,

Investment Detail

	2026		2027		2028		Total
Infrastructure	\$	0	\$	0	\$	0	\$ 0
Basic Research	\$	0	\$	0	\$	0	\$ 0
Applied Research	\$	531,160	\$	0	\$	0	\$ 531,160
Development	\$	0	\$	0	\$	0	\$ 0
Total	\$	531,160	\$	0	\$	0	\$ 531,160

Investment Narrative

All of research activities and associated expenditures can be considered applied research, since we hosted a launch event for the project, conducting extensive qualitative and quantitative analysis, based on extensive interviews, the design and implementation of three waves of a scientists survey, associated gift card costs, and the design of an external survey of firms/nonprofits/health care firms.

Budget Detail							
	2026		2027		2028		Total
Salaries	\$	0	\$	0	\$	0	0
ERE	\$	0	\$	0	\$	0	0
Travel	\$	0	\$	0	\$	0	0
Equipment	\$	0	\$	0	\$	0	0
Supplies & Materials	\$	0	\$	0	\$	0	0
Contracts & Consultants	\$	0	\$	0	\$	0	0
Meetings & Conferences	\$	0	\$	0	\$	0	0
Sub Awards	\$	0	\$	0	\$	0	0
Total	\$	0	\$	0	\$	0	0
Budget Narrative							
All of research activities and associated expenditures can be considered applied research, since we hosted a launch event for the project, conducting extensive qualitative and quantitative analysis, based on extensive interviews, the design and implementation of three waves of a scientists survey, associated gift card costs, and the design of an external survey of firms/nonprofits/health care firms. Budget breakout detail was not available at the time of report.							

Metric					
Launch surveys to scientists, health firms, and non-profits.					
2026		2027		2028	
Projected	3	Projected		Projected	
Actual	3	Actual		Actual	

Institution	Arizona Board of Regents	 ARIZONA BOARD OF REGENTS ASU ♦ NAU ♦ U of A
Grant Type	Regents Research	
TRIF Investment Area	AI Capabilities to Support Emergency Response, Preparedness, Unit Mobilization and Course-of-Action Development	
Program Name	AI Capabilities to Support Emergency Response, Preparedness, Unit Mobilization and Course-of-Action Development	
Project Lead	Wenwen Li (ASU)	

Proposal

Problem Statement

To-date, DEMA has invested in and collaborated with Arizona universities on gathering the requisite data for improved analytics to support the decisions around disaster response and mitigation. These ongoing efforts are enhancing human analysis of disasters. While this represents a significant step toward more data-driven and efficient decision-making at DEMA, this does not provide for prediction of second- and third- order effects, insights into resource allocation, and course-of-action (COA) planning. These capabilities would benefit greatly from artificial intelligence (AI) technology. However, today's commercial AI solutions are "black box" systems that lack the explainability, transparency, and robustness suitable for mission critical decision support that requires human understanding of how the system arrived at its predictions and recommendations. Recent advances by researchers at Arizona universities in areas such as neurosymbolic AI, computational logic, and graph-based reasoning hold promise to address such gaps. For example, the recently released PyReason software library can serve as a key building block for such mission critical capabilities.

Program Description

The ABOR-DEMA project is developing an AI-driven platform to enhance disaster preparedness and emergency response for the Arizona Department of Emergency and Military Affairs (DEMA). By integrating advances in geospatial artificial intelligence (GeoAI), explainable AI, graph reasoning, and geospatial data analytics, the project aims to provide emergency managers with trustworthy decision-support capabilities for situational awareness, hazard assessment, and operational planning. The platform combines interactive geospatial visualization, conversational AI, and predictive analytics to help users understand evolving incidents, assess impacts on critical infrastructure and vulnerable communities, evaluate potential cascading effects, and support informed resource allocation and course-of-action planning. Through close collaboration with DEMA, the project seeks to transition cutting-edge AI research into practical tools that improve emergency preparedness, response, and resilience across Arizona.

Institution Advantage

ASU provides a unique environment for advancing AI-enabled emergency management through its nationally recognized expertise in geospatial artificial intelligence (GeoAI), disaster resilience, geospatial data science, and operational decision support. The project brings together an interdisciplinary team with complementary expertise in AI, geospatial analytics, knowledge graphs, software engineering, and emergency management applications. ASU's strengths in translating cutting-edge research into practical solutions, combined with its established collaborations with state agencies, enable the team to develop technologies that directly address operational needs. Through close engagement with the Arizona Department of Emergency and Military Affairs (DEMA), the project benefits from continuous stakeholder feedback, ensuring that the resulting AI tools are designed for real-world emergency management workflows and can be effectively transitioned into operational use.

Arizona Specific Benefit

The ABOR-DEMA project will strengthen Arizona's ability to prepare for, respond to, and recover from natural hazards by equipping emergency managers with advanced AI-powered decision-support tools. The technologies developed through this project will improve situational awareness, enhance understanding of impacts on critical infrastructure and vulnerable communities, and support more informed resource allocation and response planning during rapidly evolving emergencies. By working closely with the Arizona Department of Emergency and Military Affairs (DEMA), the project ensures that these capabilities are tailored to Arizona's operational needs and can be transitioned into practice. Beyond improving emergency management, the project also advances Arizona's leadership in geospatial AI and disaster resilience, fostering innovation, cross-sector collaboration, and workforce development in technologies that are increasingly important for public safety and community resilience.

Substantive changes to the original proposal

First, the project team adjusted its engineering support plan. The original proposal anticipated that ASURE (ASU Research Enterprise) would provide the primary engineering support for the project. However, shortly after the project began, ASURE experienced the departure of several research engineers, significantly reducing its capacity to support the planned software development activities. To maintain project momentum, we engaged EpochGeo, a Washington, DC-based company with expertise in geospatial software engineering, to provide the required engineering support. This change was discussed with and approved by the program director before implementation. We also remained mindful of the program's intent to maximize the benefit to Arizona, ensuring that the majority of the project funding continues to support research activities at ASU and within the state.

Second, we revised the timing of the project's planned symposium. The original proposal envisioned hosting a symposium each year. However, given the initial effort required to address the engineering transition and establish the interdisciplinary research and development activities, we determined that combining the Year 1 and Year 2 symposium resources would provide greater impact. We now plan to host a larger symposium in Spring 2027 that will bring together leading researchers, emergency management practitioners, state and federal stakeholders, and potential funding partners to discuss the future of geospatial AI for hazard mapping, forecasting, and emergency management. This revised schedule will also allow us to showcase a more mature prototype and technical results, creating a stronger opportunity to demonstrate the project's progress and foster future collaborations.

Project Continuation	In progress
Project Status	On Schedule

Progress Report

1. Work Completed: During the first year of the project, the team made substantial progress toward developing an AI-driven decision support platform for the Arizona Department of Emergency and Military Affairs (DEMA). Major activities included the development of an initial geospatial visualization prototype for disaster and lifeline information, a conversational AI prototype capable of answering disaster-related questions to enhance situational awareness, and a benchmark question-answering dataset for evaluating system performance. The team also established the core prediction pipeline by integrating temporal rule learning, logical reasoning, and probabilistic rule selection, laying the foundation for explainable prediction of infrastructure disruptions and cascading impacts. In addition, we developed a prototype web application that serves as both a daily incident reporting system and a probabilistic risk assessment tool for evaluating potential impacts on critical lifelines and surrounding infrastructure.

2. Milestones Achieved: The project reached several important technical milestones during the reporting period. These include: (1) developing an initial prototype for geospatial visualization of disaster and lifeline information; (2) designing and implementing a conversational AI prototype for disaster-related question answering; (3) creating a benchmark dataset to systematically evaluate the performance of the conversational AI system; (4) establishing the core prediction pipeline that combines temporal rule learning, logical reasoning, and probabilistic rule selection; and (5) developing an integrated web application that supports incident reporting and probabilistic risk assessment. Together, these accomplishments establish the technical foundation for the next phase of system integration, testing, and deployment with DEMA.

3. Arizona Benefit or Impact: The project is developing technologies that have the potential to significantly strengthen Arizona's emergency preparedness and disaster response capabilities. By working directly with DEMA, the team is ensuring that the developed tools address real operational needs and can ultimately improve situational awareness, resource allocation, and decision-making during emergencies. The project also provides valuable interdisciplinary research and workforce development opportunities for ASU students, who are gaining hands-on experience in geospatial AI, explainable AI, software engineering, and emergency management applications. These experiences help prepare the next generation of researchers and engineers while reinforcing Arizona's leadership in geospatial AI and disaster resilience.

4. What Worked Well: Close collaboration among the project partners has been a key contributor to the project's progress. The research team meets with DEMA every two weeks to review progress, demonstrate new capabilities, gather feedback, and refine development priorities based on operational needs. Internally, the ASU team meets weekly to coordinate technical activities, share research updates, and ensure alignment across the interdisciplinary team. In addition, DEMA personnel visit ASU approximately once each semester for in-person discussions, technical demonstrations, and team-building activities. This continuous engagement has enabled rapid feedback, strengthened collaboration, and ensured that the technologies being developed remain focused on practical use cases.

5. Challenges and Lessons Learned: One of the primary challenges has been bridging the gap between cutting-edge research and operational deployment. Unlike a traditional research project, this effort requires not only developing novel AI methods but also engineering reliable, user-friendly software that can be integrated into emergency management workflows. Addressing this challenge has required close coordination among researchers, software engineers, and DEMA stakeholders, as well as iterative refinement based on user feedback. An important lesson learned is that successful translational research depends on continuous engagement with end users throughout the development process. The project has also provided valuable learning opportunities for students, who are gaining firsthand experience in translating research innovations into practical solutions that can create meaningful societal impact.

Overall Project Assessment

See above.

Investment Detail

	2026	2027	2028	Total
Infrastructure	\$ 83,568	\$ 0	\$ 0	\$ 83,568
Basic Research	\$ 91,468	\$ 0	\$ 0	\$ 91,468
Applied Research	\$ 91,468	\$ 0	\$ 0	\$ 91,468
Development	\$ 121,957	\$ 0	\$ 0	\$ 121,957
Total	\$ 388,460	\$ 0	\$ 0	\$ 388,460

Investment Narrative

The project team performed a variety of research and development in FY26. Across the team, time and effort were split with 30% going toward Basic Research, 30% toward Applied Research, and 40% toward Development. We also invested in a server and laptop to provide the infrastructure needed to process the data and develop the AI models to create the disaster and emergency response tool.

Budget Detail					
	2026	2027	2028	Total	
Salaries	\$ 200,389	\$ 0	\$ 0	\$	200,389
ERE	\$ 74,503	\$ 0	\$ 0	\$	74,503
Travel	\$ 0	\$ 0	\$ 0	\$	0
Equipment	\$ 83,568	\$ 0	\$ 0	\$	83,568
Supplies & Materials	\$ 0	\$ 0	\$ 0	\$	0
Contracts & Consultants	\$ 30,000	\$ 0	\$ 0	\$	30,000
Meetings & Conferences	\$ 0	\$ 0	\$ 0	\$	0
Sub Awards	\$ 0	\$ 0	\$ 0	\$	0
Total	\$ 388,460	\$ 0	\$ 0	\$	388,460
Budget Narrative					
The project team performed a variety of research and development in FY26. Across the team, time and effort were split with 30% going toward Basic Research, 30% toward Applied Research, and 40% toward Development. We also invested in a server and laptop to provide the infrastructure needed to process the data and develop the AI models to create the disaster and emergency response tool.					

Metric					
How many datasets have been successfully integrated and analyzed to support AI modeling, disaster analysis, and visualization?					
2026		2027		2028	
Projected	12	Projected		Projected	
Actual	12	Actual		Actual	

Institution	Arizona Board of Regents	 ARIZONA BOARD OF REGENTS ASU ♦ NAU ♦ U of A
Grant Type	Regents Research	
TRIF Investment Area		
Program Name	Distributed RF Based Positioning	
Project Lead	Saeed Zeinolabeinzadeh (ASU)	

Proposal

Problem Statement

Many positioning, navigation, and timing (PNT) technologies rely on GPS, which can be unavailable or unreliable in indoor environments, underground infrastructure, urban settings, tunnels, or contested environments. Existing alternatives often lack the precision, resilience, or flexibility needed for next-generation autonomous systems and defense applications. A highly accurate, GPS-independent positioning solution is needed to support reliable navigation, coordination, and sensing across both military and commercial applications.

Program Description

This project is developing a distributed radio frequency (RF)-based positioning, navigation, and timing (PNT) system that provides centimeter-level positioning accuracy and picosecond-level timing precision in environments where GPS is unavailable or unreliable. Using low size, weight, power, and cost (SWaP-C) radio nodes that wirelessly synchronize and operate cooperatively, the technology enables highly accurate localization, autonomous navigation, and unattributable ranging for both defense and commercial applications. The system is designed for deployment on fixed infrastructure, vehicles, or autonomous platforms, including drone swarms, and supports operation in indoor, underground, tunnel, and contested environments. The project will advance the technology from Technology Readiness Level (TRL) 3 to TRL 4 through integrated prototype development, system validation, and demonstration of its unique distributed radar capabilities.

Institution Advantage

Arizona State University provides nationally recognized expertise in high-frequency integrated circuits, wireless communications, and advanced microelectronics through the Millimeter-wave, THz, and Photonic Integrated Circuits (MTP) Laboratory. The project builds on years of research in distributed radio systems and leverages specialized facilities capable of designing, fabricating, packaging, and testing high-frequency RF technologies from concept through wireless validation. ASU's strong research portfolio, experienced faculty, and established relationships with federal agencies and industry position the university to accelerate technology development, intellectual property creation, and commercialization.

Arizona Specific Benefit

This project strengthens Arizona's leadership in advanced microelectronics, wireless communications, and next-generation positioning technologies with applications in both national security and commercial markets. The technology has the potential to improve navigation and autonomous operations in GPS-denied environments while supporting industries such as aerospace, advanced manufacturing, transportation, emergency response, and smart infrastructure. Through industry partnerships, commercialization activities, and workforce development in advanced RF engineering, the project contributes to Arizona's growing innovation ecosystem and high-technology economy.

Substantive changes to the original proposal

None.

Project Continuation	Completed
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Project Status	On Schedule
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Progress Report

Developed a next-generation positioning, navigation, and timing technology designed for operation in GPS-denied environments. Reached key technical milestones supporting continued advancement toward prototype validation and commercialization. Strengthened Arizona's leadership in advanced wireless technologies. Strong collaboration among university researchers and industry partners. Continued technology maturation highlighted the importance of iterative testing and system integration to prepare for future field demonstrations.

Overall Project Assessment

Successfully completed the project and goals in 2026.

Investment Detail					
	2026	2027	2028		Total
Infrastructure	\$ 0	\$ 0	\$ 0	\$	0
Basic Research	\$ 0	\$ 0	\$ 0	\$	0
Applied Research	\$ 90,000	\$ 0	\$ 0	\$	90,000
Development	\$ 0	\$ 0	\$ 0	\$	0
Total	\$ 90,000	\$ 0	\$ 0	\$	90,000
Investment Narrative					
Funding was used for applied research.					
Budget Detail					
	2026	2027	2028		Total
Salaries	\$ 0	\$ 0	\$ 0	\$	0
ERE	\$ 0	\$ 0	\$ 0	\$	0
Travel	\$ 0	\$ 0	\$ 0	\$	0
Equipment	\$ 0	\$ 0	\$ 0	\$	0
Supplies & Materials	\$ 0	\$ 0	\$ 0	\$	0
Contracts & Consultants	\$ 0	\$ 0	\$ 0	\$	0
Meetings & Conferences	\$ 0	\$ 0	\$ 0	\$	0
Sub Awards	\$ 0	\$ 0	\$ 0	\$	0
Total	\$ 0	\$ 0	\$ 0	\$	0
Budget Narrative					
Budget breakout detail was not available at the time of report.					

Metric			
Developed a distributed radio frequency (RF)-based positioning, navigation, and timing (PNT) system.			
	2026	2027	2028
Projected	1	Projected	Projected
Actual	1	Actual	Actual

Institution	Arizona Board of Regents	 ARIZONA BOARD OF REGENTS ASU ♦ NAU ♦ U of A
Grant Type	Regents Research	
TRIF Investment Area		
Program Name	Drone Charging System	
Project Lead	Ayan Mallik (ASU)	

Proposal	
Problem Statement As drone technologies continue to advance, enabling longer missions and greater autonomy, the need for efficient, contactless charging solutions has become increasingly critical. Autonomous wireless charging can eliminate the need for human intervention, minimize operational downtime, and significantly enhance mission endurance. A high-level end-user needs assessment for both military and commercial applications revealed several key limitations of current drone charging technologies. First, drone battery systems span a wide range of operating voltages (12–48 V) and charging power levels (100 W–1 kW). Existing charging base designs are typically tailored to the voltage, capacity, and charging-rate (C-rate) requirements of a specific battery, resulting in limited flexibility and poor scalability across diverse drone platforms. Second, currently available wireless charging systems are generally designed to service only a single drone at a time, creating charging bottlenecks and reducing fleet availability during high-demand operations. Third, deploying multiple independent charging stations to support simultaneous charging leads to duplicated circuitry, increased system volume, and substantially higher costs, with infrastructure expenses growing almost linearly with the number of charging units. To address these challenges, we propose the development of a high-efficiency Multi-Drone Wireless Charging System (MD-WCS) based on capacitive power transfer (CPT). The proposed architecture enables drones to recharge autonomously during missions without requiring highly precise alignment with the charging pad. Furthermore, the proposed circuit topology introduces a structurally integrated charging network that substantially reduces component count and hardware complexity. This innovation is expected to lower charger costs by approximately 50%, reducing the cost from roughly \$2.50/W to \$1.30/W while improving volumetric efficiency and overall system reliability.	
Program Description This six-month project combined technical development with business and customer discovery activities. From a technical perspective, the primary objective was to design, develop, and demonstrate in the laboratory setting a functional 600 W capacitive power transfer (CPT)-based wireless charging prototype for drone applications. In parallel, the business development effort focused on validating the commercial potential of the technology by engaging with leading drone OEMs and Tier-1/Tier-2 charging solution providers to assess industry interest and identify opportunities for future adoption. As part of this effort, the team held multiple technical and business discussions with companies including Skycharge, AeroCharge, WiBotic, and GuRu. These interactions provided valuable insights into the current state of the art in drone charging technologies, key market needs, and the performance metrics that require further advancement to enable broader commercialization. In addition, the project resulted in the submission of an invention disclosure, titled "Methods of Matching Network Optimization and Soft-Switching in Capacitive Power Transfer Systems," to Skysong Innovations, Arizona State University's technology commercialization office. The disclosure captures the novel circuit topologies and power converter control techniques developed during the project and establishes the foundation for future intellectual property protection and commercialization efforts.	
Institution Advantage This project strengthens Arizona State University's leadership in advanced electrification, wireless power transfer, and autonomous systems research. The resulting intellectual property, high-impact publications, and prototype demonstrations enhance ASU's research portfolio and competitiveness for future federal and industry-sponsored programs. The project also provides hands-on research and workforce training opportunities for graduate students in power electronics, embedded systems, and advanced manufacturing. In addition, it fosters new collaborations with aerospace, defense, and drone industry partners while creating commercialization opportunities through ASU's technology transfer ecosystem, further advancing the university's reputation as a leader in translating cutting-edge power electronics research into real-world technologies.	
Arizona Specific Benefit This dual-use wireless charging technology supports the expansion of UAV electrification in Arizona by enabling longer flight endurance, eliminating bulky plug-in charging interfaces, and improving overall propulsion efficiency. The project advances innovation in power electronics, wireless power transfer, magnetics, and embedded control systems -- key technology areas aligned with Arizona's strategic priorities in advanced propulsion and electrification. In addition, the project contributes to the state's growing aerospace, defense, and advanced manufacturing ecosystem by developing technologies with strong commercialization potential, fostering industry partnerships, and training graduate students in high-demand engineering disciplines. Collectively, these outcomes strengthen Arizona's position as a leader in next-generation autonomous systems and advanced energy technologies.	
Substantive changes to the original proposal None.	
Project Continuation	Completed
Project Status	On Schedule

Progress Report

1. Work Completed

During the project period, the team developed and experimentally validated a high-frequency (3 MHz), 600 W capacitive wireless power transfer (CPT) platform for autonomous drone charging. The power conversion system was developed using cutting-edge wide bandgap semiconductor technology, specifically Gallium Nitride (GaN) FETs. The system converts 400V DC link (with 10% tolerable variation) to 24V/48V DC in a closed-loop control environment, supporting constant current (CC) and constant voltage (CV) charging profiles for drone battery charging.

The work focused on advancing both the theoretical foundations and practical implementation of efficient capacitive wireless charging systems. Major technical accomplishments included: (i) development of a unified optimization framework for multi-stage CPT matching network synthesis along with transmitter- and receiver-side coupling plate design optimization, (ii) creation of an Improved Generalized Harmonic Approximation (I-GHA) model for accurate waveform prediction and frequency-based control, (iii) development of a nonlinear deadtime optimization framework that incorporates device output capacitance for full-range zero-voltage switching (ZVS), and (iv) construction and testing of a fully functional GaN-based hardware prototype capable of delivering up to 600 W with configurable 24 V/48 V outputs - therefore compatible with 24V/48V-rated mid- and large-sized drone batteries. The CPT power stage was taken through several types of misalignments including X-axis, Y-axis displacements and XY-plane rotational misalignments, and subsequently, efficiency measurements were collected to benchmark the design's robustness. The project culminated in a journal publication documenting the analytical framework, control methodology, and experimental validation of the proposed charging system.

2. Milestones Achieved

Several major milestones were achieved during the project period. The project successfully established an analytical methodology for optimizing multi-stage resonant matching networks, resulting in an optimal transmitter/receiver architecture that reduced circulating current by approximately 45% compared to conventional single-stage CPT network designs. A complete I-GHA-based modeling framework was developed to accurately predict converter behavior under both constant-current (CC) and constant-voltage (CV) charging modes, reducing modeling error to approximately 5.8% relative to experimental measurements. In addition, a nonlinear deadtime optimization algorithm was implemented to maintain ZVS over the entire operating range with deadtime prediction errors below ± 0.25 ns. Finally, a fully operational hardware prototype demonstrated stable operation from 100 W to 600 W while maintaining efficient soft-switching and supporting both 24 V and 48 V battery charging profiles. The end-to-end efficiencies at 48V/600W and 24V/300W were found to be in the range of 84%-86%, which is ~2% higher than state-of-the-art designs at a similar switching frequency range. 10% displacement of Rx coil in X- and Y-axis resulted in negligible change in efficiency profile due to almost equal overlap capacitance as the nominal case, while a 30 degree XY-plane rotational misalignment resulted in 0.5% reduction in efficiency at rated load condition.

These accomplishments validate the feasibility of robust and compact high-frequency capacitive wireless charging for next-generation UAV applications. A journal paper titled "Optimization of ZVS-Oriented Matching Networks and IGHA-Based Switching Modulation for Capacitive Wireless Power Transfer Systems" co-authored by the PI and some of his PhD students working on this project has been submitted to the IEEE Transactions on Power Electronics and is currently in the peer-review process.

3. Arizona Benefit or Impact

The project directly supports Arizona's strategic priorities in advanced aerospace systems, electrification, semiconductor-enabled power electronics, and autonomous transportation technologies. The developed wireless charging platform enables longer-duration UAV missions by eliminating physical charging connectors and reducing charging downtime through lightweight capacitive power transfer technology. The project also provided graduate research opportunities in advanced power electronics, wireless power transfer, high-frequency magnetics, and embedded digital control, contributing to workforce development in critical engineering fields. Furthermore, the project strengthens Arizona's innovation ecosystem by generating intellectual property with commercialization potential and establishing technologies that can benefit both defense and commercial drone industries. The resulting research enhances ASU's leadership in advanced electrification while supporting economic development through future startup activities and industrial partnerships.

4. What Worked Well

The integrated approach combining analytical modeling, optimization, hardware prototyping, and experimental validation proved highly effective. The proposed optimization framework significantly simplified the design of multi-stage CPT matching networks while providing measurable improvements in efficiency and circulating current reduction. The I-GHA modeling methodology enabled accurate prediction of converter behavior without relying on overly simplified harmonic approximations, allowing the control algorithms to be implemented successfully in hardware. The GaN-based power converter architecture demonstrated excellent high-frequency performance with 85% efficiency at 3MHz switching frequency, and the adaptive deadtime optimization consistently achieved soft-switching across a wide operating range. Actively controlled synchronous rectification (SR) on the receiver-side was successfully achieved, which helped increase the efficiency at heavier load conditions, alongside improving the converter's thermal performance. The close integration of analytical design, simulation, and experimental validation substantially reduced development iterations and accelerated prototype realization.

5. Challenges and Lessons Learned

One of the primary technical challenges encountered during the project was accurately modeling the nonlinear behavior of MHz-

range capacitive wireless power transfer systems, particularly under varying load conditions and practical hardware parasitics. Conventional fundamental harmonic approximation (FHA) methods proved insufficient for predicting system behavior, motivating the development of the improved generalized harmonic approximation (I-GHA) framework. Additional challenges included maintaining reliable zero-voltage switching across wide operating conditions, minimizing circulating current, and accounting for nonlinear device capacitances during switching transitions. Experimental testing also highlighted the influence of parasitic elements, coupling asymmetry, and zero-crossing detection timing on overall performance. These findings reinforced the importance of physics-based modeling, integrated optimization, and hardware-aware controller design. The lessons learned during the project period provide a strong technical foundation for scaling the technology toward higher-power, multi-drone wireless charging systems and eventual commercialization.

Overall Project Assessment

The project has made strong progress toward developing a high-efficiency wireless charging platform for autonomous UAVs. During the first year, the team successfully developed analytical design and control methodologies, demonstrated a 600 W GaN-based capacitive wireless charging prototype, and experimentally validated its performance. The project also generated an invention disclosure and a peer-reviewed journal publication, while engaging industry partners to assess commercialization opportunities. Overall, the project is on track and has established a solid foundation for future work. The technical results, hardware validation, intellectual property, and industry engagement have significantly advanced the technology toward scalable multi-drone charging systems and future commercialization.

Investment Detail

	2026	2027	2028	Total
Infrastructure	\$ 3,000	\$ 0	\$ 0	\$ 3,000
Basic Research	\$ 40,838	\$ 0	\$ 0	\$ 40,838
Applied Research	\$ 40,838	\$ 0	\$ 0	\$ 40,838
Development	\$ 5,307	\$ 0	\$ 0	\$ 5,307
Total	\$ 89,982	\$ 0	\$ 0	\$ 89,982

Investment Narrative

Out of the awarded amount, about \$8,307 were invested in developing a capacitive power transfer (CPT)-based wireless charging testing infrastructure at the ASU Power Electronics and Control Engineering (PEACE) laboratory, along with developing a Gallium Nitride (GaN)-based hardware proof-of-concept of 3MHz 600W-rated CPT power electronics for charging 24V/48V-rated drone batteries. About \$40,837 was invested in performing basic research, such as CPT matching network optimization, soft-switching modulation, and adaptive deadtime model development for efficiency maximization, while about the same amount (\$40,837) was invested in designing and developing the CPT wireless charging hardware testbed, testing its functionalities across a wide range of output voltage and load power levels in closed-loop control environment, and validating the CPT power converter's operation in constant current (CC) and constant voltage (CV) charging profiles.

Budget Detail

	2026	2027	2028	Total
Salaries	\$ 51,226	\$ 0	\$ 0	\$ 51,226
ERE	\$ 28,655	\$ 0	\$ 0	\$ 28,655
Travel	\$ 0	\$ 0	\$ 0	\$ 0
Equipment	\$ 0	\$ 0	\$ 0	\$ 0
Supplies & Materials	\$ 8,307	\$ 0	\$ 0	\$ 8,307
Contracts & Consultants	\$ 1,794	\$ 0	\$ 0	\$ 1,794
Meetings & Conferences	\$ 0	\$ 0	\$ 0	\$ 0
Sub Awards	\$ 0	\$ 0	\$ 0	\$ 0
Total	\$ 89,982	\$ 0	\$ 0	\$ 89,982

Budget Narrative

Out of the awarded amount, about \$8,307 were invested in developing a capacitive power transfer (CPT)-based wireless charging testing infrastructure at the ASU Power Electronics and Control Engineering (PEACE) laboratory, along with developing a Gallium Nitride (GaN)-based hardware proof-of-concept of 3MHz 600W-rated CPT power electronics for charging 24V/48V-rated drone batteries. About \$40,837 was invested in performing basic research, such as CPT matching network optimization, soft-switching modulation, and adaptive deadtime model development for efficiency maximization, while about the same amount (\$40,837) was invested in designing and developing the CPT wireless charging hardware testbed, testing its functionalities across a wide range of output voltage and load power levels in closed-loop control environment, and validating the CPT power converter's operation in constant current (CC) and constant voltage (CV) charging profiles.

Metric					
Power transferred (in Watts) at 3MHz frequency					
2026			2027		2028
Projected	300		Projected		Projected
Actual	600		Actual		Actual

Metric					
Drone battery voltage maximum					
2026			2027		2028
Projected	24		Projected		Projected
Actual	48		Actual		Actual

Institution	Arizona Board of Regents	 ARIZONA BOARD OF REGENTS ASU ♦ NAU ♦ U of A
Grant Type	Regents Research	
TRIF Investment Area		
Program Name	Enhancing ADEQ's Communication and Engagement Practices	
Project Lead	Ulrich Jensen (ASU)	

Proposal	
Problem Statement ADEQ has a wide variety of audiences from highly knowledgeable and regulated facilities to residents who just want to know their drinking water is safe and how their actions can help preserve Arizona's unique environment. The agency currently has no best practices to help guide the programs in communicating their messages to the right people.	
Program Description The project will delineate specific communication activities (platform, tools, and applications) and communication messages (visual design, digital data tools, and motivational appeals) that ADEQ can use to craft effective future environmental communication. In partnership with ADEQ, this project will conduct impact assessments of existing digital tools; ethnographic work, including community interviews; lab experiments using eye tracking; and a megastudy to identify the most impactful messages and modes for communicating with and engaging Arizona residents and businesses to take actions to protect the environment and increase compliance with environmental regulations. We will also propose a communication blueprint to help ADEQ strategize how to provide continuous messaging to its stakeholders based on existing and emergent tools.	
Institution Advantage Our interdisciplinary team is uniquely positioned to conduct this project based on the team members' complementary expertise in service design, visual design, and behavioral science. Team members represent deep knowledge of the methodologies required to uncover the multifaceted ADAP communication framework. The team also has extensive knowledge of Arizona's environmental area, including current and emergent digital data tools.	
Arizona Specific Benefit The project will delineate specific communication activities (platform, tools, and applications) and communication messages (visual design, digital data tools, and motivational appeals) that ADEQ can use to craft effective future environmental communication. Effective messaging can help ADEQ advance its mission and inspire other Arizona agencies and organizations within similar domains (e.g., county health departments, city water utility departments, etc.). We expect the results of this project to benefit Arizona even beyond the specific domain of environmental issues, as agencies working to facilitate and promote other kinds of public goods may find value in the best practices for effective communication and engagement derived from this project.	
Substantive changes to the original proposal No, not at this point.	
Project Continuation	In progress
Project Status	On Schedule

Progress Report
The project has advanced along several fronts that all directly address the problem statement for this TRIF project. During the last year, we have: - Completed an inventory of existing digital tools and worked with ADEQ reps to identify opportunities for evaluating digital dashboard embedded on ADEQ's website using eye tracking. - Embedded new GIS mapping visualization directly on ADEQ's website and tested its impact on readability and how easily information can be processed. - The team has extended its ethnographic field work to ADEQ's priority work on Nitrogen Management Area, and the complex stakeholder communication efforts pertaining to the pilot NMA. - Completed an original Arizona Angler Survey, complementing our prior national peer study on environmental and health communication related to fish consumption at state lakes. The survey is based on in-field observation at Arizona lakes, and provide unique insights in the awareness, knowledge and attitudes towards fish advisories among the Arizona public. The data and analysis (which has already been presented to ADEQ partners) will support the improvement of more effective signage at lakes and public communication to prevent unhealthy consumption of pollutants in fish. - We have completed the first of two surveys as part of informing ADEQ's efforts on nitrogen management areas (NMAs), a new initiative that the agency has never done before. The survey uncovered knowledge and attitudes towards septic system maintenance and potential groundwater pollution among designated geographical areas considered for NMA designations. The survey provides a baseline prior to ADEQ stakeholder communication initiatives and will be followed by another surveys in late 2026 or early 2027 to gauge community responses. The project has benefitted Arizona and its citizens in several ways of the past year. All these impacts directly flow from the project's different subcomponents. Most notably, our field work on fish advisories across US states has already informed ADEQ's work and thoughts on how to improve fish consumptions advisories across Arizona lakes. This has a direct benefit to the state and its citizens by reducing the health risks associated with consumptions of pollutants in fish. Similarly, our baseline survey on septic tank maintenance and community concerns, directly informed the agencies communication efforts and plan. Working closely with our agency partner and trying to anticipate their needs has been one of the most succesful strategies for this

partnership, especially as agency and political priorities have evolved. For this reason, we have centralized a project liaison role in addition to the PI who has extensive practitioner experience prior to her ASU tenure. Creating a triad consisting of the study PI, the ASU liaison, and our ADEQ partner liaison has been an effective structural design for early coordination and quick resolve of both anticipated and unexpected challenges.

The biggest challenges the past year has been to adapt to agency timelines for rollout of different initiatives. A good example is NMAs. Since this is a new initiative, and ADEQ doesn't always know exactly what the timeline will look like, it makes it more difficult to plan and execute research-based data collections that require significant preparation, including survey instrumentation and identification of vendors for data gathering. We're responding to such challenges with flexibility and do our very best to adapt to and accommodate ADEQ's wishes and changing plans or priorities. For this reason, we requested a one-year NCE which was granted by ABOR in June 2026.

Overall Project Assessment

The project has progressed in substantive and significant ways since the last status report. Collaboration with the client remains strong and frequent, with continuous virtual and in-person conversations, planning, and coordination. The project continues to deliver on the expected timeline, and it is now set to conclude January 2028.

Investment Detail

	2026	2027	2028	Total
Infrastructure	\$ 39,396	\$ 0	\$ 0	\$ 39,396
Basic Research	\$ 15,758	\$ 0	\$ 0	\$ 15,758
Applied Research	\$ 94,550	\$ 0	\$ 0	\$ 94,550
Development	\$ 7,879	\$ 0	\$ 0	\$ 7,879
Total	\$ 157,583	\$ 0	\$ 0	\$ 157,583

Investment Narrative

Research Category Percentages:

Infrastructure: 25%

Basic Research: 10%

Applied Research: 60%

Development: 5%

Budget Detail

	2026	2027	2028	Total
Salaries	\$ 85,413	\$ 0	\$ 0	\$ 85,413
ERE	\$ 32,135	\$ 0	\$ 0	\$ 32,135
Travel	\$ 1,089	\$ 0	\$ 0	\$ 1,089
Equipment	\$ 0	\$ 0	\$ 0	\$ 0
Supplies & Materials	\$ 1,933	\$ 0	\$ 0	\$ 1,933
Contracts & Consultants	\$ 36,630	\$ 0	\$ 0	\$ 36,630
Meetings & Conferences	\$ 383	\$ 0	\$ 0	\$ 383
Sub Awards	\$ 0	\$ 0	\$ 0	\$ 0
Total	\$ 157,583	\$ 0	\$ 0	\$ 157,583

Budget Narrative

The majority of the budget went to personnel and contracts.

Metric

Updates to ADEQ public GIS website maps directly based on ASU input

2026	2027	2028
Projected	Projected	Projected
Actual	Actual	Actual

Metric

Completion of statewide angler survey

2026	2027	2028
Projected	Projected	Projected
Actual	Actual	Actual

Institution	Arizona Board of Regents	 ARIZONA BOARD OF REGENTS ASU ♦ NAU ♦ U of A
Grant Type	Regents Research	
TRIF Investment Area		
Program Name	Evaluate Contamination Fate and Transport in Biosolids	
Project Lead	Kerry Hamilton (ASU)	

Proposal

Problem Statement

ADEQ seeks to better understand how contaminants of emerging concern affect the safe use, disposal, and land application of biosolids in Arizona. While biosolids provide valuable nutrients and organic matter that support sustainable land management, they may also contain contaminants such as per- and polyfluoroalkyl substances (PFAS), pathogens, antibiotic resistance genes (ARGs), endocrine-disrupting compounds, and other trace organic chemicals. Arizona currently lacks comprehensive, state-specific information on the occurrence, fate, transport, and potential risks associated with these contaminants under its unique climatic and land-use conditions.

In addition, biosolids generated outside Arizona are routinely imported for land application or disposal, often with limited contaminant monitoring data. This creates uncertainty regarding the potential long-term impacts on agricultural soils, groundwater, ecosystems, and public health. The project addresses these knowledge gaps by generating Arizona-specific data to support science-based monitoring strategies, risk assessment, and regulatory decision-making, ultimately informing best management practices for the safe and sustainable use of biosolids across the state.

Program Description

This project brings together researchers from Arizona State University, the University of Arizona, Northern Arizona University, and USDA-ARS to evaluate the occurrence, fate, transport, toxicity, and potential human and environmental risks of contaminants in biosolids used throughout Arizona. The multidisciplinary program combines field sampling, advanced chemical and microbial analyses, toxicity testing, quantitative risk assessment, spatial analysis, and stakeholder engagement to generate Arizona-specific data on contaminants of emerging concern, including PFAS, pathogens, antibiotic resistance genes (ARGs), endocrine-disrupting compounds, and other trace organic chemicals. The resulting datasets and risk assessment tools will support ADEQ in developing science-based monitoring strategies, improving biosolids management practices, and informing future regulatory decisions that protect public health and the environment while promoting the beneficial reuse of biosolids.

Institution Advantage

Arizona State University provides internationally recognized expertise in environmental engineering, water quality, exposure science, quantitative microbial risk assessment, PFAS analysis, and environmental risk modeling. Through close collaboration with the University of Arizona, Northern Arizona University, and USDA-ARS, the project leverages complementary strengths in analytical chemistry, microbiology, toxicology, geospatial analysis, and environmental health. The University of Arizona contributes extensive long-term biosolids datasets and nationally recognized expertise in environmental virology, enabling comprehensive assessment of viral pathogens and biosolids-associated health risks. Northern Arizona University provides specialized expertise in environmental toxicology through multiple in vitro and in vivo bioassays that evaluate the biological effects of biosolids and PFAS exposures. Together with USDA-ARS's expertise in agricultural systems and field-scale biosolids research, this integrated research network combines state-of-the-art laboratory infrastructure, advanced PFAS analytical capabilities, microbial, viral, and toxicological assessments, long-term monitoring data, and established partnerships with ADEQ, wastewater utilities, and other stakeholders. Collectively, these resources position Arizona's public universities to generate high-quality, Arizona-specific scientific evidence that directly supports environmental management, risk assessment, and regulatory decision-making.

Arizona Specific Benefit

This project will generate scientific evidence to help inform safe, sustainable, and science-based biosolids management in Arizona. By generating Arizona-specific data on PFAS, pathogens, antibiotic resistance genes, and other contaminants of emerging concern, the project strengthens ADEQ's ability to evaluate potential environmental and public health risks associated with biosolids land application. The resulting risk assessment tools, contaminant occurrence data, spatial analyses, and stakeholder engagement activities will support science-based regulatory decision-making, improve protection of soil and water resources, and promote the beneficial reuse of biosolids in Arizona. In addition, the project enhances research capacity across Arizona's public universities, provides training opportunities for students and early-career scientists, and fosters collaboration among academic institutions, government agencies, and industry partners.

Substantive changes to the original proposal

Minor modifications were made to the work plan while maintaining the original project objectives. The proposed groundwater sampling component was removed to prioritize resources toward a more comprehensive evaluation of biosolids under conditions representative of Arizona agriculture. In its place, a controlled greenhouse pot experiment was incorporated to investigate the agronomic performance of biosolids and the uptake and bioavailability of PFAS under both saline and non-saline irrigation conditions. This addition complements the contaminant occurrence, toxicity, and risk assessment components by providing experimental data on plant exposure and contaminant transfer under controlled conditions, thereby strengthening the project's relevance to biosolids land application in Arizona.

Project Continuation	In progress
Project Status	On Schedule

Progress Report

1. Work Completed

During the reporting period, the project advanced all major research objectives through a coordinated effort among Arizona State University (ASU), the University of Arizona (UA), Northern Arizona University (NAU), and USDA-ARS. ASU completed microbial characterization of 24 biosolid samples, including quantification of antibiotic resistance genes (ARGs), mobile genetic elements, and bacterial community composition, while also advancing PFAS exposure modeling and evaluating the Edge® Automated Extraction System against conventional PFAS extraction methods. UA expanded GIS inventories of biosolids land application sites, conducted viral analyses targeting adenovirus and reovirus, and continued development of microbial risk assessment models and finalized the analysis of community stakeholder member surveys. NAU advanced toxicity assessments through cell and zebrafish bioassays to evaluate PFAS-associated endocrine disruption, DNA damage, and overall metabolic output. USDA-ARS completed LC-MS/MS analysis of 30 target PFAS, implemented rigorous QA/QC procedures, and initiated a controlled greenhouse pot experiment evaluating biosolids application, lettuce growth, and PFAS uptake under saline and non-saline irrigation conditions.

2. Milestones Achieved

Several major milestones were achieved during the reporting period. PFAS analyses demonstrated widespread but variable occurrence across Arizona biosolids, with 18 of 21 quantified PFAS detected above method quantification limits in at least one sample. PFOS was the predominant compound, reaching concentrations up to 108.5 µg kg⁻¹ (dry weight). Microbial analyses showed that all biosolid samples contained the mobile genetic element *intl1* and the ARGs *sul1* and *tetW*, whereas *vanA* was not detected. Commercial biosolids consistently exhibited 2-3 log₁₀ lower abundances of ARGs and bacterial markers than Class A and Class B biosolids. In addition, full-length 16S rRNA sequencing confirmed effective pathogen reduction in Class A biosolids through the near absence of Enterobacterales. More than 140 stakeholders have also participated in biosolids risk perception surveys, and the greenhouse study has generated Arizona-specific dataset evaluating PFAS bioavailability and crop uptake from biosolid-amended soils under representative irrigation conditions.

3. Arizona Benefit or Impact

The project is generating Arizona-specific scientific data that directly supports evidence-based biosolids management and regulatory decision-making. By integrating chemical, microbial, toxicological, spatial, and stakeholder datasets, the project improves understanding of contaminant occurrence, transport, toxicity, and potential human exposure under conditions representative of Arizona's arid and semi-arid environments. The findings will support ADEQ in evaluating monitoring strategies, developing science-based land application guidelines, and protecting soil, water resources, agricultural productivity, and public health. The project has also strengthened collaboration among Arizona universities, USDA-ARS, and state agencies while providing research training opportunities for graduate students and early-career scientists.

4. What Worked Well

The multidisciplinary collaboration among ASU, UA, NAU, USDA-ARS, and ADEQ has been fundamental to the project's progress. Shared analytical infrastructure, coordinated sampling protocols, standardized laboratory methods, and frequent communication enabled efficient integration of chemical, microbial, toxicological, and risk assessment datasets. The partnership also facilitated the comparison of emerging PFAS analytical methodologies, including automated extraction technologies, while combining laboratory analyses with greenhouse experiments, spatial analyses, and stakeholder engagement to produce complementary datasets that directly address Arizona's biosolids management priorities.

5. Challenges and Lessons Learned

The project encountered challenges associated with coordinating multidisciplinary activities across multiple institutions, integrating large analytical datasets, and the time-intensive nature of PFAS analyses, microbial sequencing, toxicity testing, greenhouse experiments, and recruiting wastewater treatment facilities and biosolids managers for biosolids sampling and project participation. Because PFAS is a topic of increasing public and regulatory interest, some facilities were initially hesitant to participate in sampling efforts or share biosolids, requiring additional outreach, communication, and coordination to establish trust and secure participation. This also likely impacted their willingness to participate in occupational surveys to inform the risk assessment development. These circumstances paused direct evaluation of biosolids for toxicological testing in biological samples. In the meantime, NAU performed and validated toxicity tests using single PFAS compounds to determine which are most impactful to biological systems, and for comparisons with biosolids being evaluated by the team for its PFAS content. These data are in preparation for publication with the preliminary data shared at national meetings. As the project progressed, opportunities were identified to expand the research by incorporating a controlled greenhouse study evaluating PFAS bioavailability and plant uptake under Arizona-relevant agricultural conditions. This addition complements the analytical, microbial, and risk assessment components by providing experimental data on agricultural exposure pathways that cannot be captured through environmental monitoring alone. The project also highlighted the value of close collaboration among universities, government agencies, wastewater utilities, and other project partners. Participation in technical conferences and meetings, including the wastewater treatment facilities, that provided valuable opportunities to exchange knowledge, identify emerging research priorities, and gain practical perspectives from utilities, regulators, and researchers that strengthened the project's scientific direction and would not have been possible through laboratory research alone. Continued coordination among project partners, standardized analytical protocols, and consistent data management practices will support successful integration of the remaining datasets into comprehensive biosolids risk assessment frameworks.

Overall Project Assessment

The project integrates extensive sampling of biosolids throughout the state (n=18 facilities), with 4 facilities chosen for seasonal follow-on sampling for 4 events. We have analyzed how PFAS varies spatially within biosolids samples, with >300 samples processed to date in the project. Extracts from samples have been provided all teams, with integrated analyses produced for toxicity testing, risk assessment, risk perception, and risk management. A risk perception survey of AZ residents was completed and risk analysis is in progress.

Investment Detail

	2026	2027	2028	Total
Infrastructure	\$ 0	\$ 0	\$ 0	\$ 0
Basic Research	\$ 0	\$ 0	\$ 0	\$ 0
Applied Research	\$ 603,271	\$ 0	\$ 0	\$ 603,271
Development	\$ 0	\$ 0	\$ 0	\$ 0
Total	\$ 603,271	\$ 0	\$ 0	\$ 603,271

Investment Narrative

This was applied research for ADEQ.

Budget Detail

	2026	2027	2028	Total
Salaries	\$ 364,354	\$ 0	\$ 0	\$ 364,354
ERE	\$ 166,134	\$ 0	\$ 0	\$ 166,134
Travel	\$ 200	\$ 0	\$ 0	\$ 200
Equipment	\$ 0	\$ 0	\$ 0	\$ 0
Supplies & Materials	\$ 58,282	\$ 0	\$ 0	\$ 58,282
Contracts & Consultants	\$ 14,261	\$ 0	\$ 0	\$ 14,261
Meetings & Conferences	\$ 40	\$ 0	\$ 0	\$ 40
Sub Awards	\$ 0	\$ 0	\$ 0	\$ 0
Total	\$ 603,271	\$ 0	\$ 0	\$ 603,271

Budget Narrative

This was applied research for ADEQ.

Metric

Biosolids samples collected and analyzed.

2026		2027		2028	
Projected	20	Projected	30	Projected	30
Actual	24	Actual		Actual	

Metric

PFAS analyses completed on biosolids samples.

2026		2027		2028	
Projected	20	Projected	30	Projected	30
Actual	347	Actual		Actual	

Metric

Microbial analyses (ARGs/MGEs) completed.

2026		2027		2028	
Projected	20	Projected	30	Projected	30
Actual	24	Actual		Actual	

Metric					
Stakeholder engagement through utilities, agencies, surveys, workshops, and meetings.					
2026			2027		2028
Projected	50		Projected	50	Projected
Actual	161		Actual		Actual

Metric					
Scientific products including publications, presentations, reports, and workshops.					
2026			2027		2028
Projected	10		Projected	10	Projected
Actual	15		Actual		Actual

Institution	Arizona Board of Regents	 ARIZONA BOARD OF REGENTS ASU ♦ NAU ♦ U of A
Grant Type	Regents Research	
TRIF Investment Area		
Program Name	Inexperienced Driver Mitigation	
Project Lead	Shiva Pooladvand (ASU)	

Proposal

Problem Statement

PROBLEM: To address this public safety concern, the proposed research includes two (2) main questions:

1. What is the scope of the inexperienced driver safety issue in AZ, including collision statistics and scenarios, demographics, environmental conditions, etc.?
 - a. Are older inexperienced drivers different from younger inexperienced drivers?
2. What techniques have been attempted to mitigate the lack of experience, and what was the efficacy of each of these?
 - a. Was the testing and evaluation of each technique done satisfactorily?
 - b. Are there other techniques that could be tested and evaluated?
 - c. How are inexperienced drivers (fewer than five years of driving experience) acclimating to the active safety features and driving automation features with which contemporary vehicles are increasingly equipped? How does this acclimation compare to experienced drivers (10+ years of experience)? How does this differ for inexperienced drivers versus older inexperienced drivers?

Program Description

This project focuses on improving roadway safety by identifying the key factors contributing to crashes involving inexperienced drivers in Arizona and using these findings to support the development of targeted driver-training programs. The study analyses statewide crash-data analysis to understand crash patterns between inexperienced and experienced drivers and to determine the factors associated with severe crashes. In addition, literature reviews are being conducted to gather practical insights into existing training programs and effective intervention strategies. The project will develop and evaluate simulator-based training scenarios designed to improve inexperienced drivers' hazard recognition, decision-making, and safe-driving skills.

Institution Advantage

Contributing to the Development of a Training Program to Enhance Inexperienced Drivers' Driving Skills in Arizona

Arizona Specific Benefit

Improving Arizona roadway safety by reducing the incidents involving inexperienced drivers

Substantive changes to the original proposal

No change

Project Continuation	In progress
Project Status	On Schedule

Progress Report

1- The research team completed Phase 1 of the project, which included a comprehensive literature review of techniques for mitigating risks associated with driver inexperience, a synthesis of relevant best practices, and differences between inexperienced and experienced drivers. The team also completed the initial assessment of the inexperienced-driver safety issue in Arizona by analyzing statewide crash data, comparing crash characteristics between inexperienced and experienced drivers, and identifying factors associated with crash occurrence and severity. Analyses have been conducted to determine the most influential contributing factors. These activities produced the evidence base needed to guide the selection and development of targeted training approaches for the next phase of the project.

2-A milestone achieved during this period is the completion of Phase 1 and the transition to Phase 2. Key benchmarks included completing the literature review, establishing operational definitions for inexperienced and experienced drivers, developing and implementing the crash-data processing and analysis framework, and identifying priority factors that should be addressed through training. The team reached an important decision point by using the findings from the literature review and Arizona crash-data analyses to inform the design of simulator-based training scenarios. The team are working on Task 3, which focuses on examining drivers' behaviors and performance in a driving simulator and evaluating training methods intended to enhance driving skills.

3-The project directly benefits Arizona by improving understanding of the factors contributing to crashes involving inexperienced drivers and providing a foundation for developing more effective driver-training programs. The findings can help ADOT and other transportation-safety stakeholders prioritize the behaviors, roadway conditions, and driving situations that present the greatest risks to inexperienced drivers in the state. The simulator-based training that will be developed in Phase 2 is expected to support improvements in hazard recognition, decision-making, cognitive performance, and driving skills. More broadly, the project can contribute to reducing crashes, injuries, and associated societal costs while supporting students and researchers through hands-on experience in transportation safety, data analytics, and driving-simulation technologies.

4-The integration of multiple research approaches was particularly effective in advancing the project. Combining the literature review with statewide crash-data analysis, statistical testing, and predictive modeling allowed the team to examine the inexperienced-driver

safety problem from complementary perspectives and identify consistent priority factors. Collaboration among the project partners and engagement with ADOT personnel also helped ensure that the analyses remained aligned with practical transportation-safety needs in Arizona. In addition, using different testing methods supported the interpretation of the results and helped translate complex analytical findings into actionable information that can be incorporated into the design of simulator-based training scenarios given the leading causes of incidents in Arizona.

5- One of the primary challenges involved preparing and integrating large crash-data files containing missing values, inconsistencies, and differences in how variables were recorded across years and datasets. Considerable effort was required to clean, merge, categorize, and validate the data before conducting the analyses. Another challenge was establishing meaningful and defensible criteria for distinguishing inexperienced and experienced drivers while accounting for limitations in the available licensing and driver-history information. These experiences highlighted the importance of developing a transparent data-processing protocol, validating findings through multiple analytical methods, and maintaining flexibility when translating crash-data results into training content. These lessons will guide Phase 2 by ensuring that simulator scenarios focus on well-supported risk factors while remaining realistic, practical, and relevant to inexperienced drivers in Arizona.

Overall Project Assessment

Based on the proposal narrative and progress to date, the project is advancing well and remains aligned with its overall objectives. The completed first phase established a strong foundation through a comprehensive literature review and a detailed assessment of inexperienced-driver safety in Arizona using statewide crash data analyses. These parallel activities generated complementary evidence regarding the behaviors, conditions, and factors associated with crashes involving inexperienced drivers and informed the selection of priority areas for intervention. The project has now transitioned into the second phase, where these findings are being translated into simulator-based training scenarios focused on strengthening drivers' cognitive abilities and improving their interaction with active-safety and automated-driving technologies. The project demonstrates effective integration of research synthesis, data analytics, stakeholder input, and experimental training development. Although data quality, missing information have required careful methodological decisions, these challenges have been managed through systematic data processing, and validation across multiple analytical approaches. The project is therefore positioned to produce practical, evidence-based training recommendations that address Arizona-specific roadway safety needs and support future efforts to reduce crashes involving inexperienced drivers.

Investment Detail

	2026	2027	2028	Total
Infrastructure	\$ 0	\$ 0	\$ 0	\$ 0
Basic Research	\$ 0	\$ 0	\$ 0	\$ 0
Applied Research	\$ 75,519	\$ 0	\$ 0	\$ 75,519
Development	\$ 32,366	\$ 0	\$ 0	\$ 32,366
Total	\$ 107,885	\$ 0	\$ 0	\$ 107,885

Investment Narrative

This project included both applied research and development, as detailed above.

Budget Detail

	2026	2027	2028	Total
Salaries	\$ 82,627	\$ 0	\$ 0	\$ 82,627
ERE	\$ 8,840	\$ 0	\$ 0	\$ 8,840
Travel	\$ 6,418	\$ 0	\$ 0	\$ 6,418
Equipment	\$ 0	\$ 0	\$ 0	\$ 0
Supplies & Materials	\$ 0	\$ 0	\$ 0	\$ 0
Contracts & Consultants	\$ 0	\$ 0	\$ 0	\$ 0
Meetings & Conferences	\$ 0	\$ 0	\$ 0	\$ 0
Sub Awards	\$ 10,000	\$ 0	\$ 0	\$ 10,000
Total	\$ 107,885	\$ 0	\$ 0	\$ 107,885

Budget Narrative

This project included both applied research and development, as detailed above.

Metric									
Quarterly report									
2026				2027				2028	
Projected	2			Projected				Projected	
Actual	2			Actual				Actual	

Metric									
Recruitment of Skilled Graduate Students									
2026				2027				2028	
Projected	1			Projected				Projected	
Actual	1			Actual				Actual	

Metric									
Meeting with PM									
2026				2027				2028	
Projected	6			Projected				Projected	
Actual	6			Actual				Actual	

Institution	Arizona Board of Regents	 ARIZONA BOARD OF REGENTS ASU ♦ NAU ♦ U of A
Grant Type	Regents Research	
TRIF Investment Area		
Program Name	In-Space Wireless Power Transfer	
Project Lead	Tyler Smith (ASU)	

Proposal

Problem Statement

Arizona's universities are home to groundbreaking research with significant potential for commercial and defense applications. However, many of these innovations lack the structure, resources, and stakeholder engagement needed to transition from lab to market. The DoD's FY24 RDT&E budget reflects a strong demand for deployable technologies (\$55.78B in applied research vs. \$2.45B in basic research) and non-traditional partnerships to accelerate innovation delivery. This RFP seeks to unlock the economic and strategic value of public research by identifying, supporting, and accelerating university technologies with defense and commercial potential.

Program Description

The Arizona Board of Regents Regents' Grant supported the advancement of Arizona State University's Reconfigurable Intelligent Surface (RIS) technology for microwave wireless power transfer from TRL 3 to TRL 4, establishing the technical foundation for future in-space wireless power transmission systems. The project combined expertise from the ASU Terahertz Research Lab and the Luminosity Lab to develop electronically steerable microwave metasurfaces capable of dynamically directing energy without mechanical steering.

During the performance period, the team designed, fabricated, and experimentally validated microwave RIS hardware, demonstrating electronically controlled beam steering and wireless power transfer. In parallel, the project advanced the systems engineering for a flight demonstration scheduled for 2027 by developing spacecraft architectures, integration concepts, and deployment strategies. The work validated the feasibility of RIS-enabled wireless power transfer for both space-based and terrestrial applications, positioning the technology for future Department of Defense, commercial space, and industrial wireless power applications.

The project also established the foundation for commercialization through customer discovery, intellectual property development, and the formation of a dual-use startup focused on transitioning the technology toward operational defense and commercial markets.

Institution Advantage

The Regents' Grant accelerated Arizona State University's ability to translate advanced research into a technology with clear commercial and national security applications. By advancing Reconfigurable Intelligent Surface (RIS) technology from early-stage research toward an operational prototype, the project reduced technical risk and established a pathway for commercialization which the team is actively pursuing.

The award enabled the integration of fundamental research, systems engineering, prototype development, customer discovery, and commercialization planning into a single technology maturation effort. Rather than ending with a research publication, the project produced validated hardware, demonstrated technical feasibility, strengthened intellectual property, and established the foundation for a dual-use startup focused on commercializing RIS-enabled wireless power transfer technologies.

This translation-focused approach enhances ASU's reputation as a leader in moving breakthrough research from the laboratory to real-world deployment. The project also positions the university to compete for larger federal research and transition programs, attract industry partnerships, and generate long-term economic impact through startup creation, technology licensing, and continued investment in Arizona's innovation ecosystem.

Arizona Specific Benefit

This project strengthens Arizona's position as a national leader in advanced space technologies, microwave systems, and next-generation wireless power transfer. The technologies developed through this program have applications spanning national defense, commercial space, advanced manufacturing, autonomous systems, smart infrastructure, and industrial Internet of Things (IoT) systems.

The project directly supports Arizona's growing aerospace and defense ecosystem by expanding research capabilities in technologies aligned with U.S. Space Force, Air Force Research Laboratory, NASA, and commercial satellite operators. Continued development of RIS-enabled wireless power transfer has the potential to create new Arizona-based intellectual property, attract federal research funding, establish high-technology startup companies, and generate high-wage engineering jobs within the state.

Equally important, the project provided experiential education and workforce development opportunities for Arizona students, preparing the next generation of engineers and entrepreneurs in advanced RF systems, aerospace engineering, wireless communications, and technology commercialization. By combining research excellence with commercialization, the project contributes to Arizona's long-term economic competitiveness while strengthening the state's leadership in emerging dual-use technologies.

Substantive changes to the original proposal	
None	
Project Continuation	Completed
Project Status	On Schedule

Progress Report

During the reporting period, the project advanced Reconfigurable Intelligent Surface (RIS) technology for microwave wireless power transfer from an early-stage laboratory concept toward an operational prototype suitable for future space applications. The team completed the design, fabrication, integration, and experimental validation of a large-scale electronically steerable RIS capable of dynamically directing microwave energy through electronic beamforming while developing the systems engineering framework for future CubeSat demonstrations, including spacecraft integration concepts, deployment architectures, and mission planning. The research culminated in the successful completion of a master's thesis documenting the technical development and experimental validation of the system and was publicly presented through a live technology demonstration at the ASU Nexus Summit to industry, government, investors, and university leaders. Building on these accomplishments, the project advanced beyond research into technology translation through commercialization planning, customer discovery, and the submission of follow-on proposals to the Defense Innovation Unit (DIU) Power Beaming opportunity and NASA's Flight Opportunities program. The team also established relationships with strategic investors and venture capital partners while completing the commercialization planning necessary to support the launch of an Arizona-based dual-use startup that will continue advancing the technology toward commercial and defense applications. Collectively, the work completed under the Regents' Grant established the technical, academic, and commercialization foundation necessary to support the planned satellite flight-testing campaign, which is expected to validate the technology at TRL 5. The project remains on schedule for satellite launch in 2027, positioning the technology for continued transition from university research toward operational defense and commercial deployment.

The project successfully achieved the major technical and programmatic milestones established for this phase of development. The successful design, fabrication, integration, and laboratory validation of the Reconfigurable Intelligent Surface (RIS) system advanced the technology from approximately TRL 3 to TRL 4, with TRL 5 validation planned through spacecraft testing in Fall 2026, providing the technical foundation for the next phase of development. Completion of the master's thesis documented the research and established a permanent scholarly record of the technology, while the live demonstration at the ASU Nexus Summit showcased the system to industry, government, investors, and university leadership, expanding stakeholder engagement and demonstrating its commercialization potential. Beyond the technical milestones, the project reached several important commercialization decision points, including the submission of follow-on proposals to the Defense Innovation Unit (DIU) Power Beaming opportunity and NASA's Flight Opportunities program, as well as the establishment of relationships with strategic investors and aligned venture capital partners to support startup formation and technology transition. Collectively, these milestones demonstrate successful completion of the project's planned development phase and position the program for satellite launch in 2027, continuing the transition of RIS-enabled wireless power transfer technology from university research toward operational defense and commercial applications.

The Regents' Grant accelerated the translation of Arizona State University research into commercializable technology with significant defense and commercial space applications. By advancing Reconfigurable Intelligent Surface (RIS) technology from fundamental research toward a flight-ready system, the project established the technical foundation for startup formation, follow-on federal funding, and private investment. The team is on track to launch an Arizona-based dual-use startup by the end of 2026, creating a pathway for high-skilled jobs, private investment, and long-term economic impact within the state. The program demonstrates Arizona's ability to combine world-class research, engineering, and entrepreneurship to translate university innovation into technologies with real-world impact and commercial value. By strengthening the state's capacity to commercialize advanced aerospace and dual-use technologies, the project reinforces Arizona's position as a leader in technology innovation and economic competitiveness.

A multidisciplinary approach that integrated advanced research, systems engineering, and commercialization proved highly effective in accelerating project progress. The collaboration between the ASU Terahertz Research Laboratory and the Luminosity Lab combined deep technical expertise with engineering, entrepreneurship, and technology translation capabilities, enabling the project to mature beyond fundamental research. Early engagement with government stakeholders, industry, and potential investors helped align the technology with real-world applications and positioned the project for successful follow-on funding, startup formation, and continued development.

Advancing a laboratory technology toward a flight-ready system required balancing technical development, systems engineering, commercialization, and mission planning within a single project. One of the key lessons learned was that technology transition activities, including customer discovery, commercialization planning, and engagement with government and industry partners, should begin early and progress alongside technical development rather than after research is complete. This integrated approach reduced transition risk, strengthened the commercialization pathway, and will continue to guide future efforts as the technology advances toward flight validation and commercial deployment.

Overall Project Assessment

The project successfully achieved its primary objective of advancing Reconfigurable Intelligent Surface (RIS) technology for microwave wireless power transfer while simultaneously strengthening Arizona's capacity to translate university research into deployable technologies. Technical objectives were met through the successful design, fabrication, integration, and laboratory validation of the RIS system, advancing the technology from approximately TRL 3 to TRL 4 and establishing the foundation for planned TRL 5 spacecraft validation. In parallel, the project generated significant academic outcomes through graduate research, workforce development, and public technology demonstration, while also advancing commercialization through customer discovery, follow-on federal funding proposals, investor engagement, and startup planning. The team is on track to launch an Arizona-based dual-use startup by the end of 2026 and initiate a pre-seed investment round in the second quarter of 2027 to support continued technology development and commercialization. Collectively, these parallel efforts demonstrate a successful model for integrating research, education, and commercialization, positioning the technology for continued development toward defense and commercial space applications while creating lasting value for Arizona's innovation ecosystem.

Investment Detail

	2026	2027	2028	Total
Infrastructure	\$ 0	\$ 0	\$ 0	\$ 0
Basic Research	\$ 0	\$ 0	\$ 0	\$ 0
Applied Research	\$ 65,527	\$ 0	\$ 0	\$ 65,527
Development	\$ 0	\$ 0	\$ 0	\$ 0
Total	\$ 65,527	\$ 0	\$ 0	\$ 65,527

Investment Narrative

funds were used for applied research.

Budget Detail

	2026	2027	2028	Total
Salaries	\$ 51,047	\$ 0	\$ 0	\$ 51,047
ERE	\$ 9,173	\$ 0	\$ 0	\$ 9,173
Travel	\$ 0	\$ 0	\$ 0	\$ 0
Equipment	\$ 0	\$ 0	\$ 0	\$ 0
Supplies & Materials	\$ 2,860	\$ 0	\$ 0	\$ 2,860
Contracts & Consultants	\$ 0	\$ 0	\$ 0	\$ 0
Meetings & Conferences	\$ 2,447	\$ 0	\$ 0	\$ 2,447
Sub Awards	\$ 0	\$ 0	\$ 0	\$ 0
Total	\$ 65,527	\$ 0	\$ 0	\$ 65,527

Budget Narrative

funds were used for applied research.

Metric

Technology Readiness Level (TRL)

2026	2027	2028
Projected 4	Projected 5	Projected 7
Actual 4	Actual	Actual

Metric

Follow-on Funding Secured

2026	2027	2028
Projected \$0	Projected \$500,000	Projected
Actual \$0	Actual	Actual

Metric									
Commercialization Readiness Level (CRL)									
2026				2027				2028	
Projected	4			Projected	7			Projected	
Actual	5			Actual				Actual	

Institution	Arizona Board of Regents	 ARIZONA BOARD OF REGENTS ASU ♦ NAU ♦ U of A
Grant Type	Regents Research	
TRIF Investment Area		
Program Name	Tuevonet-Making AI Results Explainable	
Project Lead	Asim Roy (ASU)	

Proposal

Problem Statement

Many artificial intelligence systems function as "black boxes," providing accurate predictions but little insight into how decisions are made. This lack of transparency limits user trust and creates challenges for deploying AI in mission-critical defense, security, and commercial applications where explainability, reliability, and resilience to adversarial attacks are essential. A new approach is needed that produces understandable, verifiable explanations while improving the robustness of AI systems operating in complex environments.

Program Description

This project is developing a new explainable artificial intelligence (XAI) framework that places explanation at the center of model design rather than generating explanations after a model has been trained. Using a part-based approach, the system verifies key components of an object before confirming its identity, producing AI outputs that are more transparent, interpretable, and resistant to deception techniques such as camouflage, occlusion, and adversarial attacks. The technology has demonstrated feasibility through a completed U.S. Air Force Small Business Technology Transfer (STTR) Phase I project and has achieved Technology Readiness Level (TRL) 4. Applications include satellite imagery analysis, autonomous systems, defense surveillance, and other computer vision applications requiring trustworthy AI.

Institution Advantage

Arizona State University brings nationally recognized expertise in artificial intelligence, explainable AI, machine learning, and computer vision through faculty leadership and collaboration with Teuvonet Technologies. The project builds upon prior federally funded research, including a completed U.S. Air Force STTR project, and leverages Arizona Board of Regents intellectual property, pending patent applications, and established industry relationships. ASU's strengths in AI research, technology commercialization, and interdisciplinary collaboration position the university to advance next-generation explainable AI technologies from research to real-world deployment.

Arizona Specific Benefit

This project strengthens Arizona's position as a leader in trustworthy artificial intelligence and advanced computer vision technologies. The technology has applications across defense, aerospace, autonomous systems, satellite imagery, and emerging commercial markets where explainable AI is becoming increasingly important under evolving regulatory requirements. By supporting intellectual property development, commercialization, industry partnerships, and workforce development in artificial intelligence, the project contributes to Arizona's growing innovation economy and expands opportunities for high-technology business growth.

Substantive changes to the original proposal

U.S. military face a rapidly escalating threat from low-cost, mass-produced drone swarms, which can overwhelm defenses and cause catastrophic damage to bases, aircraft, and personnel. The Pentagon's proposed fiscal 2027 budget includes more than \$70 billion for military drones and counter-drone technologies, in what officials describe as the largest U.S. investment in counter-UAS (unmanned aerial system) capabilities to date.

With counter-UAS capabilities becoming critical to U.S. military, we decided to focus on developing a new counter-UAS technology that would use a swarm of autonomous defensive drones to track and neutralize a swarm of attacking drones. This technology builds on our original proposal for Explainable AI models and addresses one of the most important defense challenges of the modern era.

Here a collection of AI generated videos show swarms of defender drones (C-UAS) flying out from their base stations and intercepting and neutralizing swarms of attacker drones using high-powered microwave (HPM) or laser.

<https://www.dropbox.com/scl/fi/qympitwo1xb954u1aouj7/MERGED-VIDEOS.mp4?rlkey=abtnu6g6azmcryvblmm04rox&e=1&st=xme4udes&dl=0>

Dr. Kenneth Polasko, Chief of Research and Technology Commercialization at ABOR, approved this change of focus in our project. Our initial demonstration of autonomous drones chasing attacker drones has impressed ASU President Michael Crow.

Project Continuation

Completed

Project Status

On Schedule

Progress Report

1. Work Completed: A summary of activities, deliverables, and actions completed during the reporting period.

We designed, developed and tested two defensive quadcopter drones that can track and chase multiple attacking drones and simulate their interception. In our counter-UAS system, autonomous defender drones operate under the most restrictive conditions: (1) without human operator control, (2) without GPS signals, (3) without any kind of contact with any ground station to receive signals or instructions during flight, (4) without any communication between the drones, (5) determine individually and independently which attacker drones to intercept and neutralize and in what sequence, and (6) use DARPA's Explainable AI concept in its advanced object detection models. The defensive drones we designed and developed are vision-based systems and can operate in territories where any kind of communication between a drone and other entities (satellites, ground stations, other drones) is not possible. In military terms, these are called communication-denied environments.

Here some videos showing how our defensive drones work:

a. This video shows an actual autonomous defender quadcopter (on the left) intercepting three small attacker drones. The attacker drones were remotely controlled and evasive. The bigger defender drone is completely on its own, tracking and chasing the attacker drones and neutralizing them one by one when within a certain distance.

https://www.dropbox.com/scl/fi/u0hesnmsznajmzo0oqywe/4x_demo3.mp4?rlkey=ffjie0dtfmwi5puox8l6xr44r&e=1&st=9qxo7zl5&dl=0

b. The next video shows an autonomous defender quadcopter (on the left) intercepting two attacker drones – a small and a large one. The 2 attacker drones, remotely controlled, were evasive when they saw the defensive drone.

https://www.dropbox.com/scl/fi/tnasxh1m2w1b1btt6upif/small_large_demo.mp4?rlkey=n9ujyzzqcekmygdd8gj84fvh3&e=1&st=9cmpi11m&dl=0

In the future, we will see AI-based autonomous drones exhibiting such intelligent behavior. In other words, we will see intelligent drones from both sides engage in "hand-to-hand" combat in the sky. Dog fighting (close-range aerial battles) between military planes equipped with machine guns began in World War 1. We might be back to the future with autonomous drones fighting each other with high-powered microwave or laser beams. And I would be surprised if the Chinese already don't have these kinds of autonomous drones.

2. Milestones Achieved: Key milestones reached, including any significant benchmarks or decision points.

We demonstrated autonomous operation of defensive drones. The task of intercepting a set of attacking drones gets assigned to a defensive drone when it flies out of a base station. As soon as the defensive drone flies out, it tracks the attacking drones assigned to it and intercepts them in a certain sequence. A defensive drone is a completely independent agent once it flies out and is guided only by its cameras to complete the task.

A key milestone for the project was demonstrating this autonomous operation capability. We have been in contact with Raytheon Missiles on this project and their teams visited us twice during this period. And during the second visit, we successfully demonstrated this autonomous operation in the ASU Drone Studio.

We are currently at TRL 3 defined as:

TRL 3 Experimental proof of concept - Laboratory studies validate analytical predictions; early R&D.

3. Arizona Benefit or Impact: The impact of the work on Arizona, including benefits to students, institutions, communities, or the state more broadly.

We are currently working with two Arizona companies to further develop this technology:

a. Raytheon Missiles and Defense, based in Tucson, Arizona.

b. Dragoon Technology – a company that has fixed wing drones that are being tested by the Army and Navy.

Counter-swarm technology is a high-priority item for U.S. defense. We are planning to submit joint proposals to the following US Army programs:

a. Asymmetric Collaborative Counter Swarm – Army SBIR|STTR Program (<https://armysbir.army.mil/topics/asymmetric-collaborative-counter-swarm/>)

Objective - Develop and integrate a distributed Artificial Intelligence (AI) technology that can collaboratively command and control a multi-agent Group 1 or Group 2 Unmanned Aerial System (UAS) swarm to defend an area against a numerically superior enemy swarm.

b. Emerging Weapons and Munitions Systems and Soldier Lethality Related Technologies | Research

<https://research.njit.edu/emerging-weapons-and-munitions-systems-and-soldier-lethality-related-technologies>

If we can develop this counter-UAS technology working with Raytheon, a top-tier defense contractor, there would be a major economic impact on Arizona.

4. What Worked Well: Approaches, strategies, or partnerships that were particularly effective and contributed to progress.

- a. Raytheon saying they want this technology was immensely helpful.
- b. ASU President Michael Crow getting excited about the technology and introducing us to In-Q-Tel (IQT) was very helpful.

5. Challenges and Lessons Learned: Areas that have been challenging, what did not work as intended, and any lessons that will inform next steps.

Overall Project Assessment

We are on a path to creating a major technology for the U.S. military. After interacting with Raytheon all these months in addition to our own research, it appears that no other company has this technology.

Investment Detail

	2026	2027	2028	Total
Infrastructure	\$ 0	\$ 0	\$ 0	\$ 0
Basic Research	\$ 0	\$ 0	\$ 0	\$ 0
Applied Research	\$ 90,000	\$ 0	\$ 0	\$ 90,000
Development	\$ 0	\$ 0	\$ 0	\$ 0
Total	\$ 90,000	\$ 0	\$ 0	\$ 90,000

Investment Narrative

Funds were used for applied research.

Budget Detail

	2026	2027	2028	Total
Salaries	\$ 0	\$ 0	\$ 0	\$ 0
ERE	\$ 0	\$ 0	\$ 0	\$ 0
Travel	\$ 0	\$ 0	\$ 0	\$ 0
Equipment	\$ 0	\$ 0	\$ 0	\$ 0
Supplies & Materials	\$ 0	\$ 0	\$ 0	\$ 0
Contracts & Consultants	\$ 0	\$ 0	\$ 0	\$ 0
Meetings & Conferences	\$ 0	\$ 0	\$ 0	\$ 0
Sub Awards	\$ 0	\$ 0	\$ 0	\$ 0
Total	\$ 0	\$ 0	\$ 0	\$ 0

Budget Narrative

No budget detail available at the time of the report.

Metric

Demonstrated autonomous operation of defensive drones.

2026		2027		2028	
Projected	1	Projected		Projected	
Actual	1	Actual		Actual	

Institution	Arizona Board of Regents	 ARIZONA BOARD OF REGENTS ASU ♦ NAU ♦ U of A
Grant Type	Regents Research	
TRIF Investment Area		
Program Name	Glasswing: Modular UAS Autonomy for Complex and GPS-Denied Environments	
Project Lead	Alexander Shenkin (NAU)	

Proposal

Problem Statement

Current unmanned aircraft systems (UAS) are unable to reliably operate in dense, GPS-denied environments such as forest understories, limiting their ability to collect critical environmental and operational data. Existing technologies cannot efficiently map vegetation beneath the forest canopy or safely navigate through complex terrain, creating challenges for wildfire management, forest health monitoring, carbon assessment, and defense operations. A new autonomous navigation capability is needed to safely operate in these environments while producing high-resolution three-dimensional mapping data.

Program Description

The Glasswing project is developing a modular autonomy and sensing platform that enables small uncrewed aircraft systems (UAS) to safely navigate and map complex, GPS-denied environments, including dense forest understories. By combining LiDAR, depth sensing, autonomous navigation, and formal safety controls, the project aims to produce high-resolution three-dimensional mapping while avoiding obstacles in challenging environments. The technology supports both environmental monitoring and national defense applications by improving autonomous operations where traditional navigation systems are ineffective. The project is advancing the technology from Technology Readiness Level (TRL) 3 to TRL 4 through system integration, simulation, and controlled field testing.

Institution Advantage

Northern Arizona University is well positioned to lead this work through the Ecosystem Science and Innovation Lab (ECOSAIL) and its expertise in autonomous systems, remote sensing, and forest ecology. The project leverages specialized university assets including the Chimney Springs field site, an indoor flight testing facility, terrestrial LiDAR equipment, and the Monsoon high-performance computing cluster. Collaboration among researchers in engineering, computer science, and ecological sciences provides a multidisciplinary approach that strengthens both technology development and commercialization opportunities.

Arizona Specific Benefit

Glasswing supports Arizona's leadership in advanced autonomy, wildfire management, and environmental monitoring technologies. The project has the potential to improve forest health assessments, wildfire mitigation planning, and carbon monitoring while also creating opportunities for defense-related technology development. By advancing research commercialization, intellectual property development, and workforce training in robotics and autonomous systems, the project contributes to Arizona's innovation economy and strengthens the state's position in emerging dual-use technologies.

Substantive changes to the original proposal

None.

Project Continuation	Completed
Project Status	On Schedule

Progress Report

The project advanced the technology from Technology Readiness Level (TRL) 3 to TRL 4 through system integration, simulation, and controlled field testing. The project was successfully completed in 2026. Glasswing supported Arizona's leadership in advanced autonomy, wildfire management, and environmental monitoring technologies. Collaboration among researchers in engineering, computer science, and ecological sciences provided a multidisciplinary approach that strengthened both technology development and commercialization opportunities. There were no significant challenges.

Overall Project Assessment

The project and its goals were completed successfully in 2026.

Investment Detail

	2026		2027		2028		Total
Infrastructure	\$	0	\$	0	\$	0	0
Basic Research	\$	0	\$	0	\$	0	0
Applied Research	\$	66,508	\$	0	\$	0	66,508
Development	\$	0	\$	0	\$	0	0
Total	\$	66,508	\$	0	\$	0	66,508

Investment Narrative

This project was extended to 2026 by ABOR. The total budget included \$15K of IDC, which is located on the supply line in the budget.

Budget Detail

	2026	2027	2028	Total
Salaries	\$ 39,351	\$ 0	\$ 0	\$ 39,351
ERE	\$ 10,731	\$ 0	\$ 0	\$ 10,731
Travel	\$ 0	\$ 0	\$ 0	\$ 0
Equipment	\$ 0	\$ 0	\$ 0	\$ 0
Supplies & Materials	\$ 15,676	\$ 0	\$ 0	\$ 15,676
Contracts & Consultants	\$ 750	\$ 0	\$ 0	\$ 750
Meetings & Conferences	\$ 0	\$ 0	\$ 0	\$ 0
Sub Awards	\$ 0	\$ 0	\$ 0	\$ 0
Total	\$ 66,508	\$ 0	\$ 0	\$ 66,508

Budget Narrative

This project was extended to 2026 by ABOR. The total budget included \$15K of IDC, which is located on the supply line in the budget.

Metric

SLAM drift accuracy over distance flown under forest canopy.

2026		2027		2028	
Projected	1	Projected		Projected	
Actual	1	Actual		Actual	

Institution	Arizona Board of Regents	 ARIZONA BOARD OF REGENTS ASU ♦ NAU ♦ U of A
Grant Type	Regents Research	
TRIF Investment Area		
Program Name	Resilient Zero-Trust Key Exchange	
Project Lead	Bertrand Cambou (NAU)	

Proposal	
Problem Statement Arizona's universities are home to groundbreaking research with significant potential for commercial and defense applications. However, many of these innovations lack the structure, resources, and stakeholder engagement needed to transition from lab to market. The DoD's FY24 RDT&E budget reflects a strong demand for deployable technologies (\$55.78B in applied research vs. \$2.45B in basic research) and non-traditional partnerships to accelerate innovation delivery. This RFP seeks to unlock the economic and strategic value of public research by identifying, supporting, and accelerating university technologies with defense and commercial potential.	
Program Description When subject to signal jamming, the data packets of Unmanned Aerial Systems (UAS) are only able to handle about 20-25% bad bits before they become unusable for the tactical operators and mission analysts. The critical problem is ensuring usable data packets get through to the UAS even with bad bits in the transmission. More usable packets mean lower latencies and smoother operation. The critical issue to be solved is how to ensure that UAS can receive the necessary key information to decrypt operation instructions without sacrificing cybersecurity or burdening the UAS's limited resources in contested areas. Using our zero-trust methodology, no cryptographic keys are stored on the UAS (no keys to steal if UAS is captured), the protocol latencies are very low, and the protocols are implemented for light computing elements (no AI, error-correcting codes, data helpers, or fuzzy extractors). Our approach tolerates over 45% noise in the transmission and yields only 1 bit error per million bits in the keys. This software can easily be integrated into existing UAS systems and legacy software at scale for the DoD now, and the protocols are built to use post-quantum computing algorithms for future quantum resistance.	
Institution Advantage Supported by multi-year funding from the Army Research Lab and Air Force Research Lab to NAU, we have developed these dynamic methods incorporating our Challenge-Response Pair (CRP) mechanism, which future-proofs today's cyber products with our highly differentiated approach protected by an extensive patent portfolio of 80+ issued/pending patents owned by NAU/ABOR. The funding from this opportunity pushed the technology forward toward commercialization by NAU startup, High Entropy Security, which will likely result in future royalties back to the university and inventors. Additionally, several NAU undergraduate and graduate students were and are actively involved in this program, strengthening their higher education and consequently bolstering Arizona's workforce.	
Arizona Specific Benefit Protocols that allow terminal devices to manage 45% of bad bits that resulted from signal jamming or other noise, while still recovering their cryptographic keys for operation, have direct applications in the defense and civilian sectors and can create jobs in Arizona. As a market opportunity in the defense industry, our protocols can integrate into existing players' methods to add strategic value and capabilities. Beyond defense, these methods are highly relevant to critical infrastructure and commercial sectors where reliable, secure communications are vital. The ability to maintain secure connectivity in contested or hostile spectrum environments also supports civil aviation, maritime operations, and industrial IoT networks in remote or poor network settings.	
Substantive changes to the original proposal No substantive changes were made.	
Project Continuation	In progress
Project Status	On Schedule

Progress Report
1. Work Completed: a) Deployment and commercialization. One of the important tasks supported by this program was to optimize and document the software developed over the last 5 years to transition from the research setting to real-world production-ready artifacts. An industrial GitHub account was set up, and the code needed to operate UAS in noisy networks was downloaded, refactored, tested, and optimized to improve software quality. b) Validation. We designed and conducted an experiment where 170,000 measurements were completed and documented to validate and optimize the software operating UAS in noisy networks. We firmly demonstrated the ability to drive UAS in jamming conditions with up to 45% noise injection. As part of the optimization, we designed and implemented a more efficient way to handle residual errors that reduces latencies and enhances performance.

c) Additional cybersecurity. To further optimize security, we designed and implemented a dual-mode protocol incorporating a physical unclonable function (PUF) based on commercially available 1Mbit SRAM chips. Enhancing hardware security with a PUF provides a physical foundation of cybersecurity that cannot be replicated by software. By leveraging our ternary cryptographic protocol, we were able to mitigate the impact of the natural instability of the SRAM cells, which is in the 5% range. This allows us to handle noise up to 44%, only 1% lower than what is achieved without the PUF.

d) 3-dimensional sensors. We also developed an architecture involving arrays of sensors that are sensitive to the 3-dimensional orientations of the UAS. With a set of 48 accelerometers, we can measure both the orientations and the fingerprints of the sensors that vary with orientation. With this, we expect to be able to replace the SRAM PUF, which will further enhance cybersecurity at the hardware level. Such a new feature should be available within 6 weeks.

2. Milestones Achieved:

a) Industrial GitHub was established.

b) Commercially compatible software to operate UAS in a noisy network was downloaded.

c) Completed the design and experiments yielding 170,000 measurements to validate the code required for commercialization.

d) Completed the optimization of the code to operate in networks with 45% bad bits versus the previous 40%.

e) Completed a new and more effective error management scheme.

f) Completed a protocol incorporating an SRAM-based PUF for added security that only reduces performance from 45% to 44%.

g) Completed an architecture to replace the SRAM-based PUF with a 3-D sensor-based PUF.

3. Arizona Benefit:

The work sponsored by ABOR allowed us to consolidate the technology developed with DoD funds in the last 5 years and prepare for commercialization. We complemented the technology with protocols that allow terminal devices to manage even higher ratios of bad bits generated from signal jamming or other noise in the environment, which further enhances the commercial value. We also developed new features such as the incorporation of a PUF, which is important for cybersecurity applications. The work was mainly done within the NAU environment, with undergraduate and graduate students from NAU, strengthening NAU higher education programs and workforce development.

4. What Worked Well:

This ABOR-funded program was synergistic with the final year of the program funded by the Army Research Laboratory, which had a long-term research focus. This excellent timing allowed us to pivot some of the efforts toward future commercialization and to develop additional important features. The large-scale design of our experiment validated the technology and allowed important optimizations. The integration of the SRAM-based PUF was successful.

5. Challenges and lessons learned:

We still have to complete the 3-D sensor-based protocol, which has tremendous potential to further protect the cybersecurity of UAS. We learned how to combine complementary features for this application: operation in noisy networks, added security with SRAM-based PUFs, and a path to add 3-D accelerometers to sense and verify orientation.

Overall Project Assessment

Overall, the project is progressing strongly across technical, validation, commercialization, and workforce development dimensions. The team successfully transitioned the core noisy network UAS software toward production readiness, completed a large-scale validation study with 170,000 measurements, improved software performance, and implemented a more efficient residual-error management approach. These results directly advance the proposal's objective of enabling secure, low-latency cryptographic key recovery for resource-constrained terminal devices operating in jammed or contested environments.

In parallel, the project expanded beyond the original software protocol by integrating an SRAM-based PUF while retaining tolerance of up to 44% noise and developing a promising 3-D accelerometer-array PUF architecture for orientation-sensitive hardware authentication. The primary remaining task is to complete and validate the sensor-based protocol and integrated prototype. Overall, progress is consistent with (and in several areas exceeds) the proposed technical direction, while also strengthening commercialization readiness, hardware security, NAU student participation, and the potential for defense and dual-use deployment.

Investment Detail

	2026	2027	2028	Total
Infrastructure	\$ 0	\$ 0	\$ 0	0
Basic Research	\$ 0	\$ 0	\$ 0	0
Applied Research	\$ 75,000	\$ 0	\$ 0	75,000
Development	\$ 0	\$ 0	\$ 0	0
Total	\$ 75,000	\$ 0	\$ 0	75,000

Investment Narrative

The \$75,000 investment in Applied Research supported the transition of previously developed cybersecurity methods toward validated, commercially deployable technology for UAS operating in jammed or noisy environments. Funds were used to 1) refactor, test, document, and optimize the software; 2) conduct 170,000 validation measurements; 3) improve noise tolerance; 4) develop a more efficient residual-error management scheme; 5) integrate an SRAM-based physical unclonable function; and 6) advance a 3-D sensor-based hardware security architecture. The investment also supported NAU personnel and student researchers, strengthening Arizona's technical workforce while positioning the technology for defense and dual-use commercialization through NAU startup, High Entropy Security.

Budget Detail

	2026	2027	2028	Total
Salaries	\$ 65,656	\$ 0	\$ 0	\$ 65,656
ERE	\$ 6,587	\$ 0	\$ 0	\$ 6,587
Travel	\$ 0	\$ 0	\$ 0	\$ 0
Equipment	\$ 0	\$ 0	\$ 0	\$ 0
Supplies & Materials	\$ 2,757	\$ 0	\$ 0	\$ 2,757
Contracts & Consultants	\$ 0	\$ 0	\$ 0	\$ 0
Meetings & Conferences	\$ 0	\$ 0	\$ 0	\$ 0
Sub Awards	\$ 0	\$ 0	\$ 0	\$ 0
Total	\$ 75,000	\$ 0	\$ 0	\$ 75,000

Budget Narrative

The \$75,000 investment in Applied Research supported the transition of previously developed cybersecurity methods toward validated, commercially deployable technology for UAS operating in jammed or noisy environments. Funds were used to 1) refactor, test, document, and optimize the software; 2) conduct 170,000 validation measurements; 3) improve noise tolerance; 4) develop a more efficient residual-error management scheme; 5) integrate an SRAM-based physical unclonable function; and 6) advance a 3-D sensor-based hardware security architecture. The investment also supported NAU personnel and student researchers, strengthening Arizona's technical workforce while positioning the technology for defense and dual-use commercialization through NAU startup, High Entropy Security.

Metric

Noise tolerance of secure UAS communication protocol

	2026	2027	2028
Projected	40	45	45
Actual	45		

Institution	Arizona Board of Regents	 ARIZONA BOARD OF REGENTS ASU ♦ NAU ♦ U of A
Grant Type	Regents Research	
TRIF Investment Area		
Program Name	Distributed Hybrid Fiber Sensing	
Project Lead	Mehmetcan Akbulut (U of A)	

Proposal

Problem Statement

Arizona's universities are home to groundbreaking research with significant potential for commercial and defense applications. However, many of these innovations lack the structure, resources, and stakeholder engagement needed to transition from lab to market. The DoD's FY24 RDT&E budget reflects a strong demand for deployable technologies (\$55.78B in applied research vs. \$2.45B in basic research) and non-traditional partnerships to accelerate innovation delivery. This RFP seeks to unlock the economic and strategic value of public research by identifying, supporting, and accelerating university technologies with defense and commercial potential.

Program Description

UA's Wyant College of Optical Sciences and Lunar & Planetary Laboratory proposed and (per the proposal's 6-month scope) undertook a laboratory demonstration of a novel fiber-optic architecture that combines distributed acoustic/seismic sensing, remote optical power delivery, and two-way communications over a single fiber, targeting deployment in inaccessible environments such as the Moon, Mars, volcanoes, deserts, and polar regions.

Institution Advantage

UA brings a rare combination of in-house capabilities to this work — Wyant Optical Sciences' custom laser/photonics R&D labs alongside LPL's space-qualified seismometer expertise and UA's thermal-vacuum and vibration test facilities — that few other institutions can pair under one roof.

Arizona Specific Benefit

Per the proposal, successful development positions Arizona-based UA research for follow-on NASA, DoD, and commercial funding and for spinout commercialization through UA Tech Launch, potentially generating IP, startup formation, and workforce opportunities tied to the state.

Substantive changes to the original proposal

None.

Project Continuation	Completed
Project Status	On Schedule

Progress Report

1 and 2- UA built and tested a laboratory prototype demonstrating distributed fiber sensing, remote power delivery, and two-way optical communications over 0.1 to 4 km single-mode fiber links. The sensing results were compared against traditional seismometer data. The proposal's stated goal was to advance the architecture from TRL 2 toward TRL 4+ and produce technology validation. This work paves the path to further R&D and commercialization funding.

3-The work strengthens UA's competitive position for NASA planetary-science and DoD sensing funding and supports two pending UA invention disclosures moving toward provisional patent filing.

4-The technical approach was validated through testing of each component of the architecture. The partnership between the professors at Wyant College of Optical Sciences and the Lunar and Planetary Laboratory at the UA was successful, and we expect this to lead to future collaborations in proposals and research programs, along with potential commercialization collaborations.

5-The schedule was not optimal for all the work that was proposed. More resources and time would be needed in future efforts involving field testing.

Overall Project Assessment

Project was successfully completed as outlined in proposal.

Investment Detail					
	2026	2027	2028		Total
Infrastructure	\$ 90,000	\$ 0	\$ 0	\$	90,000
Basic Research	\$ 0	\$ 0	\$ 0	\$	0
Applied Research	\$ 0	\$ 0	\$ 0	\$	0
Development	\$ 0	\$ 0	\$ 0	\$	0
Total	\$ 90,000	\$ 0	\$ 0	\$	90,000
Investment Narrative					
Funding was primarily used for infrastructure.					
Budget Detail					
	2026	2027	2028		Total
Salaries	\$ 61,142	\$ 0	\$ 0	\$	61,142
ERE	\$ 25,139	\$ 0	\$ 0	\$	25,139
Travel	\$ 0	\$ 0	\$ 0	\$	0
Equipment	\$ 0	\$ 0	\$ 0	\$	0
Supplies & Materials	\$ 3,447	\$ 0	\$ 0	\$	3,447
Contracts & Consultants	\$ 0	\$ 0	\$ 0	\$	0
Meetings & Conferences	\$ 272	\$ 0	\$ 0	\$	272
Sub Awards	\$ 0	\$ 0	\$ 0	\$	0
Total	\$ 90,000	\$ 0	\$ 0	\$	90,000
Budget Narrative					
Funding was primarily used for infrastructure.					

Metric			
Fiber link distance demonstrated for combined sensing, power delivery, and two-way communications.			
2026		2027	2028
Projected	1	Projected	Projected
Actual	1	Actual	Actual

Institution	Arizona Board of Regents	 ARIZONA BOARD OF REGENTS ASU ♦ NAU ♦ U of A
Grant Type	Regents Research	
TRIF Investment Area		
Program Name	Morphable Multicopter Uncrewed Aerial Systems (MMU)	
Project Lead	Hossein Rastgoftar (U of A)	

Proposal

Problem Statement

Arizona's universities are home to groundbreaking research with significant potential for commercial and defense applications. However, many of these innovations lack the structure, resources, and stakeholder engagement needed to transition from lab to market. The DoD's FY24 RDT&E budget reflects a strong demand for deployable technologies (\$55.78B in applied research vs. \$2.45B in basic research) and non-traditional partnerships to accelerate innovation delivery. This RFP seeks to unlock the economic and strategic value of public research by identifying, supporting, and accelerating university technologies with defense and commercial potential.

Program Description

The Morphable Multicopter Uncrewed Aerial Systems (MMU) project developed the scientific and engineering foundation for a new class of reconfigurable aerial robots capable of safely changing their geometry during flight. The project advanced the design, modeling, and control of a modular multicopter architecture that integrates powered and unpowered cells through a morphable mechanical structure, enabling adaptive flight, distributed payload transport, and operation in confined environments. Major accomplishments included the development of a scalable neural network-based system architecture, cooperative localization and control strategies, high-fidelity dynamic models, prototype hardware, and preliminary experimental validation. These advances establish a pathway toward resilient, autonomous aerial systems with applications in defense, infrastructure inspection, emergency response, and autonomous logistics.

Institution Advantage

The project leveraged the University's strengths in multidisciplinary research, rapid prototyping, hardware-in-the-loop testing, and technology commercialization to develop and validate the Morphable Multicopter Uncrewed Aerial System (MMU). The University's research infrastructure and collaborative ecosystem enabled the integration of theoretical advances with experimental validation, positioning the MMU technology for future transition to defense, public safety, and commercial applications.

Arizona Specific Benefit

This project strengthens Arizona's leadership in autonomous systems, advanced aerospace technologies, and intelligent robotics by developing a novel morphable aerial platform with significant commercial and defense potential. The research contributes to workforce development by providing students with hands-on experience in autonomous systems, artificial intelligence, embedded systems, and flight testing. The resulting technologies have potential applications in border security, emergency response, infrastructure inspection, precision agriculture, mining, logistics, and public safety, creating opportunities for future industry partnerships, startup formation, and federal research investment within Arizona. By advancing high-value aerospace innovation and technology commercialization, the project supports Arizona's growing aerospace and defense ecosystem while enhancing the state's competitiveness in emerging autonomous technologies.

Substantive changes to the original proposal

Beginning in May 2026, approval for research-related travel that was essential to achieving the objectives of this ABOR/ACA award was denied. These restrictions prevented participation in planned technology validation, commercialization, and stakeholder engagement activities, substantially delaying the project's final implementation phase.

Project Continuation	Completed
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Project Status	On Schedule
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Progress Report

1. Work Completed

Developed the MMU system architecture, morphable airframe design, dynamic models, autonomous guidance and control algorithms, safety-critical navigation methods, and simulation environment. Simulation studies validated the proposed concepts and established the foundation for hardware integration and flight testing.

2. Milestones Achieved

Completed the system architecture, dynamic modeling, autonomous control framework, and simulation-based validation of the MMU platform. These milestones prepared the project for prototype integration and experimental validation.

3. Arizona Benefit or Impact

The project advances Arizona's leadership in aerospace and autonomous systems while providing student training in robotics and AI. It also strengthens opportunities for future federal funding, industry collaboration, and technology commercialization.

4. What Worked Well

The integration of modeling, control design, and simulation enabled efficient development and validation of the MMU concept,

providing a scalable foundation for future hardware implementation.

5. Challenges and Lessons Learned

Administrative restrictions delayed hardware validation, field testing, and commercialization activities. Despite these challenges, the project achieved its core technical objectives and established a strong foundation for technology transition.

Overall Project Assessment

See summary above.

Investment Detail

	2026		2027		2028		Total
Infrastructure	\$	0	\$	0	\$	0	0
Basic Research	\$	0	\$	0	\$	0	0
Applied Research	\$	90,000	\$	0	\$	0	90,000
Development	\$	0	\$	0	\$	0	0
Total	\$	90,000	\$	0	\$	0	90,000

Investment Narrative

Funds were used for applied research.

Budget Detail

	2026		2027		2028		Total
Salaries	\$	0	\$	0	\$	0	0
ERE	\$	0	\$	0	\$	0	0
Travel	\$	0	\$	0	\$	0	0
Equipment	\$	0	\$	0	\$	0	0
Supplies & Materials	\$	0	\$	0	\$	0	0
Contracts & Consultants	\$	0	\$	0	\$	0	0
Meetings & Conferences	\$	0	\$	0	\$	0	0
Sub Awards	\$	0	\$	0	\$	0	0
Total	\$	0	\$	0	\$	0	0

Budget Narrative

Budget detail was not available at the time of the report.

Metric

Complete all key elements of the MMU platform.

2026		2027		2028	
Projected	1	Projected		Projected	
Actual	1	Actual		Actual	

Institution	Arizona Board of Regents	 ARIZONA BOARD OF REGENTS ASU ♦ NAU ♦ U of A
Grant Type	Regents Research	
TRIF Investment Area		
Program Name	Processing Copper Mine Tailings: Critical Minerals Recovery from Past, Current and Future Copper Mine Tailings	
Project Lead	Isabel Barton (U of A)	

Proposal

Problem Statement

The opportunity is for Arizona to develop and lead the world in copper tailings reprocessing to recover strategic and valuable minerals via research that leads to innovative, environmentally beneficial and cost-effective reprocessing technologies.

Program Description

In response to the request from the State Mine Inspector, we propose to assess the critical metal content of copper mine tailings across Arizona and develop pathways to recover metals that are wasted in current copper mining. This can create economic opportunities through recovery of critical resources, help meet national demand for these elements, and reduce environmental and related liabilities posed by copper mine tailings. The extraordinary volumes and the breadth of materials of interest make (re)processing copper tailings a world-class challenge and opportunity for Arizona. Tailings (re)processing research is an opportunity for a major investment in critical metals. Discovery and testing of critical metal resources by conventional means requires many years and typically costs \$10-100M for exploration surveying, drilling, logging, and testing - on a single deposit. Even then, deposits discovered may never be mined due to decade+ permitting timelines, land/water use concerns, and the \$1-5B capital investment commonly required for each new mine. Assessing Arizona's potential tailings-hosted critical metals resource and developing viable means of extraction thus has huge potential for savings over the cost to find (let alone extract) them, as well as mitigating tailings-related liabilities and reducing US dependence on foreign sources.

With 10 sub-projects spanning discovery, characterization, extraction, and techno-economic assessment; coverage across Arizona of hundreds of copper-bearing tailing impoundments; and compilation and organization of many dimensions and perhaps a petabyte of data, this large-scale interdisciplinary project represents a massive first step toward making use of a massive (but undeveloped) potential resource.

Arizona has produced ~70 M tons of copper since large-scale mining began in the late 19th century and contains at least another 280 M tons yet to be mined. Current production is ~0.75 M tons per year, and is projected to increase in future as demand soars, potentially quadrupling by 2050. Since every ton of copper produced requires mining and processing roughly 250 tons of rock, the past century of major mining has generated an estimated 10.5 B tons of tailings, with upwards of 200 M tons now added annually and more to come as more copper is mined.

Many tailings, particularly from historic mining, contain uncertain but appreciable concentrations of critical elements such as zinc, cadmium, lead, rare earths, cobalt, lithium, and others. These are both critical elements for US high-tech manufacturing (green energy, semiconductors) and are damaging to the environment.

Consequently, better treatment of historic and modern copper tailings represents an enormous opportunity to recover critical elements, while also adding value by reducing economic and environmental liabilities and mitigating associated public concerns. This challenge will only increase going forward as more copper mining produces more tailings. Finding solutions now for reprocessing existing tailings for critical mineral recovery will thus be as or more important in dealing with the much larger amounts that will be generated in coming decades. To address the large and growing copper tailings challenge, we have assembled a multidisciplinary team of experts from all three Arizona public universities, with a long history of working with Arizona mining companies on geology, metallurgy, and environmental research. In collaboration with them, our team will:

- (1) Assess the types, volumes, fluxes, and critical/hazardous metal contents of copper tailings in the state;
- (2) Test standard and novel/unconventional methods of recovering these critical metals by (re)processing the tailings; and
- (3) Assess the tested methods to identify which performs best at recovering critical metals in an economically, technically, and environmentally sound manner.

Institution Advantage

This proposal leverages the multidisciplinary expertise, world-class facilities, and industry and government partnerships across Arizona's three public universities in mining, resource geology, remote sensing, extractive metallurgy, and environmental science. It addresses a problem that is longstanding (100+ years of large-scale mining), ubiquitous across Arizona (thousands of sites), growing (hundreds of thousands of tons of new tailings generated each day), and fraught (the potential hazards and public perception of mine tailings is a major concern with existing and new projects). The proposed work also builds on existing Board of Regents initiatives, including the tri-university Arizona Abandoned Mine Lands project (PI: Mark Barton). Four major Arizona mining companies have existing partnerships with UA on surveying, sampling, and analyzing tailings.

Arizona Specific Benefit

The proposed work will help make Arizona the global leader in (re)processing mine tailings, building expertise, knowledge, and technology for worldwide impact. Near-term benefits to Arizona's economy, environment, and public health include:

- It will turn an economic liability into a potential asset. Nobody currently knows how much metal is locked up in Arizona's copper mine tailings. Having an assessment of the potential recoverable metal content can in effect create new mineral resources in the state out of what had been a waste product. This would attract business interest and investment in new (re)mining projects.

- It will help keep metals for Arizona's industry available. Domestic production of numerous critical minerals is negligible (USGS 2022 Critical Minerals List), leaving the US dependent on imports from China, Russia, and other variably reliable foreign sources. Being able to produce some of these metals from reprocessing copper mine tailings would enhance US minerals, supply chain, and technology independence and help prevent shortages from hobbling Arizona's (or US) industries.
- It will produce the state's first extensive assessment of the volume of copper mine tailings and what toxic/critical metals they contain. This can better inform permitting processes, environmental monitoring strategies, mining research, and policy decisions, particularly as copper mining increases to meet future demand and produces more tailings.

Substantive changes to the original proposal

None

Project Continuation	In progress
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Project Status	On Schedule
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Progress Report

Work Completed: Over FY26, the remote sensing group has compiled roughly 4 terabytes of raw remote sensing data covering tailings. They have developed and tested an algorithm for detecting and identifying mine tailings via publicly available remote sensing datasets; processed geophysical and spectral data collected during fieldwork at three tailings facilities to identify their average grain size, surface mineral composition, and subsurface structure; verified the remote sensing data against laboratory measurements of sample characteristics; identified unique spectral signatures that distinguish tailings by type of geological deposit; and completed initial development of software for spectroscopic analysis across laboratory to satellite scales. The fieldwork/mineralogy team finished compiling data on Arizona copper mine production, mill recovery, mineralogy, and the type and mineralogy of tailings produced at each site. They wrapped up fieldwork and have distributed samples to the analytical and extraction teams at UA, NAU, and ASU. The team has continued analysis of tailings samples via automated mineralogy, scanning electron microscopy, electron probe microanalysis, and laser ablation ICP-MS, totaling 1,340 analyses so far. All surface tailings samples and most drill samples have been digested and assayed, and the remaining drill samples are in process. The extraction team has completed sieve analysis and testing of one flotation- and six leach-based extraction methods. The team is currently evaluating gravity and magnetic separation methods and conducting post-leach extraction tests. We are also testing precipitation, sorption using glycolipid hydrogels, and metal-hyperaccumulating plants selected from 40,000+ candidate species. The techno-economic analysis team has conducted first-order assessments of the revenue potential of each of the five tailings focus sites in this study based on assay and mineralogy data. The overall project team has begun ranking tailings types, sites, and extraction methods based on their economic viability as critical metal sources.

Milestones achieved: In FY26 the team completed a full database of the tonnage and mineral/chemical composition of Arizona's 100+ years' worth of copper mine tailings, indicating a total of approximately 10.5 billion metric tons. We also completed development of the Arizona Tailings Index (AZTI), a method for detecting and identifying tailings using publicly available remote sensing datasets. All drilling and other fieldwork on the project are now complete, along with analysis of all surface samples.

Arizona benefit or impact: The main benefit to Arizona and its citizens from this year's work is the development of the comprehensive database on the state's copper mine tailings. This adds substantial new data on previously unknown parameters, combined with a collection of data that were previously scattered across numerous hard-to-find ADEQ and AZGS records, scientific papers, non-public company reports, and other sources. Our database will provide a crucial resource for assessing tailings-related impacts across the state, as well as providing a model for other states that also have mine tailings but no unified dataset on their characteristics. This will help to better inform decisions and policies relating to the environment, mining, and public health. The AZTI tailings detection tool is also a useful resource for the Arizona Department of Environmental Quality, which has provided additional funding to co-PI Dr. Dean Riley for detection of unregistered tailings and other mine waste from historical operations around Arizona.

What worked well: The team has worked well together despite the disparate backgrounds, home institutions, and areas of expertise. Internal coordination has been tight and the State Mine Inspector has been kept well informed of progress by semiannual meetings and more frequent informal check-ins. Samples have been efficiently collected and analyzed. Partnership with key mining companies around the state and the involvement of the Arizona Geological Survey proved particularly helpful in providing background data for the project.

Challenges and lessons learned: The principal challenges in project execution have been administrative. Technical staff and analytical equipment are crucial to the research project, but hiring and procurement processes at UA have recently become extremely slow, causing delays of weeks to months in filling major needs. The main lesson learned from this is to allocate enough time to begin the processes and to monitor them closely as they proceed through the UA systems.

Overall Project Assessment

Overall the project is proceeding well. One major goal of the integrated project - developing a comprehensive database of the state's tailings - is already complete. The critical element extraction studies, further remote sensing characterization, and techno-economic analysis are underway and on track to be completed by the project end date of January 02, 2028. These are proceeding in parallel, kept coordinated by regular meetings. We anticipate being able to meet the stated goal of an integrated and comprehensive public report on the critical element potential of Arizona's copper tailings.

Investment Detail					
	2026	2027	2028	Total	
Infrastructure	\$ 992,152	\$ 0	\$ 0	\$	992,152
Basic Research	\$ 0	\$ 0	\$ 0	\$	0
Applied Research	\$ 0	\$ 0	\$ 0	\$	0
Development	\$ 0	\$ 0	\$ 0	\$	0
Total	\$ 992,152	\$ 0	\$ 0	\$	992,152
Investment Narrative					
Infrastructure includes the following: \$580,565 UA Personnel \$4,352 Software and Data Processing \$548 Field Supplies \$7,191 Regulated Chemicals \$142,816 Lab Supplies \$10,775 Travel \$28,373 Research Services NAU Infrastructure includes the following: \$101,799 NAU Personnel Salaries and Wages \$27,044 - Fringe Benefits \$1,179 Software and Data Processing \$1,095 Lab and Field Supplies \$6,312 Travel \$912 Network Charges ASU Infrastructure includes the following: \$36,630 Salaries and Wages \$20,497 Employee Related Expenses \$146 Travel \$7,058 Supplies and Materials \$14,860 Other Costs (Facility User Fees)					
Budget Detail					
	2026	2027	2028	Total	
Salaries	\$ 580,565	\$ 0	\$ 0	\$	580,565
ERE	\$ 0	\$ 0	\$ 0	\$	0
Travel	\$ 10,775	\$ 0	\$ 0	\$	10,775
Equipment	\$ 0	\$ 0	\$ 0	\$	0
Supplies & Materials	\$ 183,280	\$ 0	\$ 0	\$	183,280
Contracts & Consultants	\$ 0	\$ 0	\$ 0	\$	0
Meetings & Conferences	\$ 0	\$ 0	\$ 0	\$	0
Sub Awards	\$ 217,532	\$ 0	\$ 0	\$	217,532
Total	\$ 992,152	\$ 0	\$ 0	\$	992,152
Budget Narrative					
Infrastructure includes the following: \$580,565 UA Personnel \$4,352 Software and Data Processing \$548 Field Supplies \$7,191 Regulated Chemicals \$142,816 Lab Supplies \$10,775 Travel \$28,373 Research Services NAU Infrastructure includes the following: \$101,799 NAU Personnel Salaries and Wages \$27,044 - Fringe Benefits \$1,179 Software and Data Processing \$1,095 Lab and Field Supplies \$6,312 Travel \$912 Network Charges ASU Infrastructure includes the following: \$36,630 Salaries and Wages					

\$20,497 Employee Related Expenses
 \$146 Travel
 \$7,058 Supplies and Materials
 \$14,860 Other Costs (Facility User Fees)

Metric

Sample analyses completed

2026		2027		2028	
Projected	1,000	Projected		Projected	
Actual	1,340	Actual		Actual	

Metric

Extraction methods tested on tailings

2026		2027		2028	
Projected	7	Projected	3	Projected	
Actual	7	Actual		Actual	

Institution	Arizona Board of Regents	 ARIZONA BOARD OF REGENTS ASU ♦ NAU ♦ U of A
Grant Type	Regents Research	
TRIF Investment Area		
Program Name	Strengthening Arizona Agriculture for a Water-Scarce Future	
Project Lead	Stephanie Slinski (U of A)	

Proposal

Problem Statement

The Arizona Department of Agriculture (AZDA), to fulfill its mission of protecting consumers and advancing Arizona agriculture, requests ABOR to solicit Regents' Grant proposals for creating a Yuma-based Institute for Sustainable Food, Water and Agriculture Systems that will facilitate the three universities working with industry stakeholders over 3-years to catalyze collaborative research, development, and implementation of novel technologies and practices that integrate into agricultural production systems across the state. The investment would support applied research and pilot efforts that can be scaled up and transferred to private industry to address urgent agricultural challenges. Yuma has many of the elements necessary for success: year-round productive agriculture, agricultural broadband infrastructure, innovative farmers, high-value crops, Ag-focused businesses and innovators, extreme testing facilities, and the presence of all three state universities plus a strong community college.

Program Description

The Arizona Hub for Agriculture Innovation (AHAI) is a statewide research and innovation accelerator that unites the University of Arizona, Arizona State University, and Northern Arizona University to transform academic research into scalable, industry-ready solutions for arid-land agriculture. Driven by deep stakeholder engagement, AHAI bridges the critical gap between discovery and field implementation by fostering active collaboration between researchers, agricultural producers, and industry leaders. By establishing a demand-driven pipeline, anchored by a digital clearinghouse that connects producer-identified challenges with multi-disciplinary research expertise, and guided by a representative steering committee, AHAI ensures that all initiatives remain aligned with real-world needs. Focused on addressing grand challenges such as water scarcity, the Hub integrates the R&D strengths of all three institutions to drive applied research, accelerate AgTech commercialization, and cultivate a next-generation agricultural workforce. Ultimately, AHAI serves as an engine of innovation, ensuring Arizona remains a global leader in resilient, water-efficient, and economically competitive agricultural production.

Institution Advantage

AHAI represents a strategic unification of Arizona's three public universities, consisting of the University of Arizona, Arizona State University, and Northern Arizona University, into a single, coordinated engine of agricultural innovation. By embedding deep stakeholder engagement at the core of our operations, AHAI will ensure that research initiatives remain strictly demand-driven and aligned with the practical needs of the state's agricultural community. This unified framework will optimize resources across institutions by eliminating duplicative efforts and maximizing the return on state investment. Most significantly, this collaboration will expand the volume of market-ready agricultural technologies emerging from our university systems, creating a high-velocity pipeline that will successfully convert verified industry challenges into scalable, technology-enhanced solutions. By bridging the critical gap between academic discovery and field-level implementation, AHAI will establish a permanent, expert-led platform that will ensure Arizona remains a global leader in resilient, water-efficient, and economically competitive agriculture.

Arizona Specific Benefit

The Arizona Hub for Agriculture Innovation is building a robust, statewide innovation pipeline that translates academic research into tangible agricultural benefits. By connecting researchers directly with industry, we are establishing a verified feedback loop where university expertise addresses the most critical, producer-identified challenges. This initiative provides students with transformative opportunities to engage in cross-disciplinary, on-farm research, preparing the next generation of agricultural professionals for leadership roles in the state's bioeconomy. Furthermore, the Hub is quantifying the statewide impact of these collaborations by mapping problem statements and research outcomes, ensuring that every project contributes to the long-term sustainability of Arizona's agricultural sector. Through these unified efforts, AHAI will continue to strengthen the resilience of our rural communities, optimize resource efficiency, and ensure that Arizona remains a global leader in economically competitive and water-smart agriculture.

Substantive changes to the original proposal

None

Project Continuation	In progress
Project Status	On Schedule

Progress Report

Work Completed

Since the creation of the Hub on February 1, 2026, the hub established its foundational infrastructure and launched multiple initiatives to advance agricultural innovation in Arizona. The steering committee was assembled and held its inaugural meeting in Q1, setting strategic direction for the initiative. Additionally, a Program Coordinator was hired to manage day-to-day operations. To build stakeholder engagement, the team conducted 3 virtual workshops including an interactive session designed to provide best practices to researchers for working with industry stakeholders, the team launched a dedicated website to increase visibility and accessibility for both researchers and industry, and the team secured partnerships with Arizona Farm Bureau to launch the inaugural AgX Arizona Summit, and the University of Arizona's Student Hackathon Club to host a hackathon solving Agtech challenges, as the day two of the Summit. To accelerate the research and solutions, both the Applied Research Program (ARP) and the Ag Innovation Lab (AIL) funding programs opened for letters of intent (LOI), enabling early project idea submissions and for the project team to provide feedback and help with collaborations. The hub also began establishing a Makerspace facility in Yuma by identifying necessary equipment and acquiring initial technology, including FLIR (thermal imaging) equipment.

Milestones Achieved

The hub successfully achieved critical organizational and operational benchmarks. Establishing and activating the steering committee represented a crucial governance milestone that enabled strategic decision-making, priorities and accountability frameworks. Over 90 potential PI's responded to the opening of the first round of funding. As we are reviewing the LOI's, many of these PI have already created teams from across the Arizona universities. Launch of the website and workshop series demonstrated the hub's commitment to communication and community engagement. Hiring the Program Coordinator provided essential operational capacity. The partnership with Arizona Farm Bureau to host the Summit represented a significant stakeholder alignment, while the student Hackathon showcased commitment to workforce pipeline development. The Makerspace initiation—complete with equipment acquisition—established a physical hub for innovation and hands-on learning.

Arizona Benefit and Impact

In the 5 months since we started, the hub's efforts have positioned Arizona to realize significant agricultural sector benefits. By sourcing problem statements directly from stakeholders and leveraging webpage data, the hub is documenting the complete lifecycle of agricultural challenges and solutions, enabling measurement of impact over time. The first round of funding has been advertised university wide at all three Arizona campuses, which broadened the researcher pool and expanded the possible solutions from researchers to industry problems. Through the Letter of Intent review process, we are able to have individualized conversations with each researcher. These conversations, which allow for dialogue and deeper understanding from both parties, are creating a pipeline from the submissions for sustainable future impact across Arizona's agricultural community, with increased researcher and industry partnerships. The Makerspace and Fall Summit provide venues for cross-sector collaboration and knowledge-sharing that strengthen Arizona's agricultural competitiveness. The funding programs, which include funding for student workforce, and student engagement initiatives like the Hackathon planned as part of the Fall Summit, are cultivating a new generation of agricultural innovators.

What Worked Well

Several strategies proved particularly effective in achieving success in the first five months. The tri-university partnership emerged as a cornerstone strength, with all three universities showing genuine willingness and motivation to collaborate as well as share their industry partners which created a unified foundation for the hub's work. Strong stakeholder interest demonstrated that Arizona's timing for agricultural technology investment is optimal, validating the hub's mission and approach. Early engagement with researchers and practitioners generated authentic problem statements that ground the hub's work in real-world needs.

Challenges and Lessons Learned

The compressed timeline for demonstrating impact necessitated building flexibility into initial planning, a lesson that proved essential for maintaining momentum during the startup phase. Financial and billing processes between universities required navigation and refinement to ensure smooth operations. Identifying the correct contact persons and decision-makers at each university took time and iteration. Terminology differences between researchers in different fields, even within the same institution, created occasional communication challenges requiring clarification and bridge-building, a skill that will also translate into our interactions with the wide array of industries with which we are cultivating relationships. Looking forward, the hub will prioritize clearer financial protocols, maintain operational flexibility, invest in relationship-building at partner institutions, and establish common language frameworks to enhance collaboration and efficiency.

Overall Project Assessment

We are off to a great start. In the first 5-months, we have set up the infrastructure, begun the interactive outreach programs designed to bring researchers, government officials, and industry partners together, opened our first funding competitions based on industry Problem Statements which are focused on both Research Development and Applied Research, begun communications for student involvement in Workforce and Student Hackathons, started planning the first annual Summit, and submitted two applications for outside funding. Through these activities, we have laid a foundation for industry trust and university collaboration which will provide the cornerstone for a follow-on funding to sustain the HUB beyond the ABOR Funding.

Investment Detail

	2026	2027	2028	Total
Infrastructure	\$ 41,378	\$ 0	\$ 0	\$ 41,378
Basic Research	\$ 0	\$ 0	\$ 0	\$ 0
Applied Research	\$ 0	\$ 0	\$ 0	\$ 0
Development	\$ 0	\$ 0	\$ 0	\$ 0
Total	\$ 41,378	\$ 0	\$ 0	\$ 41,378

Investment Narrative

In the first 5 months of the grant, our investment has been to infrastructure. We are on target to Finish the Year 1 Cycle with budgeted funding going to Basic Research, Applied Research and Development.

Budget Detail

	2026	2027	2028	Total
Salaries	\$ 30,413	\$ 0	\$ 0	\$ 30,413
ERE	\$ 9,732	\$ 0	\$ 0	\$ 9,732
Travel	\$ 761	\$ 0	\$ 0	\$ 761
Equipment	\$ 0	\$ 0	\$ 0	\$ 0
Supplies & Materials	\$ 121	\$ 0	\$ 0	\$ 121
Contracts & Consultants	\$ 0	\$ 0	\$ 0	\$ 0
Meetings & Conferences	\$ 350	\$ 0	\$ 0	\$ 350
Sub Awards	\$ 0	\$ 0	\$ 0	\$ 0
Total	\$ 41,378	\$ 0	\$ 0	\$ 41,378

Budget Narrative

In the first 5 months of the grant, our investment has been to infrastructure. We are on target to Finish the Year 1 Cycle with budgeted funding going to Basic Research, Applied Research and Development.

Metric

Active Multi-Institutional & Stakeholder Collaborative Partnerships

2026	2027	2028
Projected 1	Projected 12	Projected 18
Actual 1	Actual	Actual

Metric

Comprehensive Stakeholder Engagement & Collaboration

2026	2027	2028
Projected 20	Projected 40	Projected 50
Actual 29	Actual	Actual

Metric

Workforce Development and Industry Placement

2026	2027	2028
Projected 0	Projected 50	Projected 100
Actual 0	Actual	Actual

Metric

AHAI Ecosystem Engagement & Adoption Index

2026	2027	2028
Projected 50	Projected 100	Projected 100
Actual 150	Actual	Actual

Metric

Long-term Sustainability and Funding Diversification

2026	2027	2028
Projected \$0	Projected \$250,000	Projected \$900,000
Actual \$0	Actual	Actual

Institution	Arizona Board of Regents	 ARIZONA BOARD OF REGENTS ASU ♦ NAU ♦ U of A
Grant Type	University Research, Attainment, and Workforce	
TRIF Investment Area	ABOR Operations	
Program Name	Matthew Tantau, Associate Vice President, ABOR,	
Project Lead	matthew.tantau@azregents.edu	

Proposal	
Problem Statement The Technology and Research Initiative Fund (TRIF) supports more than \$140 million annually in research, workforce development, technology transfer, and attainment initiatives across the universities. Administration of these investments requires program coordination, financial oversight, performance reporting, legislative compliance, project monitoring, and communication between universities, state agencies, and the Arizona Board of Regents. Without dedicated operational support, the Board would have limited capacity to ensure accountability, outcomes, and statewide impact of TRIF investments.	
Program Description The ABOR TRIF Operations financial allocation supports centralized administration and oversight for all TRIF-funded initiatives across Arizona's public universities. Responsibilities include The program also supports strategic planning, performance measurement, and continuous improvement efforts to ensure TRIF investments are effectively managed and aligned with statewide priorities. • Program Management: Statewide oversight of the TRIF portfolio, including project management, financial oversight, budget monitoring, legislative reporting, Board materials, and compliance with statutory and Board requirements. • Data and Performance Reporting: Administration of National Student Clearinghouse services, Tableau dashboards, software licensing, systems administration, data collection, performance measurement, and annual outcome reporting. • University Coordination: Technical assistance, project monitoring, policy development, stakeholder coordination, and ongoing collaboration with Arizona's public universities. • Communications and Outreach: Public relations, professional communications, conference sponsorships, publications, and outreach that highlight TRIF investments, research achievements, and statewide impact. • Technology and Professional Services: Information technology support, consulting services, travel, professional development, and strategic initiatives that strengthen program administration and continuous improvement. The program also supports strategic planning, performance measurement, and continuous improvement efforts to ensure TRIF investments are effectively managed and aligned with statewide priorities.	
Institution Advantage Centralized management through ABOR provides consistent governance framework, standardized reporting, and coordinated oversight across all three public universities. This approach improves accountability, supports data-driven decision making, and enables the Board to evaluate the collective impact of TRIF investments while ensuring compliance with legislative and Board policy requirements.	
Arizona Specific Benefit ABOR's administration of TRIF helps maximize the return on the state's research investments by ensuring funds are managed responsibly, outcomes are measured consistently, and results are communicated transparently to policymakers and the public.	
Substantive changes to the original proposal none.	
Project Continuation	Completed
Project Status	On Schedule

Progress Report
Progress Report 1. Work Completed During the reporting period, ABOR continued the transition of TRIF Operations to Andrew Comrie and Matt Tantau while strengthening centralized administration, financial oversight, and project monitoring across all TRIF-funded initiatives. ABOR expanded the annual TRIF reporting framework to include all TRIF-funded initiatives, developed standardized reporting templates and guidance, and began updating TRIF policy to align project approval and reporting processes. 2. Milestones Achieved A significant milestone was the implementation of an expanded statewide TRIF reporting process that captures all TRIF-funded initiatives, providing a more complete picture of the program's investments and outcomes. The proposed policy updates establish a slate approval process for TRIF Base and Opportunity initiatives, allowing the Executive Director to approve university project slates while requiring annual reporting only for initiatives funded during the fiscal year; Regents Grants will continue to receive Board

approval while also being incorporated into the comprehensive annual TRIF report.

3. Arizona Benefit or Impact

These efforts improve transparency and accountability for more than \$140 million in annual TRIF investments, providing policymakers and stakeholders with a more comprehensive understanding of the program's statewide impact. The revised approval and reporting framework reduces administrative burden, provides universities with greater flexibility to manage project portfolios, and ensures all TRIF investments are reported through a single, comprehensive annual report.

4. What Worked Well

Close collaboration between ABOR staff and the universities was instrumental in implementing the expanded reporting framework, developing proposed policy revisions, and improving data quality. Regular communication, technical assistance, and standardized guidance helped establish a more consistent and collaborative approach to project approval, monitoring, and annual reporting across all three public universities.

5. Challenges and Lessons Learned

Expanding the reporting framework to include all TRIF-funded initiatives required additional coordination and highlighted differences in existing reporting practices and available performance data across institutions. These efforts reinforced the importance of standardized reporting expectations, flexible approval processes that align with university operations, and ongoing collaboration to improve consistency while reducing future administrative burden.

Overall Project Assessment

The ABOR TRIF Operations project made steady progress in strengthening the administration, oversight, and reporting of TRIF-funded initiatives across Arizona's public universities. During the reporting period, the project focused on improving data collection and statewide reporting processes to enhance accountability and support informed decision-making.

Investment Detail

	2026	2027	2028	Total
Infrastructure	\$ 1,547,736	\$ 0	\$ 0	\$ 1,547,736
Basic Research	\$ 0	\$ 0	\$ 0	\$ 0
Applied Research	\$ 0	\$ 0	\$ 0	\$ 0
Development	\$ 0	\$ 0	\$ 0	\$ 0
Total	\$ 1,547,736	\$ 0	\$ 0	\$ 1,547,736

Investment Narrative

All expenditures supported the operational infrastructure necessary to administer TRIF programs, including personnel, information technology systems, software, data management, financial oversight, compliance, and statewide reporting.

Budget Detail

	2026	2027	2028	Total
Salaries	\$ 749,031	\$ 0	\$ 0	\$ 749,031
ERE	\$ 158,535	\$ 0	\$ 0	\$ 158,535
Travel	\$ 603	\$ 0	\$ 0	\$ 603
Equipment	\$ 0	\$ 0	\$ 0	\$ 0
Supplies & Materials	\$ 11,269	\$ 0	\$ 0	\$ 11,269
Contracts & Consultants	\$ 628,297	\$ 0	\$ 0	\$ 628,297
Meetings & Conferences	\$ 0	\$ 0	\$ 0	\$ 0
Sub Awards	\$ 0	\$ 0	\$ 0	\$ 0
Total	\$ 1,547,736	\$ 0	\$ 0	\$ 1,547,736

Budget Narrative

All expenditures supported the operational infrastructure necessary to administer TRIF programs, including personnel, information technology systems, software, data management, financial oversight, compliance, and statewide reporting.

Metric

Produce the annual TRIF Report.

	2026	2027	2028
Projected	1	1	1
Actual	1		

Institution	Arizona State University	
Grant Type	University Research, Attainment, and Workforce	
TRIF Investment Area	Improving Health	
Program Name	Biodesign Institute	
Project Lead	Josh LaBaer, Executive Director, Joshua.LaBaer@asu.edu	

Proposal

Problem Statement

Arizona State University's Biodesign Institute applies interdisciplinary, nature-inspired science to address urgent challenges in health, environmental sustainability, and national security. Biodesign accelerates discovery, translational research, and workforce development by integrating laboratories, centers, and industry partnerships. Its work produces diagnostics, sustainable technologies, and startups that strengthen Arizona's economy and public health. Continued TRIF investment scales facilities, talent recruitment, and training pipelines to expand impact across Arizona and beyond regionally, nationally, and globally.

Program Description

The Biodesign Institute generates nature-inspired solutions to urgent challenges in biomedical health, environmental sustainability, and national security. Biodesign fosters leadership and workforce development through academic training, immersive laboratory experiences, and interdisciplinary education to advance research, innovation, and technology translation across Arizona.

Institution Advantage

Biodesign Institute leverages a powerful ecosystem for external funding through translational research centers, industry partnerships, and entrepreneurial support. Recent expansions include advanced biosensing and diagnostics platforms, neurodegenerative disease research, and sustainable materials innovation. With deep expertise in AI, biosecurity, and computational modeling, Biodesign integrates with ASU's Knowledge Enterprise and SkySong Innovations to accelerate spinouts and federal collaborations. TRIF investment strengthens these pipelines, positioning ASU for major competitive funding growth.

Arizona Specific Benefit

Biodesign advances Arizona's health and economy through impactful research, education, and workforce development. TRIF investment expands programs that train the next generation of scientists and technologists through hands-on experience with cutting-edge tools such as compact X-ray light sources, clinical diagnostics, and sustainable manufacturing. Internships and fellowships cultivate talent in biotechnology, public health, and semiconductor science, strengthening Arizona's innovation ecosystem, supporting high-wage job creation, and enhancing statewide resilience to emerging global challenges.

Substantive changes to the original proposal

None

Project Continuation	In progress
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Project Status	On Schedule
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Progress Report

Work Completed:

Over the past fiscal year, the Biodesign Institute has expanded our capabilities through new equipment and made new discoveries. One example of the accomplishments includes the establishment of The Center for Sustainable Macromolecular Materials and Manufacturing. This center is a shared instrument facility which houses tools for mechanical testing, gas permeability measurements, water uptake analysis, rheological testing as well as additive manufacturing technologies to optimize material design and performance. This facility is open to academia and industry partners in Arizona. Faculty from the Center for Biomaterials Innovation and Translation and the School of Molecular Sciences demonstrated the biomedical potential of one nature's most remarkable materials: silk. The team demonstrated how silkworm fibers can be used in wound healing and how spider silk could transform biomedical materials. The scientists elucidated how spider silk's molecular structure functions in real-world applications. Researchers in our Center for Applied Structural Discovery have determined the structural features of a set of proteins key to Tularemia infection, a tick-borne disease, revealing a potential treatment target.

Milestones Achieved:

Start-up funds were provided to facilitate the revitalization of the Center for Single Molecule Biophysics as its founding director Professor Stuart Lindsay retired and Steve Presse became the new director, refocusing efforts toward biomedical imaging and developing collaborations with ASU's medical school. The Compact X-Ray Free Electron Laser (CXFEL) project leadership has successfully transitioned leadership to Arvinder Sandhu following the retirement of Bill Graves. The Compact X-Ray Light Source (CXLS) instrument, the CXFEL's precursor, has successfully produced X-rays and confirmed its ability to solve protein structures. Work on novel proteins will begin in FY 2027. Stephanie Forrest, director of the Center for Biocomputing, Security and Society was named a Regents Professor. She is a computer scientist studying computation in biology, including biological modeling of immunological processes and evolutionary diseases, cybersecurity, software engineering, and evolutionary computation.

Arizona Benefit or Impact:

The Center for Applied Structural Discovery adjusted the balance of copper and oxygen to modulate material properties permitting

faster, more efficient data storage and information processing. These findings support pathways for eco-friendly electronics and quantum computing with copper, an Arizona resource. Faculty in the Swette Center for Environmental Biotechnology developed technologies useful to Arizona's mining industry to recover critical minerals needed for U.S. manufacturing and national security. Among the minerals are aluminum, which is vital for defense, aerospace, transportation and energy, and graphite, a form of carbon to store and release energy in lithium-ion batteries.

What Worked Well:

Our processes to create new centers and to ensure continuity as center directors transition continue to perform well. This involves Biodesign leadership working with internal Biodesign experts and outside advisors to identify the key challenges that the world faces and key thought leaders both within the university and on the outside who could be drivers of transformative solutions to the challenges identified. Key candidates are vetted internally and presented to university administration for discussion and approval to move forward with center creation.

Challenges and Lessons Learned:

Current government agency funding support has proven a recent challenge. Biodesign faculty have risen to address the challenge and continue to assemble and submit excellent scientific proposals to support research efforts and the institute is actively working to develop other research funding streams. This includes active corporate engagement which contributed to the creation of the shared instrument facility led by the Center for Sustainable Macromolecular Materials and Manufacturing as an example and continued development of philanthropic support as exemplified by the ASU-Banner Neurodegenerative Disease Research Center.

Overall Project Assessment

The Biodesign Institute made substantial progress across multiple parallel priorities by expanding shared research infrastructure, advancing scientific discoveries and successfully managing leadership transitions that position key centers for continued growth and collaboration. These accomplishments are generating tangible benefits for Arizona through innovations supporting healthcare, mining, sustainable manufacturing, quantum technologies, and public engagement while strengthening partnerships with industry and the broader research community. Although a more challenging federal funding environment has required greater diversification of research support, the institute's established processes for center development, leadership succession, corporate engagement, and philanthropy have enabled continued momentum and positioned Biodesign for sustained impact.

Investment Detail

	2026	2027	2028	Total
Infrastructure	\$ 3,160,000	\$ 0	\$ 0	\$ 3,160,000
Basic Research	\$ 1,706,964	\$ 0	\$ 0	\$ 1,706,964
Applied Research	\$ 1,706,964	\$ 0	\$ 0	\$ 1,706,964
Development	\$ 1,706,964	\$ 0	\$ 0	\$ 1,706,964
Total	\$ 8,280,892	\$ 0	\$ 0	\$ 8,280,892

Investment Narrative

The funds support Biodesign staff required to submit grant applications and ensure that the Institute functions and is maintained as designed. The money also supports needed research instrument maintenance that cannot otherwise be funded. Other research support includes funds to support minor expenses incurred by visits to Biodesign by potential external collaborators that could not otherwise be covered.

*** Financials and metrics may be incorrect due to the fact that the fiscal year has not yet been closed at the university. ***

Budget Detail

	2026	2027	2028	Total
Salaries	\$ 3,234,685	\$ 0	\$ 0	\$ 3,234,685
ERE	\$ 1,117,091	\$ 0	\$ 0	\$ 1,117,091
Travel	\$ 11,085	\$ 0	\$ 0	\$ 11,085
Equipment	\$ 14,834	\$ 0	\$ 0	\$ 14,834
Supplies & Materials	\$ 3,500,223	\$ 0	\$ 0	\$ 3,500,223
Contracts & Consultants	\$ 402,974	\$ 0	\$ 0	\$ 402,974
Meetings & Conferences	\$ 0	\$ 0	\$ 0	\$ 0
Sub Awards	\$ 0	\$ 0	\$ 0	\$ 0
Total	\$ 8,280,892	\$ 0	\$ 0	\$ 8,280,892

Budget Narrative

The funds support Biodesign staff required to submit grant applications and ensure that the Institute functions and is maintained as designed. The money also supports needed research instrument maintenance that cannot otherwise be funded. Other research support includes funds to support minor expenses incurred by visits to Biodesign by potential external collaborators that could not otherwise be covered.

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Metric

Proposals

2026		2027		2028	
Projected	\$344,020,000	Projected	\$354,100,000	Projected	\$362,650,000
Actual	\$445,628,364	Actual		Actual	

Metric

Obligations

2026		2027		2028	
Projected	\$50,380,000	Projected	\$51,910,000	Projected	\$53,210,000
Actual	\$63,216,406	Actual		Actual	

Metric

Expenditures

2026		2027		2028	
Projected	\$49,620,000	Projected	\$52,590,000	Projected	\$55,110,000
Actual	\$55,450,739	Actual		Actual	

Metric

Student workers

2026		2027		2028	
Projected	550	Projected	600	Projected	640
Actual	599	Actual		Actual	

Metric

Patents issued

2026		2027		2028	
Projected	80	Projected	90	Projected	100
Actual	106	Actual		Actual	

Institution	Arizona State University	
Grant Type	University Research, Attainment, and Workforce	
TRIF Investment Area	Workforce Development	
Program Name	Core Facilities	
Project Lead	Tom Collela, Assistant Vice President, Thomas.Collela@asu.edu	

Proposal		
Problem Statement		
Arizona State University's research enterprise depends on cutting-edge infrastructure — from laboratory instrumentation to advanced computing environments — to sustain innovation and competitiveness. Core facilities and research computing resources require continual modernization to meet growing demand across disciplines. As data-driven discovery, AI, and modeling expand, gaps in equipment, staff expertise, and statewide coordination risk limiting impact. Targeted investment in ASU's cores ensures scalable, equitable access and accelerates innovation statewide.		
Program Description		
ASU's Core Facilities delivers centralized access to advanced instrumentation, technical expertise, and high-performance computing. Core Facilities include NanoFab, Eyring Materials Center, Advanced Electronics and Photonics, and the Solar Fab, serving hundreds of users annually. Research Computing provides powerful HPC, AI, and data platforms supporting computational discovery in health, materials, energy, and defense. In partnership with Dell Technologies, ASU operates a Center of Excellence in High-Performance Computing and Artificial Intelligence, one of three in the U.S. This integrated infrastructure underpins multidisciplinary research, accelerates discovery, and strengthens Arizona's innovation ecosystem.		
Institution Advantage		
ASU's world-class instrumentation and national-scale computing capacity uniquely positions it for large-scale research infrastructure and cyberinfrastructure awards (NSF, DOE, NIH, DoD). Research Computing enables nearly \$1 billion in proposals and \$300 million in awards annually. Investment in this integrated system will drive federal infrastructure proposals and expand training to 1,000+ participants per year. ASU's coordinated model, combining physical and digital core infrastructure, creates statewide interoperability and competitiveness across Arizona's research universities.		
Arizona Specific Benefit		
This integrated infrastructure fuels Arizona's innovation economy by enabling discovery, technology transfer, and workforce development. Core Facilities train students and industry users in advanced fabrication, imaging, and materials analysis. Research Computing powers breakthroughs in sustainability, health, space exploration, and security, while supporting secure environments for sensitive research. Together, they create high-wage jobs, strengthen industry partnerships, and deliver equitable access to high-impact research tools that attract federal and private investment to Arizona.		
Substantive changes to the original proposal		
In FY 2027, we will incorporate the Instrument Mission Development Laboratory to the Core Facilities group. This team of highly talented engineers and project managers have supported space instrumentation design-builds for many years under a very successful PI research group that has focused primarily on NASA programs. ASU is excited to make this team accessible to faculty across the university to broaden the impact of this valuable resource to further enhance our research competitiveness and success.		
Project Continuation	In progress	
Project Status	On Schedule	

Progress Report		
Work Completed:		
ASU's Core Facilities have provided access to state-of-the art research equipment and high-level expertise across a wide array of science and technology disciplines, including biosciences; instrument design, development and fabrication; materials analysis; nanofabrication; clinical research; and animal care.		
Milestones Achieved:		
Over the course of FY 2026, to date we have supported more than 600 sponsored projects with a total direct expenditure value of over \$115M.		
Arizona Benefit or Impact:		
Though our direct impact on Arizona's economy is difficult to measure, we have contributed significantly to economic development through training of students and industry partners and support of industry research.		
What Worked Well:		
We have leveraged our longstanding partnership with Mayo Clinic to develop an MOU that has opened doors to researchers to access core facilities at both institutions. This will expand the scope of capabilities available to ASU faculty at no cost to the university, while bringing additional revenue and collaborations to our ASU cores.		

Challenges and Lessons Learned:

We have experienced a high attrition rate in some of our facilities due to competition with industry compensation rates. We've responded with a recalibration exercise to right-size certain classes of positions to bring them closer to market rates.

Overall Project Assessment

ASU Core Research Facilities provide broad access to advanced research infrastructure and expertise, supporting more than 600 sponsored projects representing over \$115 million in direct expenditures while strengthening Arizona's research and innovation ecosystem through workforce development and industry collaboration. Strategic partnerships, including the expanded collaboration with Mayo Clinic, have enhanced research capabilities and created new opportunities for collaboration and revenue generation. Proactive efforts to address staffing competitiveness position the Core Facilities to sustain growth and continue expanding their impact on ASU's research enterprise and Arizona's economic development.

Investment Detail

	2026	2027	2028	Total
Infrastructure	\$ 1,000,000	\$ 0	\$ 0	\$ 1,000,000
Basic Research	\$ 1,657,199	\$ 0	\$ 0	\$ 1,657,199
Applied Research	\$ 1,657,199	\$ 0	\$ 0	\$ 1,657,199
Development	\$ 1,657,199	\$ 0	\$ 0	\$ 1,657,199
Total	\$ 5,971,598	\$ 0	\$ 0	\$ 5,971,598

Investment Narrative

Investments have been used exclusively to support core facility technical operations and renew/replace fundamental equipment and instrumentation used to support a wide range of research programs.

*** Financials and metrics may be incorrect due to the fact that the fiscal year has not yet been closed at the university. ***

Budget Detail

	2026	2027	2028	Total
Salaries	\$ 2,531,122	\$ 0	\$ 0	\$ 2,531,122
ERE	\$ 891,908	\$ 0	\$ 0	\$ 891,908
Travel	\$ 1,000	\$ 0	\$ 0	\$ 1,000
Equipment	\$ 687,771	\$ 0	\$ 0	\$ 687,771
Supplies & Materials	\$ 1,724,684	\$ 0	\$ 0	\$ 1,724,684
Contracts & Consultants	\$ 135,113	\$ 0	\$ 0	\$ 135,113
Meetings & Conferences	\$ 0	\$ 0	\$ 0	\$ 0
Sub Awards	\$ 0	\$ 0	\$ 0	\$ 0
Total	\$ 5,971,598	\$ 0	\$ 0	\$ 5,971,598

Budget Narrative

Investments have been used exclusively to support core facility technical operations and renew/replace fundamental equipment and instrumentation used to support a wide range of research programs.

*** Financials and metrics may be incorrect due to the fact that the fiscal year has not yet been closed at the university. ***

Metric**ASU sponsored project \$ supported**

	2026	2027	2028
Projected	\$115,000,000	Projected \$125,000,000	Projected \$137,000,000
Actual	\$116,733,121	Actual	Actual

Metric**Number of ASU Grants Supported**

	2026	2027	2028
Projected	600	Projected 625	Projected 650
Actual	602	Actual	Actual

Metric					
Arizona Companies Supported					
2026		2027		2028	
Projected	58	Projected	64	Projected	70
Actual	58	Actual		Actual	

Metric					
Total Trainees					
2026		2027		2028	
Projected	820	Projected	875	Projected	925
Actual	823	Actual		Actual	

Metric					
Student Trainees					
2026		2027		2028	
Projected	690	Projected	730	Projected	770
Actual	695	Actual		Actual	

Institution	Arizona State University	
Grant Type	University Research, Attainment, and Workforce	
TRIF Investment Area	Water, Environment and Energy Solutions	
Program Name	Global Futures Laboratory	
Project Lead	Peter Schlosser, Vice President/Vice Provost, Peter.Schlosser@asu.edu	

Proposal		
Problem Statement Humanity is confronting accelerating, interconnected and complex crises such as climate extremes, water scarcity, energy transitions, biodiversity loss, and unequal access to essential resources. Too often, innovation remains trapped in silos, disconnected from the urgency of the world around us. To shape a thriving future, we must build transdisciplinary infrastructures, data systems, and decision environments that turn knowledge into action and enable systemic transformation from local to global scales.		
Program Description ASU's Julie Ann Wrigley Global Futures Laboratory is purpose-built to translate knowledge into action rapidly and at scale. Over 900 scientists and scholars work across disciplines addressing climate extremes, water security, carbon, energy, and governance across scales. Flagship initiatives include the Water Institute, NSF's Futures Engine of the Southwest, Direct Air Capture project, and integrative decision-support platforms. Serving learners, communities, governments, and industries, GFL advances measurable societal and planetary solutions, accelerates scalable deployment, and develops a skilled workforce equipped to lead Arizona and the world towards an economically resilient and thriving future.		
Institution Advantage GFL unites ASU's research institutes, the College of Global Futures, Fulton Engineering and other faculties, and a global network of scientists and decision-makers. It anchors flagship initiatives such as the Water Institute, NSF Futures Engine, BIOS, and the new Energy Institute, expanding interdisciplinary funding opportunities. Its integrated infrastructure and partnership model attract competitive DOE, NSF, and philanthropic investments, including the largest private gift in ASU's history, advancing Arizona's sustainable, resilient, and economically thriving future.		
Arizona Specific Benefit GFL is positioning Arizona at the forefront of national innovation through its leadership of the NSF Futures Engine 2024 award, accelerating breakthroughs in water, energy, and carbon solutions. In its first 18 months, the Engine united new institutional partners, launched industry-driven testbeds, and advanced multiple commercial pathways. These achievements attract federal and private investment, generate high-skill jobs, and scale technologies that strengthen Arizona's resilience, competitiveness, and reputation as a leader in innovation.		
Substantive changes to the original proposal None		
Project Continuation	In progress	
Project Status	On Schedule	

Progress Report		
Work Completed: During FY 2026, the Julie Ann Wrigley Global Futures Laboratory strengthened ASU's role as a solutions partner for Arizona's most critical water, energy, heat and resilience challenges. The launch of the Global Institute for the Future of Energy established a university-wide platform linking research, workforce development, industry collaboration and policy innovation. The Arizona Water Innovation Initiative expanded statewide resilience through the Arizona Water Observatory, groundwater partnerships and decision-support tools informing water planning and reservoir operations with SRP. The NSF Futures Engine in the Southwest attracted more than \$20M in follow-on investment; engaged more than 150 partners across Arizona, Nevada and Utah; and advanced workforce pathways through 1,600 education and training programs aligned with emerging water, energy and air-quality industries. Global Futures Laboratory was selected as the Global Coordination Hub for Future Earth, further elevating Arizona's global scientific leadership and capacity to translate knowledge into measurable societal impact.		
Milestones Achieved: FY 2026 marked transformational growth for the Global Futures Laboratory. In partnership with the Thunderbird School of Global Management, we launched the Global Institute for the Future of Energy through a \$50M gift. The institute establishes a new university-wide platform for energy education, research, innovation and workforce development. ASU also announced the Rob Walton School of Conservation Futures through a \$115M gift, the largest in ASU's history. The gift expands the College of Global Futures, the central unit within our learning space. The Arizona Water Innovation Initiative launched the Arizona Water Observatory, a major capability for statewide water monitoring and analysis. We advanced development of the Southwest Regional Direct Air Capture Hub, a multistate initiative supporting carbon management and economic development. Global Futures Laboratory was also selected as the Global Coordination Hub for Future Earth, a leading international sustainability network. The Decision Theater has		

played an increasing role in supporting decision-making with the best available scientific knowledge in many domains.

Arizona Benefit or Impact:

The Global Futures Laboratory advanced Arizona's capacity to thrive in an increasingly fast-paced and complex future by connecting discovery, learning and innovation to Arizona and our planet's most pressing challenges. Through projects and partnerships with Tribal nations, local governments, industry and community organizations, Global Futures Laboratory is advancing data-informed decision-making that helps leaders plan more effectively and build greater resilience. Investments in the Global Institute for the Future of Energy, the Rob Walton School of Conservation Futures and the Futures Engine are expanding opportunities for students, strengthening workforce pipelines and accelerating innovation in emerging industries. Together, these efforts attract talent, investment and new partnerships to the state.

What Worked Well:

Global Futures Laboratory's ability to bring together researchers, students, communities, industry, government agencies and philanthropic partners around shared goals remained a key driver of progress in FY 2026. Strategic partnerships with entities such as Conservation International, SRP, APS, Future Earth, Intel, Planet Labs, Vulcan, Google, Bermuda Institute of Ocean Sciences, and leading U.S. and international universities accelerated innovation and expanded impact across the U.S. Southwest. Investments in shared data systems, collaborative platforms and tools such as Decision Theater strengthened the ability of utilities, communities, businesses, and policymakers to make informed decisions amid growing water, energy, data and health care challenges. Together, these approaches helped translate knowledge into action and delivered tangible value for the state of Arizona.

Challenges and Lessons Learned:

The interconnected challenges of climate, water, energy, biodiversity, AI, extreme heat and economic resilience continue to exceed the boundaries of traditional disciplines, institutions and governance structures. FY 2026 underscored that scientific discovery and technological innovation alone are insufficient to drive meaningful change. A persistent challenge is understanding societal will and how values, beliefs, politics, economics and social dynamics influence decision-making and collective action. Success depends not only on generating new knowledge, but on translating that knowledge into practice through strong partnerships, workforce development, stakeholder engagement and global implementation networks. Continued investment in collaborative infrastructure, decision-support capabilities and scalable demonstration projects is critical to accelerating adoption, informing policy and delivering measurable societal and economic impact.

Overall Project Assessment

Overall, the Global Futures Laboratory made exceptional progress in FY 2026 by expanding Arizona's leadership in water, energy, heat and resilience through major new investments, strategic partnerships and globally recognized initiatives. Its integrated approach successfully translated scientific expertise into practical tools, workforce development and collaborative solutions that are benefiting Arizona communities, attracting significant external investment and enhancing the state's competitiveness in emerging industries. Continued success will depend on sustaining cross-sector partnerships and investments, stakeholder engagement and implementation strategies that accelerate the adoption of science-based solutions to increasingly complex societal challenges.

Investment Detail

	2026		2027		2028		Total
Infrastructure	\$	0	\$	0	\$	0	\$ 0
Basic Research	\$	1,076,001	\$	0	\$	0	\$ 1,076,001
Applied Research	\$	1,076,001	\$	0	\$	0	\$ 1,076,001
Development	\$	1,076,001	\$	0	\$	0	\$ 1,076,001
Total	\$	3,228,002	\$	0	\$	0	\$ 3,228,002

Investment Narrative

The FY 2027 TRIF budget reflects planned investments across the university's strategic research portfolio in support of energy, decision systems, water, cities and Arizona-specific research development activities.

*** Financials and metrics may be incorrect due to the fact that the fiscal year has not yet been closed at the university. ***

Budget Detail

	2026		2027		2028		Total
Salaries	\$	1,977,759	\$	0	\$	0	\$ 1,977,759
ERE	\$	544,802	\$	0	\$	0	\$ 544,802
Travel	\$	66,440	\$	0	\$	0	\$ 66,440
Equipment	\$	36,662	\$	0	\$	0	\$ 36,662
Supplies & Materials	\$	141,907	\$	0	\$	0	\$ 141,907
Contracts & Consultants	\$	460,432	\$	0	\$	0	\$ 460,432
Meetings & Conferences	\$	0	\$	0	\$	0	\$ 0
Sub Awards	\$	0	\$	0	\$	0	\$ 0
Total	\$	3,228,002	\$	0	\$	0	\$ 3,228,002

Budget Narrative

The FY 2027 TRIF budget reflects planned investments across the university's strategic research portfolio in support of energy, decision systems, water, cities and Arizona-specific research development activities.

*** Financials and metrics may be incorrect due to the fact that the fiscal year has not yet been closed at the university. ***

Metric

Proposals

2026		2027		2028	
Projected	\$90,000,000	Projected	\$85,000,000	Projected	\$90,000,000
Actual	\$90,178,258	Actual		Actual	

Metric

Awards

2026		2027		2028	
Projected	\$20,000,000	Projected	\$16,000,000	Projected	\$15,000,000
Actual	\$15,865,870	Actual		Actual	

Metric

Expenditures

2026		2027		2028	
Projected	\$40,000,000	Projected	\$42,000,000	Projected	\$44,000,000
Actual	\$42,012,609	Actual		Actual	

Metric

Students in College of Global Futures courses

2026		2027		2028	
Projected	9,000	Projected	11,000	Projected	13,000
Actual	9,704	Actual		Actual	

Institution	Arizona State University	
Grant Type	University Research, Attainment, and Workforce	
TRIF Investment Area	National Security Systems	
Program Name	Global Security Initiative	
Project Lead	Nadya Bliss, Executive Director, Nadya.Bliss@asu.edu	

Proposal

Problem Statement

Today's national and global security challenges are highly complex and interconnected, including protecting critical infrastructure, optimizing human-robot teams, combatting adversarial influence operations, leveraging massive amounts of complex data for effective decision making, and developing transition pathways to application. These challenges require developing advanced mission-focused research capabilities, testbeds to prototype and improve solutions, and novel training environments to develop a national security workforce that can rapidly adapt to technological change.

Program Description

ASU's Global Security Initiative (GSI) unites research and skills-building to tackle modern security challenges. GSI hosts centers in Cybersecurity & Trusted Foundations, Human-AI & Robot Teaming, Narrative & Information Complexity, and Accelerating Operational Efficiency, and has emerging thrusts in irregular warfare and bioconvergence. These efforts secure large-scale research awards to advance the state-of-the-art and impact the national security mission. GSI helps amplify university engagements with the national security ecosystem, working closely with faculty to develop concepts and compete for funding. The intended outcome: leap-ahead technologies, a robust talent pipeline, translational deployment, and enhanced resilience for Arizona and nation.

Institution Advantage

GSI capitalizes on ASU's broad disciplinary strengths and deep institutional support from Knowledge Enterprise. Since 2015, ASU has more than tripled its Department of Defense research expenditures with GSI's leadership. GSI offers dedicated proposal infrastructure, helps manage sponsor relationships, and works with researchers and sponsors to develop pathways for transitioning research into operationalization. GSI works closely with colleges and schools across the university, positioning ASU as highly competitive for federal, industry, and philanthropic security investments.

Arizona Specific Benefit

ASU's proven ability to advance technology for the national security mission benefits local industry and enhances Arizona's reputation as a hub for both technology and defense. Local industry leaders such as PayPal, General Dynamics, and L3Harris have partnered with ASU to produce ground-breaking research. GSI has also focused on Arizona's technology talent pipeline, bringing cybersecurity courses and competitions to local schools and hosting research internship opportunities for AZ high-schoolers.

Substantive changes to the original proposal

The organization has been elevated from an initiative to an institute, and changed its name to Advanced Capabilities for National Security Institute. This is an important development that signals ASU's sustained commitment to defense and security research.

Project Continuation	In progress
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Project Status	On Schedule
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Progress Report

Work Completed:

In FY26, ASU elevated the Global Security Initiative into the Advanced Capabilities for National Security Institute, or ACNSI, reflecting the scale of the university's defense research portfolio and the organization's charge to enable further growth and impact. This reporting period, ACNSI focused on execution, demonstrating ASU is a trusted partner for national security-related research, and pursuing multiple new strategic priorities, including efforts to: accelerate technology research and development in support of key security alliances; build on newly-available AI capabilities to better protect critical infrastructure; and advance ASU capabilities in autonomy to develop advantages in communications, countering attack drones, space superiority, and other application areas. ACNSI secured the continuation of impactful, large-scale projects; developed new relationships with defense research end-users in the Pentagon and Combatant Commands; and secured the reestablishment of a federally-funded research center that was terminated.

Milestones Achieved:

- The Global Security Initiative was elevated to the Advanced Capabilities for National Security Institute and charged with further expanding ASU's impact on national security and defense.
- ASU's team was one of seven finalists in a multi-year, Department of War challenge to develop new AI-enabled cybersecurity systems. The team secured a total of \$3 million in prize money.
- An ASU team produced a flexible modem processor to enhance optical communications between space-based assets and terrestrial nodes, as part of a \$10 million Department of War project.
- ASU was selected to execute a second year of a \$24 million research support services contract for Irregular Warfare Center.
- ASU researcher Bruno Azeredo was selected for a prestigious DARPA Young Faculty Award. ASU has secured the third-most DARPA YFA's in the country.
- In June, the U.S. Department of Homeland Security reinstated ASU's Center of Excellence, enabling important research and

technology transition efforts to restart.

Arizona Benefit or Impact:

Benefits to Arizona are multifaceted, and include:

- Building the technology talent pipeline: ASU undergraduate and graduate students contribute to advanced research and technology application projects, often working in partnership with local companies and through prestigious scholarships. ACNSI's Cybersecurity Center continued its popular summer high school internship program, introducing 18 Phoenix-area students to university research. 117 students applied, continuing strong demand for the program.
- Enhancing the defense industry ecosystem: ACNSI efforts secured federal funding to advance technology research and development efforts in Arizona. These projects include direct collaboration with local companies — from start-ups to traditional defense primes — help develop technical and professional skills in future employees, and amplify Arizona's status as a burgeoning technology hub.
- Advancing cutting-edge technology: The technology developments produced at ASU directly benefit Arizona. For example, cybersecurity and advanced communications capabilities have been commercialized through spin-out companies based in Arizona.

What Worked Well:

ACNSI's strategy of anticipating emerging national security challenges, identifying relevant technical strengths within ASU, and then helping to develop and capture opportunities for impact continues to yield impressive results. ASU's Department of War research expenditures are nearing \$100 million in FY26, which will position ASU near the top 20 universities in the nation for defense research. New areas under development include bioconvergence and space superiority, both areas ASU has relevant technical strength and opportunity for more connectivity to defense and security applications. The elevation to an Institute immediately increased awareness of the organization among defense and security practitioners. ACNSI received multiple requests to meet with new potential partners in the Pentagon and service branches. These partnerships continue to develop.

Challenges and Lessons Learned:

The federal funding landscape has shifted, and new actors are gaining importance in the nation's defense technology ecosystem. Expanding ASU's relationships with the broader national security ecosystem will be important for ASU to maximize its potential for impact. To help navigate this new landscape, ACNSI is instituting a new Distinguished National Security Fellows program to engage experienced, respected, knowledgeable leaders in ASU efforts. The federal government continues to update the security framework around research to protect the nation's intellectual property. ASU is advancing on multiple fronts to be able to meet these security requirements with minimal disruption to research efforts.

Overall Project Assessment

ACNSI achieved significant progress across multiple strategic priorities by expanding ASU's national security research enterprise, securing major federal awards, strengthening defense partnerships, and advancing technologies in cybersecurity, communications, AI, and space systems. These accomplishments are delivering meaningful benefits to Arizona by attracting federal investment, strengthening the state's defense and technology ecosystem, developing a highly skilled workforce, and supporting commercialization of advanced technologies. While evolving federal funding priorities and research security requirements require continued adaptation, ACNSI's proactive partnership strategy, expanded national engagement, and organizational growth position it for continual impact and leadership in defense and national security research.

Investment Detail

	2026		2027		2028		Total
Infrastructure	\$	0	\$	0	\$	0	\$ 0
Basic Research	\$	750,000	\$	0	\$	0	\$ 750,000
Applied Research	\$	750,000	\$	0	\$	0	\$ 750,000
Development	\$	750,000	\$	0	\$	0	\$ 750,000
Total	\$	2,250,000	\$	0	\$	0	\$ 2,250,000

Investment Narrative

ACNSI allocated funding to research centers and research pursuit efforts. This included allocations to centers focused on cybersecurity, artificial intelligence and human teaming, advanced communications, and artificial intelligence and information complexity. It also included salaries and activities for ACNSI's research strategy, sponsor outreach and proposal support teams, which generate new opportunities for the university, work with researchers to shape ideas and apply them to national security challenges, and provide deep expertise in defense proposal and capture strategies. The FY 2027 budget will be similar to FY 2026 budget, with minor shifts in resource allocation.

*** Financials and metrics may be incorrect due to the fact that the fiscal year has not yet been closed at the university. ***

Budget Detail					
	2026	2027	2028	Total	
Salaries	\$ 1,509,519	\$ 0	\$ 0	\$	1,509,519
ERE	\$ 534,303	\$ 0	\$ 0	\$	534,303
Travel	\$ 80,511	\$ 0	\$ 0	\$	80,511
Equipment	\$ 0	\$ 0	\$ 0	\$	0
Supplies & Materials	\$ 110,983	\$ 0	\$ 0	\$	110,983
Contracts & Consultants	\$ 14,684	\$ 0	\$ 0	\$	14,684
Meetings & Conferences	\$ 0	\$ 0	\$ 0	\$	0
Sub Awards	\$ 0	\$ 0	\$ 0	\$	0
Total	\$ 2,250,000	\$ 0	\$ 0	\$	2,250,000

Budget Narrative

ACNSI allocated funding to research centers and research pursuit efforts. This included allocations to centers focused on cybersecurity, artificial intelligence and human teaming, advanced communications, and artificial intelligence and information complexity. It also included salaries and activities for ACNSI's research strategy, sponsor outreach and proposal support teams, which generate new opportunities for the university, work with researchers to shape ideas and apply them to national security challenges, and provide deep expertise in defense proposal and capture strategies. The FY 2027 budget will be similar to FY 2026 budget, with minor shifts in resource allocation.

*** Financials and metrics may be incorrect due to the fact that the fiscal year has not yet been closed at the university. ***

Metric					
Proposals					
2026		2027		2028	
Projected	\$250,000,000	Projected	\$275,000,000	Projected	\$300,000,000
Actual	\$311,300,300	Actual		Actual	

Metric					
Awards					
2026		2027		2028	
Projected	\$80,000,000	Projected	\$85,000,000	Projected	\$90,000,000
Actual	\$93,863,734	Actual		Actual	

Metric					
Expenditures					
2026		2027		2028	
Projected	\$85,000,000	Projected	\$90,000,000	Projected	\$95,000,000
Actual	\$99,525,521	Actual		Actual	

Metric					
Number of students engaged					
2026		2027		2028	
Projected	500	Projected	525	Projected	550
Actual	516	Actual		Actual	

Institution	Arizona State University	
Grant Type	University Research, Attainment, and Workforce	
TRIF Investment Area	Workforce Development	
Program Name	Industry Partnership and Commercialization Ecosystem	
Project Lead	Sally Morton, Executive Vice President, sally.morton@asu.edu	

Proposal

Problem Statement

ASU's researchers are generating cutting-edge innovations in sustainability, health, energy, and advanced materials, but commercializing these breakthroughs is critically dependent on strategic partners, agile dealmaking, and integrated infrastructure. Skysong Innovations and ASU's Corporate Engagement must bridge academia to industry with speed, flexibility, and scale. Without robust translational platforms and networked engagement, many promising technologies stagnate, delaying societal impact, regional economic growth, and Arizona's leadership in innovation.

Program Description

This unified program leverages Skysong Innovations (SI) and Corporate Engagement to accelerate research-to-market translation across disciplines. Key activities include technology scouting, deal execution, corporate innovation lab formation, startup incubation/acceleration, license negotiation, and ecosystem building at ASU's Innovation Zones. The target audience comprises ASU faculty and students, industry partners, venture investors, entrepreneurs, and governmental entities. Outcomes include increased licensing deals, spinout growth (which in turn creates new Arizona jobs and downstream economic impact), higher corporate-sponsored R&D, more innovation hubs, and deeper integration of companies with ASU research, boosting Arizona's regional innovation ecosystem and global competitiveness.

Institution Advantage

SI drives IP management and commercialization, having enabled over 270 startups that have collectively raised \$1.5B+ in funding. ASU's Corporate Engagement fosters innovation through joint labs, testbeds, and strategic partnerships, generating \$280M in corporate revenue in FY25. These strengths position ASU to compete for industry-matching grants and corporate co-investment, fueling growth and scalability.

Arizona Specific Benefit

Skysong Innovations and Corporate Engagement generate measurable Arizona economic impact by launching startups, fostering corporate locations, and enabling translational deals anchored in the state. From 2014–2023, ASU-linked companies locally generated 13,270 job-years, \$846.3 million in labor income, and \$80.6 million in tax revenues. By 2033, the cumulative impact is projected to reach ~\$6 billion. The SkySong innovation campus attracts global firms, offers co-working resources, and integrates local industry with university talent and infrastructure.

Substantive changes to the original proposal

None

Project Continuation	In progress
Project Status	On Schedule

Progress Report

Work Completed:

Through its work with Skysong Innovations, ASU achieved top-tier levels of key technology transfer outputs in FY26, including a record-setting number of inventions, patents, licensing deals, and startups. Skysong Innovations also completed several venture development objectives referenced in other sections of this report. In FY26, the Corporate Engagement and Strategic Partnerships (CESP) team drove industry engagement and delivered measurable outcomes for ASU by developing and securing proposals, directly retaining industry participation in federal revenue-generating initiatives, co-developing joint revenue and engagement opportunities across ASU, leading company location and site selection efforts, and generating sponsored research funding from industry partners. Key partnerships advanced in FY26 include Deca Technologies, adidas, RTX, Honeywell, Amkor, Freeport-McMoRan, TSMC, Mayo Clinic, Applied Materials, and U-Haul. These partnerships represent a strong portfolio of high-impact industry leaders driving innovation, investment and measurable outcomes for ASU.

Milestones Achieved:

In FY26, the National Academy of Inventors ranked ASU No. 5 nationally and No. 9 globally among universities securing U.S. patents, ahead of Harvard, Johns Hopkins, Caltech, and others. Several ASU startups achieved notable milestones in FY26, including closing meaningful fundraising rounds, setting a new device performance record in collaboration with a leading defense company, and achieving FDA breakthrough device designation for a medical test. In FY26, the CESP team brought in 19 new Innovation Zone tenants, hosted a successful two-week Health Care Accelerator in partnership with Mayo Clinic for 10 biomedical companies, and supported more than \$160 million in federally sponsored research applications. Additionally, CESP collaborated with Arizona Commerce Authority and Applied Materials to launch the \$270 million Materials-to-Fab center at MTW.

Arizona Benefit or Impact:

In FY26, Rounds Consulting found that ASU's economic impact through Skysong Innovations services from 2014–2025 reached \$2.7 billion in Arizona alone. This impact includes at least \$919 million in labor income, \$87 million in tax revenues, and 14,395 job-years for Arizona communities. Notably, one of ASU's startups recently launched a CLIA-certified lab in Arizona that now offers urine-based autism testing services. Through Skysong Innovations services, ASU also led two events at Arizona's inaugural Arizona Tech Week conference, showing ASU spinouts and technologies to raise Arizona's innovation profile. Working with Mayo and others at ASU, Corporate Engagement and Skysong Innovations completed the seventh cohort of the Mayo-ASU Health Care Accelerator, which to date has driven several companies to relocate to Arizona. CESP drives statewide impact by securing high-value industry partnerships and capturing state and federal funding that fuels innovation, workforce growth and economic development in Arizona. At SEMICON West, the team positioned ASU on a national stage and helped bring the event to Arizona for the first time, elevating the state's profile in the semiconductor sector and creating direct pathways to partnerships, research funding and industry investment. The team also co-leads global attraction efforts with Arizona Commerce Authority and Greater Phoenix Economic Council, hosting delegations from Taiwan, Japan, Panama, India and South Korea to showcase ASU's strengths and convert engagement into international research collaborations, industry partnerships and inbound capital investment in Arizona.

What Worked Well:

The Mayo-ASU Health Care Accelerator has evolved into one of the most premier health-related accelerators in the world. The CESP team collaborated effectively with major industry partners such as TSMC, Amkor and Mayo Clinic to advance programs and initiatives for impactful research and industry engagement with ASU. The team also manages the Corporate Engagement Network, an ASU-wide business development group with 300+ members, to collaborate and support new and ongoing industry initiatives and partnerships by ensuring that colleagues across ASU are aware of opportunities to engage in partnership efforts and make engagements more holistic.

Challenges and Lessons Learned:

The evolving federal funding environment created an opportunity for the CESP team to diversify its funding strategy, expand cross-sector partnerships and align research initiatives with emerging funding priorities. The department is welcoming a new Vice President of Innovation in Fall 2026.

Overall Project Assessment

Through the efforts of CESP and Skysong Innovations, this project area achieved strong, coordinated progress across technology commercialization, venture development, and corporate engagement, producing record technology transfer outcomes while expanding strategic industry partnerships, research funding, and innovation infrastructure. These efforts generated significant economic and workforce benefits for Arizona by advancing startup growth, attracting investment, strengthening key industries such as semiconductors and health care, and enhancing the state's national and international innovation profile. Although changes in the federal funding landscape and leadership transitions required adaptation, the project's diversified partnership strategy and well-established collaboration model have positioned it for continued growth and long-term impact.

Investment Detail

	2026	2027	2028	Total
Infrastructure	\$ 0	\$ 0	\$ 0	\$ 0
Basic Research	\$ 1,328,378	\$ 0	\$ 0	\$ 1,328,378
Applied Research	\$ 1,328,378	\$ 0	\$ 0	\$ 1,328,378
Development	\$ 1,328,378	\$ 0	\$ 0	\$ 1,328,378
Total	\$ 3,985,133	\$ 0	\$ 0	\$ 3,985,133

Investment Narrative

These funds were utilized to implement infrastructure through staff salaries, creating additional and expanded frameworks for industry partner support, and to continue to grow and enable technology transfer outputs.

*** Financials and metrics may be incorrect due to the fact that the fiscal year has not yet been closed at the university. ***

Budget Detail

	2026	2027	2028	Total
Salaries	\$ 604,714	\$ 0	\$ 0	\$ 604,714
ERE	\$ 201,817	\$ 0	\$ 0	\$ 201,817
Travel	\$ 3,845	\$ 0	\$ 0	\$ 3,845
Equipment	\$ 0	\$ 0	\$ 0	\$ 0
Supplies & Materials	\$ 89,624	\$ 0	\$ 0	\$ 89,624
Contracts & Consultants	\$ 3,085,133	\$ 0	\$ 0	\$ 3,085,133
Meetings & Conferences	\$ 0	\$ 0	\$ 0	\$ 0
Sub Awards	\$ 0	\$ 0	\$ 0	\$ 0
Total	\$ 3,985,133	\$ 0	\$ 0	\$ 3,985,133

Budget Narrative

These funds were utilized to implement infrastructure through staff salaries, creating additional and expanded frameworks for industry partner support, and to continue to grow and enable technology transfer outputs.

*** Financials and metrics may be incorrect due to the fact that the fiscal year has not yet been closed at the university. ***

Metric

New startups advanced via options or licenses from SI

2026		2027		2028	
Projected	17	Projected	17	Projected	17
Actual	18	Actual		Actual	

Metric

U.S. patents secured

2026		2027		2028	
Projected	141	Projected	141	Projected	141
Actual	173	Actual		Actual	

Metric

Increase industry-sponsored research investments by 20% per year

2026		2027		2028	
Projected	\$25,000,000	Projected	\$30,000,000	Projected	\$36,000,000
Actual	\$27,500,000	Actual		Actual	

Metric

Increase company co-locations at ASU Innovation Zones

2026		2027		2028	
Projected	10	Projected	12	Projected	14
Actual	19	Actual		Actual	

Institution	Arizona State University	
Grant Type	University Research, Attainment, and Workforce	
TRIF Investment Area	Workforce Development	
Program Name	Innovation Ecosystem	
Project Lead	Linda Ricchiuti, Executive Director, linda.ricchiuti@asu.edu	

Proposal

Problem Statement

Entrepreneurship drives Arizona's innovation economy, yet early-stage founders and student innovators still face barriers in scaling ideas to market-ready ventures. To address these gaps in access to capital, mentorship, and technical infrastructure, funding is needed to strengthen ASU's entrepreneurship ecosystem, anchored by Edson E+I and the Luminosity Lab, by stimulating new collaborations, expanding entrepreneurial training, and providing the resources necessary to build a more inclusive, opportunity-rich, and sustainable pipeline for Arizona and beyond.

Program Description

ASU's entrepreneurship ecosystem, uniting Edson E+I and the Luminosity Lab, catalyzes innovation from idea to impact across Arizona. Edson E+I fosters collaborations with academic units to enhance student and faculty development while advancing the state's entrepreneurial capacity. Through localized programs such as Venture Devils and Lab2Launch, and partnerships with municipal and state entities including Chandler Endeavor, the Goodyear Innovation Hub, and the Arizona Commerce Authority's Venture Start, Edson E+I delivers venture education, incubation, acceleration, funding, and mentorship. Luminosity complements this by enabling interdisciplinary student teams to design, prototype, and deploy high-impact solutions as student-led ventures statewide.

Institution Advantage

Edson E+I and Luminosity Lab anchor the university's nationally recognized innovation ecosystem, providing infrastructure, mentorship, and research opportunities. They support venture creation and prototype development through innovation space, interdisciplinary collaborations, and partnerships with municipal, corporate, and state entities. This model has leveraged additional funding to advance Arizona's capacity for innovation-driven economic growth and workforce development.

Arizona Specific Benefit

Entrepreneurship at ASU drives measurable economic impact for Arizona through job creation, startup growth, and workforce development. Edson E+I and the Luminosity Lab cultivate ventures and talent that remain rooted in the state, strengthening innovation clusters in health, sustainability and energy, AI and robotics, aerospace and defense, and advanced technology. Leadership from Edson E+I collaborates with StartupAZ, the Arizona Commerce Authority, and the Greater Phoenix Economic Council to advance Arizona's innovation-driven economic growth.

Substantive changes to the original proposal

None

Project Continuation	In progress
Project Status	On Schedule

Progress Report

Work Completed:

In FY 26, the J. Orin Edson Entrepreneurship + Innovation Institute and Luminosity Lab strengthened ASU's entrepreneurship ecosystem by supporting burgeoning ventures, contributing to workforce development and expanding access to entrepreneurial training across Arizona. Edson E+I strengthened pathways from idea generation to venture growth through programs like Chandler Endeavor, Goodyear InnovationHub, Venture Start, Small Business Academy, Arizona Invention Convention Worldwide, Lightning Incubator, Lab2Launch, Demo Day, and Blackstone LaunchPad. E+I also convened Arizona's second annual collegiate venture competition, Inferno Invitational Startup Cup. The event drew more than 100 student founders from the state's three universities as well as Maricopa Community Colleges and Grand Canyon University and distributed more than \$100,000 in funding. E+I also expanded commercialization support through Innovation2Market and faculty-focused accelerators. Luminosity Lab supported over 85 students across 32 degree programs to design, prototype and deploy deep-tech solutions as student-led ventures. This resulted in four high-value student ventures in the space, health care and education industries. Luminosity also hosted the inaugural Nexus Summit and Demo Day, bringing together student innovators from research to startup, industry partners and venture capital.

Milestones Achieved:

E+I supported 551 new student-led ventures, served 3,803 individuals and 720 businesses through community entrepreneurship initiatives, and maintained a pipeline of 200 faculty-founded ventures. Through the Blackstone LaunchPad Summer Internship Program, E+I connected 50 students with 28 local companies for paid internships. Arizona Invention Convention Worldwide reached more than 6,500 K-12 students across 10 counties and 38 school districts. E+I expanded its external funding pipeline to 34 opportunities totaling \$8.2 million. In addition to launching four student ventures, Luminosity established strategic relationships with venture capital groups nationwide, and built a pipeline of high-value technology ventures. The Luminosity Nexus Summit engaged more than 300 participants from across Arizona and the country, establishing ASU as a hub for high-impact research and venture

creation. Tyler Smith led ASU's Arizona Hub for Ag Innovation proposal and a Regents' grant advancing commercialization of wireless power transfer systems for national security space applications.

Arizona Benefit or Impact:

E+I and Luminosity Lab contribute to Arizona's innovation economy by developing entrepreneurial talent, supporting venture creation, strengthening commercialization pathways, and connecting innovators with the resources needed to grow and scale. Through partnerships with government, industry, health care organizations, economic and education, these initiatives help build a statewide ecosystem that supports entrepreneurs from idea generation through venture growth. These efforts strengthen Arizona's workforce pipeline, increase access to entrepreneurship opportunities, and foster innovation across key sectors including health, sustainability and energy, AI and robotics, aerospace and defense, manufacturing, and advanced technology. By cultivating founders, supporting faculty innovation, and expanding connections between education, research, and industry, E+I and Luminosity Lab help position Arizona for long-term economic growth, talent retention, and innovation-driven competitiveness.

What Worked Well:

Our cross-sector collaborations continued to yield dividends. Working with municipalities, school districts, economic development organizations, and industry leaders enabled E+I to expand programming into communities across Arizona and engage entrepreneurs outside major metropolitan areas. These collaborations provided entrepreneurs with access to mentorship, industry expertise, experiential learning opportunities, and resources that supported venture development and business growth. Analysis of FY26 data demonstrated that sustained engagement across mentorship, programs and support services contributed to founder progression, with the most engaged participants showing stronger venture advancement and funding outcomes. Luminosity's partnerships with venture capital firms strengthened support for student startups, increasing founder engagement and building a long-term pipeline of investment-ready ventures.

Challenges and Lessons Learned:

Expanding statewide programming highlighted the need for stronger data integration and participant tracking across initiatives. As entrepreneurs increasingly engage in multiple programs over time, understanding progression across the ecosystem has become more important than measuring participation within individual programs. This insight is informing ongoing efforts to strengthen data collection, assessment and reporting practices to better evaluate long-term outcomes and the effectiveness of entrepreneurship support services. More broadly, Arizona's startup ecosystem continues to mature but still faces challenges in accessing early-stage capital. Many founders must seek investment outside the state. Our focus is to strengthen Arizona's venture capital network so founders can secure early investment in Arizona, helping anchor high-growth ventures in the state.

Overall Project Assessment

The Innovation Ecosystem project, anchored by Edson E+I and Luminosity Lab, made strong progress across complementary priorities by expanding entrepreneurship programming, accelerating venture creation and commercialization, strengthening statewide partnerships, and developing Arizona's innovation workforce from K–12 through faculty and startup founders. Measurable outcomes — including growth in student- and faculty-led ventures, community engagement, internships, commercialization initiatives, and partnerships — demonstrate meaningful progress toward building a robust, statewide innovation ecosystem that supports Arizona's long-term economic competitiveness. While improved long-term data integration and greater availability of in-state early-stage capital remain important priorities, the lessons learned are informing targeted improvements that will strengthen program evaluation and help retain talent and high-growth ventures in Arizona.

Investment Detail

	2026	2027	2028	Total
Infrastructure	\$ 0	\$ 0	\$ 0	\$ 0
Basic Research	\$ 504,748	\$ 0	\$ 0	\$ 504,748
Applied Research	\$ 504,748	\$ 0	\$ 0	\$ 504,748
Development	\$ 0	\$ 0	\$ 0	\$ 0
Total	\$ 1,009,497	\$ 0	\$ 0	\$ 1,009,497

Investment Narrative

TRIF funds continue to invest in the development of Arizona's entrepreneurship and innovation ecosystem, including innovation infrastructure, venture development capacity, and environments that support collaboration among students, faculty, entrepreneurs, and community stakeholders. Investments in E+I's innovation spaces improved the functionality and consistency of facilities used to deliver entrepreneurship and innovation programming. In FY26, Luminosity Lab funded 15 projects, including four moonshot basic research projects, four externally funded applied research projects, and six student venture projects, four of which launched as companies. FY27 investments will continue to focus on strengthening ecosystem capacity, innovation infrastructure, and environments that support entrepreneurship, innovation, and venture development across Arizona. Luminosity will continue focusing on student-led research, development, and venture creation.

*** Financials and metrics may be incorrect due to the fact that the fiscal year has not yet been closed at the university. ***

Budget Detail					
	2026	2027	2028	Total	
Salaries	\$ 662,865	\$ 0	\$ 0	\$ 662,865	
ERE	\$ 145,557	\$ 0	\$ 0	\$ 145,557	
Travel	\$ 46,611	\$ 0	\$ 0	\$ 46,611	
Equipment	\$ 12,123	\$ 0	\$ 0	\$ 12,123	
Supplies & Materials	\$ 62,091	\$ 0	\$ 0	\$ 62,091	
Contracts & Consultants	\$ 80,250	\$ 0	\$ 0	\$ 80,250	
Meetings & Conferences	\$ 0	\$ 0	\$ 0	\$ 0	
Sub Awards	\$ 0	\$ 0	\$ 0	\$ 0	
Total	\$ 1,009,497	\$ 0	\$ 0	\$ 1,009,497	

Budget Narrative

TRIF funds continue to invest in the development of Arizona's entrepreneurship and innovation ecosystem, including innovation infrastructure, venture development capacity, and environments that support collaboration among students, faculty, entrepreneurs, and community stakeholders. Investments in E+I's innovation spaces improved the functionality and consistency of facilities used to deliver entrepreneurship and innovation programming. In FY26, Luminosity Lab funded 15 projects, including four moonshot basic research projects, four externally funded applied research projects, and six student venture projects, four of which launched as companies. FY27 investments will continue to focus on strengthening ecosystem capacity, innovation infrastructure, and environments that support entrepreneurship, innovation, and venture development across Arizona. Luminosity will continue focusing on student-led research, development, and venture creation.

*** Financials and metrics may be incorrect due to the fact that the fiscal year has not yet been closed at the university. ***

Metric					
E+I: External Funding Secured					
2026		2027		2028	
Projected	\$7,000,000	Projected	\$7,000,000	Projected	\$7,000,000
Actual	\$8,200,000	Actual		Actual	

Metric					
E+I: External Non-Dilutive Funding Awarded to Arizona-Based Ventures					
2026		2027		2028	
Projected	\$500,000	Projected	\$500,000	Projected	\$500,000
Actual	\$771,220	Actual		Actual	

Metric					
Luminosity Moonshot Projects (Basic Research)					
2026		2027		2028	
Projected	4	Projected	4	Projected	4
Actual	4	Actual		Actual	

Metric					
Luminosity Student Venture Projects					
2026		2027		2028	
Projected	4	Projected	4	Projected	4
Actual	6	Actual		Actual	

Institution	Arizona State University	
Grant Type	University Research, Attainment, and Workforce	
TRIF Investment Area	Water, Environment and Energy Solutions - Space Exploration and Optical Solutions	
Program Name Project Lead	Materials of the Universe Alexandra Navrotsky, Regents Professor, Alexandra.Navrotsky@asu.edu	

Proposal		
Problem Statement		
Planetary science and space exploration face a critical materials gap: we lack predictive models of exotic planetary materials and advanced materials resilient enough for extreme space environments. Translating limited remote observations into robust compositional understanding is hampered by incomplete thermodynamic, structural, and kinetic data. Meanwhile, materials for detectors, spacecraft, and in-situ resource utilization must perform under high radiation, temperature extremes, and pressure cycles. Closing these gaps is essential to push space science and exploration forward.		
Program Description		
Materials of the Universe (MotU) drives interdisciplinary exploration of both planetary composition and space-grade materials innovation. MotU integrates faculty from molecular sciences, earth & space exploration, physics, and engineering. Major efforts include the NSF-funded FORCE high-pressure facility, experimental thermochemistry, computational materials design, and instrument development for space missions. We run workshops, summer schools, and collaborative seed projects bridging theory, experiment, and mission planning. MotU recruits graduate and postdoctoral fellows focused on exoplanetary materials, in-space fabrication, resource extraction, and extreme-condition materials science for next-generation exploration.		
Institution Advantage		
MotU benefits from ASU's strengths across molecular sciences, earth/space exploration, engineering, and planetary science and from a \$10M gift endowment by Professor Navrotsky. MotU also hosts the NSF-supported FORCE high-pressure facility. Promising funding avenues include NSF, NASA's planetary science and technology programs, DOE for advanced materials, and DoD for materials in extreme conditions.		
Arizona Specific Benefit		
MotU empowers Arizona's growing space, defense, and advanced materials sectors by providing access to ASU's unique instrumentation, highly trained graduates, and mission-relevant expertise. ASU's Materials-to-Fab center already pairs university and industry for semiconductor prototyping, complementing MotU's materials discovery efforts. Local firms can partner on innovations in resilient electronics, lightweight structures, or in-space resource utilization. This synergy strengthens Arizona's high-tech ecosystem, stimulates job growth, and attracts mission investments and facilities to the region.		
Substantive changes to the original proposal		
None		
Project Continuation	In progress	
Project Status	On Schedule	

Progress Report		
Work Completed:		
TRIF base funding supported core research activities within the Center for Materials of the Universe (MotU), including studies relevant to energy storage, planetary science, and extreme environments that explore thermodynamic stability, order-disorder phenomena and phase transformations in materials. Funding supported graduate students, postdoctoral researchers and research infrastructure used to investigate battery cathodes, high-pressure oxide materials, perovskites and nanocomplexes. Research conducted through the Thermochemistry Laboratory in collaboration with the NSF-funded FORCE facility advanced synthesis, calorimetric characterization and thermodynamic modeling of complex materials. We made significant progress in the synthesis and characterization of doped stishovite, development of thermodynamic mixing models for sodium-stabilized lithium-ion cathodes, and expansion of calorimetric methods for metallic systems. The program also supported dissemination of results through publications, conference presentations, seminars and collaborative activities across ASU and external institutions.		
Milestones Achieved:		
Major milestones included completion of synthesis, structural characterization, calorimetric measurements, and thermodynamic modeling of sodium-stabilized lithium-ion cathodes (Li _x NayCoO ₂), resulting in a publication in press. Researchers successfully synthesized larger single crystals of stishovite using the FORCE high-pressure facility and produced gallium-doped stishovite samples for thermodynamic characterization. New experimental capabilities were developed and optimized within the Setaram calorimetry platform, enabling measurements of enthalpies of formation and mixing in metallic systems. The center supported multiple peer-reviewed publications and conference presentations while maintaining active collaborations across chemistry, materials science, geochemistry and planetary science. Graduate students and postdoctoral researchers advanced their professional development through research training, presentations and participation in collaborative projects.		

Arizona Benefit or Impact:

Materials of the Universe strengthens Arizona's leadership in advanced materials, planetary science and space-related research. The program provides hands-on research opportunities and advanced training for graduate students and postdoctoral researchers, helping develop a highly skilled workforce for Arizona's growing aerospace, semiconductor, defense and advanced manufacturing sectors. Through the Thermochemistry Laboratory and participation in the NSF-funded FORCE high-pressure facility, ASU maintains unique capabilities that attract collaborators, visitors and external funding to the state. Research outcomes contribute fundamental knowledge needed for developing next-generation materials for energy technologies, space exploration and environmental applications. The program enhances Arizona's research competitiveness while supporting interdisciplinary partnerships across science and engineering disciplines.

What Worked Well:

The combination of interdisciplinary collaboration, shared research infrastructure, and integration of experimental and computational approaches continued to be highly effective. The close interaction between the Thermochemistry Laboratory, the FORCE high-pressure facility and collaborating faculty across molecular sciences, earth and space exploration, engineering and physics enabled progress on complex scientific challenges that require multiple areas of expertise. Support for graduate students and postdoctoral researchers contributed significantly to research productivity, publications and proposal development. Existing partnerships also facilitated efficient use of specialized instrumentation and strengthened the center's ability to attract external funding and collaborators.

Challenges and Lessons Learned:

As research costs continue to increase, maintaining critical infrastructure and supporting trainee development remain ongoing challenges. The experience reinforced the importance of leveraging TRIF funding to secure external support, sustain core facilities and focus investments on activities with the greatest scientific impact and long-term benefit to the center.

Overall Project Assessment

The Center for Materials of the Universe made strong progress in FY 2026 by advancing fundamental materials research, expanding unique experimental capabilities and producing significant scientific outputs while supporting the development of graduate students and postdoctoral researchers. Strategic integration of interdisciplinary expertise, shared research infrastructure and collaborative partnerships enabled advances in energy storage, planetary science and extreme-environment materials, strengthening Arizona's research competitiveness and workforce pipeline for advanced technology sectors. Although resource constraints limited expansion into new initiatives, the program effectively leveraged TRIF support to sustain high-impact research, attract collaborations and position the center for continued external funding and long-term scientific impact.

Investment Detail

	2026	2027	2028	Total
Infrastructure	\$ 0	\$ 0	\$ 0	\$ 0
Basic Research	\$ 98,818	\$ 0	\$ 0	\$ 98,818
Applied Research	\$ 98,818	\$ 0	\$ 0	\$ 98,818
Development	\$ 0	\$ 0	\$ 0	\$ 0
Total	\$ 197,637	\$ 0	\$ 0	\$ 197,637

Investment Narrative

TRIF funds were invested in basic research, research infrastructure and workforce development activities within Materials of the Universe. Investments supported thermodynamic and high-pressure materials research, operation and utilization of specialized laboratory capabilities, and interdisciplinary collaborations involving planetary materials, energy materials and materials for extreme environments. Funding also supported graduate student and postdoctoral research opportunities that contribute to workforce development and future research competitiveness. FY 2027 investments will continue to emphasize core research capabilities, student support and development of new externally funded research initiatives.

*** Financials and metrics may be incorrect due to the fact that the fiscal year has not yet been closed at the university. ***

Budget Detail

	2026	2027	2028	Total
Salaries	\$ 144,608	\$ 0	\$ 0	\$ 144,608
ERE	\$ 47,725	\$ 0	\$ 0	\$ 47,725
Travel	\$ 0	\$ 0	\$ 0	\$ 0
Equipment	\$ 0	\$ 0	\$ 0	\$ 0
Supplies & Materials	\$ 5,304	\$ 0	\$ 0	\$ 5,304
Contracts & Consultants	\$ 0	\$ 0	\$ 0	\$ 0
Meetings & Conferences	\$ 0	\$ 0	\$ 0	\$ 0
Sub Awards	\$ 0	\$ 0	\$ 0	\$ 0
Total	\$ 197,637	\$ 0	\$ 0	\$ 197,637

Budget Narrative

TRIF funds were invested in basic research, research infrastructure and workforce development activities within Materials of the Universe. Investments supported thermodynamic and high-pressure materials research, operation and utilization of specialized laboratory capabilities, and interdisciplinary collaborations involving planetary materials, energy materials and materials for extreme environments. Funding also supported graduate student and postdoctoral research opportunities that contribute to workforce development and future research competitiveness. FY 2027 investments will continue to emphasize core research capabilities, student support and development of new externally funded research initiatives.

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Metric

Proposals

2026		2027		2028	
Projected	\$5,248,000	Projected	\$6,045,000	Projected	\$6,720,000
Actual	\$1,589,931	Actual		Actual	

Metric

Obligations

2026		2027		2028	
Projected	\$ 719,000	Projected	\$891,000	Projected	\$1,036,000
Actual	\$1,011,569	Actual		Actual	

Metric

Expenditures

2026		2027		2028	
Projected	\$ 623,000	Projected	\$787,000	Projected	\$925,000
Actual	\$1,248,632	Actual		Actual	

Metric

Student Workers

2026		2027		2028	
Projected	6	Projected	7	Projected	8
Actual	8	Actual		Actual	

Metric

Patents Issued

2026		2027		2028	
Projected	10	Projected	15	Projected	20
Actual	15	Actual		Actual	

Institution	Arizona State University	
Grant Type	University Research, Attainment, and Workforce	
TRIF Investment Area	Water, Environment and Energy Solutions - National Security Systems	
Program Name	Microelectronics	
Project Lead	Kevin Reinhart, Executive Director, kevin.reinhart@asu.edu	

Proposal

Problem Statement

AZ is the US hub for semiconductor manufacturing and advanced packaging. TSMC, AMKOR, and Intel have all announced advanced packaging sites in AZ. The ecosystem, including startup industries, lack access to facilities for R&D. ASU's Microelectronics ecosystem, anchored by MacroTechnology Works, must bridge this "lab-to-fab" divide. To drive national competitiveness, we must deploy university-enabled infrastructure, ecosystem hubs, and workforce pipelines that can service industrial and defense needs in advanced semiconductor packaging and integration.

Program Description

ASU's microelectronics program integrates MacroTechnology Works (MTW), SHIELD USA, and the Southwest Advanced Prototyping (SWAP) Hub to deliver end-to-end innovation. MTW offers shared core facilities and leased cleanroom labs to startups and industry. SHIELD USA (with Deca) focuses on leap-ahead fan-out packaging, substrate innovation, tech transfer, and workforce training. The SWAP Hub links academia, defense, and industry across the Southwest region to accelerate lab-to-fab prototyping and scale integration. Key activities include R&D collaborations, prototype development, educational credentials, internships, and pilot deployments. Outcomes: strengthened packaging ecosystem, new devices, skilled workforce, and resilient U.S. supply chains.

Institution Advantage

ASU's microelectronics infrastructure is unmatched: MTW is a 250,000 ft² fab with cleanrooms, pilot lines, and industry-grade tools. SHIELD USA, funded by a \$100 million NIST/CHIPS initiative, drives advanced packaging research and ecosystem development. The SWAP Hub, backed by the DoD Microelectronics Commons, engages >170 members and leverages over \$500 million in state and partner investments. These assets and strategic partnerships position ASU and AZ industry to win federal, industry, and defense funding.

Arizona Specific Benefit

ASU's microelectronics initiative anchors Arizona as a national semiconductor hub. Through MTW, SHIELD USA and SWAP Hub, local startups, industry, and students gain access to advanced packaging infrastructure for research, prototyping, and training. This fosters job creation, innovation, and supply-chain resilience. ASU already hosts multiple AZ startups at MTW, and the workforce pipeline helps satisfy regional fab and supplier hiring demand. Improved IP generation, corporate partnerships, and economic growth accrue directly to Arizona's high-tech ecosystem.

Substantive changes to the original proposal

As we have been bringing up our advanced packaging capability, we have received substantial interest from U.S. partners, and we have seen more interest from industry than originally planned. We have also noted that without a regional Department of War partner with grant making authority, we lack insight into the program of records. To improve our ties with DoW, we are hiring a business development manager with DoW experience to engage with the department to help inform our engagement with program officers.

Project Continuation	In progress
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Project Status	On Schedule
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Progress Report

Work Completed:

Over the past year, we have grown our microelectronics research program, have expanded facilities and capabilities, and have engaged with key partners on workforce development programs. We executed on two \$100M-scale research programs in parallel: the Southwest Advanced Prototyping (SWAP) Hub and the Department of Commerce SHIELD substrate program. SWAP Hub attained year three funding with a focus on sustainable operations and technology transfer. SWAP was the only hub to advance all five of its projects to year two funding. SHIELD completed its first year milestones and is in negotiation with DOC on year two contracting. We have also entered into a contract with Amkor (a DOC-awarded site in Glendale) to lead workforce development programs for their site.

Milestones Achieved:

The Materials to Fab Center, a collaboration between ASU and Applied Materials, completed fab renovations and installed five multi-chamber tools in the shared space, with the first tool now operational. We also continue to grow our semiconductor-related research portfolio, with revenues expected to achieve \$80M this fiscal year, two times above 2022 expenditures. We are also continuing to work on semiconductor-adjacent programs to extend our ecosystem and impact, including semiconductor water reuse and on-body/in-body sensors for health monitoring.

Arizona Benefit or Impact:

Advanced packaging is increasingly important for delivering microelectronics that can support the complex tasks required by AI. The

SWAP Hub advanced packaging line is gaining interest from multiple defense industry partners as well as commercial companies. The packaging ecosystem is expanding, with international partners planning on siting or placing tools to support ecosystem growth in AZ. SWAP and SHIELD workforce programs have delivered training modules for advanced packaging, and the additional funding from Amkor will expand workforce offerings and increase the number of students.

What Worked Well:

We have focused on leveraging our investments in advanced packaging and at the MacroTechnology Works site to grow and expand research and workforce programs. ASU is uniquely positioned as a research university with a production-scale advanced packaging capability. Leveraging this success, we were awarded SHIELD (advanced packaging substrates) and workforce development with Amkor, and we have submitted proposals to programs from ARPA-H and NSF to leverage advanced packaging to expand research and capabilities.

Challenges and Lessons Learned:

Contracting for the SHIELD program has been delayed by negotiations over new requirements. We are communicating this project's ROI to the U.S. not only through direct revenue, but also through technology, workforce and other programmatic impacts.

Overall Project Assessment

In FY 2026, ASU expanded Arizona's advanced packaging research, infrastructure and workforce capabilities through successful execution of major federally funded initiatives, growth of the Materials to Fab Center, and strategic industry partnerships. These coordinated investments have strengthened Arizona's semiconductor ecosystem, increased research capacity and workforce development opportunities, and positioned ASU as a national leader in advanced packaging and microelectronics innovation, with growing interest from defense and commercial partners. Although federal contracting delays created challenges for program execution, ASU adapted by strengthening industry engagement, pursuing new funding opportunities and enhancing strategic partnerships to support sustained growth and long-term economic impact.

Investment Detail

	2026	2027	2028	Total
Infrastructure	\$ 461,128	\$ 0	\$ 0	\$ 461,128
Basic Research	\$ 461,128	\$ 0	\$ 0	\$ 461,128
Applied Research	\$ 461,128	\$ 0	\$ 0	\$ 461,128
Development	\$ 461,128	\$ 0	\$ 0	\$ 461,128
Total	\$ 1,844,512	\$ 0	\$ 0	\$ 1,844,512

Investment Narrative

Funds were allocated to subsidize key personnel salaries for non-grant-funded activities to drive research funding and prototyping growth.

*** Financials and metrics may be incorrect due to the fact that the fiscal year has not yet been closed at the university. ***

Budget Detail

	2026	2027	2028	Total
Salaries	\$ 475,405	\$ 0	\$ 0	\$ 475,405
ERE	\$ 150,952	\$ 0	\$ 0	\$ 150,952
Travel	\$ 0	\$ 0	\$ 0	\$ 0
Equipment	\$ 0	\$ 0	\$ 0	\$ 0
Supplies & Materials	\$ 1,218,155	\$ 0	\$ 0	\$ 1,218,155
Contracts & Consultants	\$ 0	\$ 0	\$ 0	\$ 0
Meetings & Conferences	\$ 0	\$ 0	\$ 0	\$ 0
Sub Awards	\$ 0	\$ 0	\$ 0	\$ 0
Total	\$ 1,844,512	\$ 0	\$ 0	\$ 1,844,512

Budget Narrative

Funds were allocated to subsidize key personnel salaries for non-grant-funded activities to drive research funding and prototyping growth.

*** Financials and metrics may be incorrect due to the fact that the fiscal year has not yet been closed at the university. ***

Metric					
Total research funding for microelectronics					
2026		2027		2028	
Projected	\$80,000,000	Projected	\$90,000,000	Projected	\$100,000,000
Actual	\$76,805,012	Actual		Actual	

Institution	Arizona State University	
Grant Type	University Research, Attainment, and Workforce	
TRIF Investment Area	Improving Health - Water, Environment and Energy Solutions - National Security Systems - Space Exploration and Optical Solutions	
Program Name	Research Advancement	
Project Lead	Lara Ferry, Vice President of Research, lara.ferry@asu.edu	

Proposal		
Problem Statement		
Faculty often excel at technical innovation but struggle with securing funding due to weak evaluation plans, limited access to strategic intel, and fragmented institutional support. Without cohesive infrastructure spanning proposal guidance, evaluation, federal relationship building, and applied research deployment, many promising projects underperform or fail to launch. The VPR office must integrate evaluation capacity, research development, federal engagement, and applied research platforms to close the gap between ideas and funded impact.		
Program Description		
The VPR Office implements an integrated support system across four pillars: Evaluation & Impact, Research Development & Proposal Strategy, Federal & Policy Engagement (FREO / Government Relations), and Applied Research Execution (via ASURE / applied labs / ERCs / IFH). Research Development supports opportunity insight, teaming, editing, and proposal mechanics. FREO advocates ASU's research priorities in D.C., aligning campus capabilities with federal calls. ASURE executes applied, contract R&D with compliance-safe infrastructure. Together, these units galvanize ASU's research lifecycle— from ideation, to proposal, to funded execution, to societal impact.		
Institution Advantage		
ASURE, ASU's applied research arm, holds contract vehicles (IDIQ, OTA, MACs) and bridges faculty with federal, defense, and industry sponsors across mission domains like space, cyber, logistics, and resilience. Research Development offers expert support in proposal editing, graphics, opportunity management, limited submissions, and strategic intelligence. VPR can leverage ERCs, IFH, applied labs, and cross-disciplinary teams to compete for large center, infrastructure, and mission-driven funding. ASU's rapidly growing R&D enterprise and strategic alignment strengthen capture potential.		
Arizona Specific Benefit		
This integrated VPR framework fuels Arizona's innovation engine by increasing funded research, applied projects, and knowledge transfer. Applied ASURE contracts anchor growth in the local economy and attract mission projects to the state. Research Development acceleration yields more faculty proposals, new technologies, and startups. Federal engagement ensures Arizona priorities (e.g. water, health, defense) are represented nationally, helping secure funding that directly benefits Arizona universities, communities, and industries.		
Substantive changes to the original proposal		
None		
Project Continuation	In progress	
Project Status	On Schedule	

Progress Report	
Work Completed:	
ASU's Research Development office advanced faculty competitiveness and external funding diversification through extensive programming, partnership development, proposal support and strategic engagement. RD hosted 48 events reaching 1,322 attendees. These included 18 Proposal Development Workshops and 16 Opportunity Kick-Offs that engaged 781 participants and focused on philanthropic, corporate and federal funding opportunities. The Research Engagement Office expanded engagement in Washington, D.C. through collaborations with the commercial space sector, embassy stakeholders, the U.S. Department of State and regional universities. REO supported development of FY 2026 appropriations initiatives, including the Center for Heat Preparedness and Chips Water Reuse projects, and assisted with proposal submissions following notice of funding opportunity (NOFO) releases. International research activities included advancing the International Research Strategy, submitting four international proposals totaling \$26 million, finalizing the KAUST MOU, supporting creation of the ASU Europe Research Institute, securing the ASU-France Initiative grant and facilitating university partnership launches with French institutions.	
Milestones Achieved:	
REO achieved several significant milestones that strengthened ASU's research enterprise and global engagement. The KAUST MOU was finalized, creating a framework for joint research in energy, water, heat and space. The ASU-France Initiative secured a French Embassy matching grant and launched new partnerships with the University of Lorraine and University Grenoble Alpes. We advanced four international proposals totaling \$26 million through Horizon Europe and UKRI programs, exceeding the international proposal target. Both FY 2026 congressional appropriations requests, the \$2 million Center for Heat Preparedness and \$2 million Chips Water Reuse initiative, were enacted, resulting in NOFOs and proposal submissions.	

Arizona Benefit or Impact:

REO and Research Development activities strengthen Arizona's research capacity, economic competitiveness and workforce development. By expanding access to federal, philanthropic, corporate and international funding opportunities, these efforts bring new resources to Arizona researchers, students and communities. Strategic support for initiatives in heat preparedness and semiconductor water reuse advances solutions to critical state challenges related to climate resilience and technology innovation. Partnerships with industry, federal agencies and international institutions create opportunities for student training, research collaboration and economic growth. Research Development programming helps faculty secure competitive funding, contributing to increased research expenditures and federal awards that support job creation, innovation and discovery. Collectively, these efforts enhance Arizona's position as a leader in research and innovation while delivering long-term benefits to the state's economy and quality of life.

What Worked Well:

A key success was the submission of Dr. Joshua LaBaer's \$91.9 million ARPA-H proposal, which showcased effective coordination between our Capture, Research Development and Proposal Management teams. The effort also strengthened partnerships with Medtronic, HonorHealth and ASU collaborators, demonstrating our ability to support large, strategic federal funding opportunities. Additionally, through ASU's international engagements, we are being recognized as a forward-thinking institution by international partners, DC Embassy officials and the State Department.

Challenges and Lessons Learned:

The current geopolitical environment has made it more difficult to engage international organizations and institutions in partnerships involving U.S.-based collaborators. As a result, relationship-building and new collaborations have progressed more slowly than anticipated. This experience highlights the need to diversify partnership strategies, strengthen existing international networks and engage potential collaborators earlier in the process. Moving forward, we will remain flexible and adapt our approach to the evolving global landscape.

Overall Project Assessment

Research Development and the Research Engagement Office made strong progress in FY 2026 by expanding faculty support, increasing strategic funding opportunities, strengthening federal and international partnerships, and advancing major research initiatives that enhance ASU's competitiveness. These coordinated efforts contributed to increased research expenditures, successful congressional appropriations, new global collaborations and expanded proposal development, positioning Arizona to benefit through innovation, workforce development and solutions to critical challenges in areas such as heat resilience and semiconductor water reuse. While geopolitical conditions have slowed some international engagement, ASU has demonstrated resilience by diversifying partnership strategies, leveraging existing networks and maintaining a flexible approach to sustaining long-term research growth and impact.

Investment Detail

	2026		2027		2028		Total
Infrastructure	\$	0	\$	0	\$	0	0
Basic Research	\$	2,013,464	\$	0	\$	0	2,013,464
Applied Research	\$	2,013,464	\$	0	\$	0	2,013,464
Development	\$	2,013,464	\$	0	\$	0	2,013,464
Total	\$	6,040,392	\$	0	\$	0	6,040,392

Investment Narrative

Investment funds supported research development, applied research and research infrastructure by advancing proposal development, strategic partnerships, international collaborations and technology resources that strengthened ASU's research enterprise. Investments enabled faculty engagement, proposal support, software and operational infrastructure, and initiatives focused on heat preparedness, semiconductor water reuse and global research partnerships. FY 2027 investment funds will continue supporting Research Development programming, strategic domestic and international partnerships, technology enhancements, and applied research initiatives that expand external funding opportunities, strengthen research capacity and advance solutions to Arizona's economic and societal priorities.

*** Financials and metrics may be incorrect due to the fact that the fiscal year has not yet been closed at the university. ***

Budget Detail

	2026		2027		2028		Total
Salaries	\$	2,564,193	\$	0	\$	0	2,564,193
ERE	\$	858,390	\$	0	\$	0	858,390
Travel	\$	30,001	\$	0	\$	0	30,001
Equipment	\$	6,079	\$	0	\$	0	6,079
Supplies & Materials	\$	1,830,187	\$	0	\$	0	1,830,187
Contracts & Consultants	\$	751,542	\$	0	\$	0	751,542
Meetings & Conferences	\$	0	\$	0	\$	0	0
Sub Awards	\$	0	\$	0	\$	0	0
Total	\$	6,040,392	\$	0	\$	0	6,040,392

Budget Narrative

Investment funds supported research development, applied research and research infrastructure by advancing proposal development, strategic partnerships, international collaborations and technology resources that strengthened ASU's research enterprise. Investments enabled faculty engagement, proposal support, software and operational infrastructure, and initiatives focused on heat preparedness, semiconductor water reuse and global research partnerships. FY 2027 investment funds will continue supporting Research Development programming, strategic domestic and international partnerships, technology enhancements, and applied research initiatives that expand external funding opportunities, strengthen research capacity and advance solutions to Arizona's economic and societal priorities.

*** Financials and metrics may be incorrect due to the fact that the fiscal year has not yet been closed at the university. ***

Metric

International Proposals Submitted

2026		2027		2028	
Projected	\$25,000,000	Projected	\$30,000,000	Projected	\$35,000,000
Actual	\$26,000,000	Actual		Actual	

Metric

Number of Request for Information Responses submitted

2026		2027		2028	
Projected	12	Projected	18	Projected	24
Actual	16	Actual		Actual	

Metric

Number of Proposals Submitted (by RD)

2026		2027		2028	
Projected	26	Projected	39	Projected	41
Actual	37	Actual		Actual	

Metric

Number of Products Edited (proposals, book proposals, journals, manuscripts, and revisions)

2026		2027		2028	
Projected	228	Projected	227	Projected	238
Actual	216	Actual		Actual	

Metric

Number of Events, Opportunity Kick-Offs, Proposal Development Workshops, Collaborations/Cohorts

2026		2027		2028	
Projected	31	Projected	51	Projected	54
Actual	48	Actual		Actual	

Institution	Arizona State University	
Grant Type	University Research, Attainment, and Workforce	
TRIF Investment Area	Space Exploration and Optical Solutions	
Program Name	Space Exploration	
Project Lead	Lara Ferry, Vice President of Research, lara.ferry@asu.edu	

Proposal

Problem Statement

The commercial space economy is booming. Successful mission contributions require scientific and engineering advances as well as unique capabilities to deliver space-quality instrumentation. The NewSpace Initiative excels at spacecraft, remote sensing, instrument, and mission collaboration with key commercial space ecosystem partners in Arizona and nationally. The Instrumentation & Mission Development Lab (IMDL) brings unique capabilities and ASU is one of only 5 universities with the ability to design, build, test, and operate NASA flight instruments.

Program Description

The NewSpace Initiative leads multi-campus programs in satellite systems, space payloads, Earth observation/remote sensing, and commercial-academic partnerships. IMDL augments those programs by providing unique capabilities to design, build, test, and operate instruments, robotics, and other hardware in space and in other complex environments. Together, NewSpace and IMDL support students, faculty, staff, and industry partners both in Arizona and nationally. Outcomes include a steady stream of few \$M to tens of \$M instrument and mission proposals to NASA, DARPA, Space Force, and other agencies; robust space technology maturation; stronger industry engagement; significant public outreach; and extended educational and workforce impact.

Institution Advantage

NewSpace leverages substantial existing institutional facilities and faculty/staff capabilities, enabling partnerships with Arizona aerospace companies like FreeFall Aerospace, Paragon, Qwaltec, General Dynamics Mission Systems, Planet Labs, and others nationally. NewSpace actively recruits faculty and staff to respond to funding opportunities from a wide range of federal agencies. IMDL capabilities are leveraged by NASA, JPL, and other industry and government partners. These activities allow ASU to compete successfully for NASA, NSF, DoD, industry, and philanthropic opportunities.

Arizona Specific Benefit

ASU's investment in the NewSpace and IMDL portfolios leads to trained workforce for the Arizona space ecosystem, enhanced state economic impact from funded projects with Arizona's commercial supply-chain collaborators, and further elevation of Arizona's reputation in space science and space technology. This investment also helps to attract and capture next generation space exploration mission contracts, expanded workforce opportunities, new industry talent, and impactful public engagement to Arizona.

Substantive changes to the original proposal

None

Project Continuation	In progress
Project Status	On Schedule

Progress Report

Work Completed:

The ASU Space Science and Technology Initiative, anchored by ASU/NewSpace and the Instrument and Mission Development Laboratory, enabled significant proposal activity and stakeholder engagement in FY26. Together, NewSpace and IMDL supported 22 proposal submissions totaling \$127 million, including four commercial-led NASA proposals with three ASU schools. Five awards totaling \$17.8 million were secured, and three additional proposals valued at \$13.7 million are pending. NewSpace hosted the AZ Tech Council's Aviation Space and Defense Committee, the Arizona Space Commission, Arizona Commerce Authority, and Commercial Space Federation, or CSF, Member meetings, showcasing ASU's domain capabilities and expertise to the state-wide and national commercial space industry. IMDL is supporting six ongoing Phase-E missions and instrument operations valued at \$4.2 million annually and expanded strategic partnerships with leading aerospace companies. The laboratory also completed its transition to a core facility by establishing governance, operational processes, cost structures and partner engagement frameworks.

Milestones Achieved:

ASU/NewSpace established itself as a convener of Arizona's space ecosystem by hosting the Arizona Space Commission and Arizona Tech Council's Aviation Space and Defense Committee (AASD) Meeting. IMDL completed its transition to a core facility with a signed MOU, established governance and operating procedures, finalized cost and rate structures, and launched a joint marketing and communications plan with KE and the Core Facilities teams, culminating in a leadership kickoff event.

Arizona Benefit or Impact:

ASU/NewSpace strengthens Arizona's position in the national space economy. ASU/NewSpace and industry proposals submitted in FY26 significantly expanded ASU's federally and commercially funded research portfolio, creating opportunities for students and faculty across the university. We leveraged the statewide interest in space by supporting and leading committees building an ASU presence of innovation and collaboration, including ASU/NewSpace Director Jim Bell's service as a governor-appointed member of

the Arizona Space Commission. Co-exhibiting at national conferences, including with the Arizona Commerce Authority at Space Symposium, amplifies Arizona's national profile. Commercial NDAs and DARPA activity signal growing private-sector confidence in ASU as a research partner, with downstream benefits for Arizona's aerospace and defense workforce pipeline. IMDL's transition to a core facility supports Arizona's space R&D ecosystem through flight-rated instrument development, testing and mission operations. By partnering with ASU researchers, other universities, government agencies and industry, IMDL expands sponsored research, workforce development and reinforces a sustainable pipeline of space and defense innovation.

What Worked Well:

Structured faculty engagement was the most effective strategy: 186 meetings in a single fiscal year directly drove proposal volume and cross-school collaborations. The commercial co-proposal model — partnering with industry on NASA bids — proved a productive way to align ASU capabilities with real customer needs. Using the ASU DC Center as a convening venue for CSF and stakeholder meetings elevated the Initiative's credibility in national policy circles. Conference presence at SmallSat, AGU, Space Symposium, IAC, and AAS broadened visibility and generated new contacts. The combination of top-down stakeholder hosting and bottom-up faculty outreach created complementary pipelines. IMDL's early success has been driven by targeted proposals, focused technology development, and strong partnerships. Growing collaborations with industry and faculty have strengthened proposal competitiveness, while strategic investments in thermal/IR spectrometers, GRNS technologies, and emerging application areas position IMDL for sustained growth and future funding opportunities.

Challenges and Lessons Learned:

The Venture Capital/Equity focused workshop and the Partnership in Discovery Workshop were both rescheduled from FY26 to FY27, indicating that convening commercial collaborators and structuring mission-focused industry-agency events requires longer lead times than anticipated. A key lesson is that early relationship-building (meetings, NDAs, MOUs, workshops, conferences) needs a structured follow-on mechanism to convert engagement into funded activity. The FY27 workshop pipeline reflects an effort to build those conversion pathways deliberately. Engagements with strategic partners highlighted the need for a balanced partnership strategy. In response to evolving federal priorities and uncertainty in the space science funding landscape, IMDL shifted emphasis toward more reliable industry and sponsor opportunities while maintaining key strategic relationships for future collaboration.

Overall Project Assessment

The ASU Space Science and Technology Initiative made strong progress across complementary priorities by expanding proposal development, strengthening Arizona's space innovation ecosystem and deepening collaborations among academia, industry, and government. These accomplishments have increased ASU's competitiveness for federal and commercial space funding, enhanced Arizona's national visibility in the space sector, and strengthened the state's workforce development. While the demands of developing commercial partnerships require longer timelines and continued adaptation, the project's emphasis on strategic relationship building, industry engagement, and sustainable research infrastructure positions it for long-term benefits to Arizona and the nation's space priorities as a whole.

Investment Detail

	2026		2027		2028		Total
Infrastructure	\$	0	\$	0	\$	0	\$ 0
Basic Research	\$	150,000	\$	0	\$	0	\$ 150,000
Applied Research	\$	150,000	\$	0	\$	0	\$ 150,000
Development	\$	150,000	\$	0	\$	0	\$ 150,000
Total	\$	450,000	\$	0	\$	0	\$ 450,000

Investment Narrative

Investment in FY26 included sponsoring NASA Space Grant Interns, SESE Capstone Project Support with Industry, Pilot Internships with Industry and NASA Space Grant, and ASU Ground Station development. FY27 includes furthering NASA Space Grant Internships and operations with the ASU Ground Station.

*** Financials and metrics may be incorrect due to the fact that the fiscal year has not yet been closed at the university. ***

Budget Detail

	2026		2027		2028		Total
Salaries	\$	224,011	\$	0	\$	0	\$ 224,011
ERE	\$	79,417	\$	0	\$	0	\$ 79,417
Travel	\$	3,991	\$	0	\$	0	\$ 3,991
Equipment	\$	6,498	\$	0	\$	0	\$ 6,498
Supplies & Materials	\$	125,371	\$	0	\$	0	\$ 125,371
Contracts & Consultants	\$	10,712	\$	0	\$	0	\$ 10,712
Meetings & Conferences	\$	0	\$	0	\$	0	\$ 0
Sub Awards	\$	0	\$	0	\$	0	\$ 0
Total	\$	450,000	\$	0	\$	0	\$ 450,000

Budget Narrative

Investment in FY26 included sponsoring NASA Space Grant Interns, SESE Capstone Project Support with Industry, Pilot Internships with Industry and NASA Space Grant, and ASU Ground Station development. FY27 includes furthering NASA Space Grant Internships and operations with the ASU Ground Station.

*** Financials and metrics may be incorrect due to the fact that the fiscal year has not yet been closed at the university. ***

Metric

Proposals submitted with industry

2026		2027		2028	
Projected	6	Projected	10	Projected	10
Actual	22	Actual		Actual	

Metric

Number of industry events

2026		2027		2028	
Projected	2	Projected	3	Projected	4
Actual	3	Actual		Actual	

Metric

Proposals submitted by IMDL

2026		2027		2028	
Projected	20	Projected	25	Projected	30
Actual	22	Actual		Actual	

Institution	Northern Arizona University	
Grant Type	University Research, Attainment, and Workforce	
TRIF Investment Area	Workforce Development	
Program Name	Artificial Intelligence Empowered University	
Project Lead	Steve Burrell, Vice President for Information Technology, Steven.Burrell@nau.edu	

Proposal

Problem Statement

NAU will seek to become a leading regional public university in applied AI through academic initiatives, infrastructure enhancements, and community education and engagement. The cornerstones of this work are: 1) establishing the Institute for Advancing Applications for Artificial Intelligence in Academic Affairs; 2) launching a technological and user enablement team focused on AI application in IT Services; and 3) convening the Northern Arizona AI Futures Alliance of regional public sector partners.

Program Description

The Institute for Advancing Applications for Artificial Intelligence (IAAAI) will serve as the central coordinating hub for activities in teaching and learning, curricular development, and scholarly transformation in AI applications. The user and technology enablement teams will enhance NAU's operational efficiency and ways of working. The Northern Arizona AI Futures Alliance (NAZ-AI) will bring together key public-sector partners as its founding members to engage in activities led by NAU with an emphasis on workforce upskilling and reskilling to enable individuals and major regional employers to thrive in the AI-enhanced workforce.

Institution Advantage

Investment in faculty with expertise in AI applications across the university, facilitated AI focused faculty development and curriculum integration, creation of the Institute for Creation of Artificial Intelligence Applications to lead and catalyze university transformation through integration of AI technology across academic programs and operations.

Arizona Specific Benefit

Meeting the evolving technological landscape with applications and educational programs is essential. NAU's leadership in AI application will provide workforce ready graduates and regional upskilling to tackle future issues with modern skills and competencies in an AI-enabled future.

Substantive changes to the original proposal

Two administrative refinements have occurred since the original proposal was submitted in April 2025. Neither alters the strategic scope, budget, or intent of the initiative:

- Consortium Chartering: The regional higher education AI consortium, initially referred to as the "NAZ Futures Alliance," has been formally established and chartered as the Northern Arizona AI Alliance (NAAA). The alliance is fully operational with defined governance, goals, and institutional objectives.
- Staffing Timelines: Both the AI User Enablement Team and the AI Technical Enablement Team are fully staffed as of February 2026. Because several positions were filled on a mid-year phased schedule, a temporary salary surplus occurred at fiscal year-end, which has been reallocated to meet immediate hardware and licensing infrastructure needs.

Project Continuation	In progress
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Project Status	On Schedule
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Progress Report

During Year 1, NAU advanced the AI-Empowered University initiative across academic and administrative dimensions. ITS completed the transition from strategic planning to operational implementation by fully staffing the AI User Enablement and AI Technical Enablement teams, expanding the enterprise tool ecosystem, and deploying an integrated infrastructure stack that included Microsoft Fabric and Azure AI Foundry. Nine active customer pilot workspaces were established across major campus units. In parallel, the Institute for Advancing Applications of Artificial Intelligence (IAAAI) advanced academic and curricular work by supporting development of the Artificial Intelligence Foundations and Applications undergraduate certificate, funding 10 TRAIL instructional AI grants and four research and scholarship projects, supporting 19 AI-related presentations through the AI Exploration Hub, launching a membership initiative with 46 members across seven colleges, conducting strategic planning sessions with academic units, and onboarding two IAAAI Directors.

Key milestones included formal chartering of the Northern Arizona AI Alliance, full staffing of the ITS enablement teams, establishment of the IAAAI as a central coordinating hub, and launch of the Center for AI Collaboration in March 2026. The NAU LOUIE Chat Agent moved into public production in May 2026 and handled more than 3,100 sessions in its first 33 days. On the academic side, the AI certificate received formal shared-governance approval and will appear in the AY26-27 catalog. Additional milestones included creation of IAAAI membership and Fellows structures, launch of the AI Exploration Hub, and continued development of faculty-led AI innovation through TRAIL and related efforts.

The combined work benefits Arizona by preparing students, faculty, staff, public-sector partners, and regional employers for an AI-enhanced workforce. ITS delivered 17 targeted training sessions reaching 614 faculty and staff, while the AI Literacy course reached 41,446 cumulative module completions across NAU and was shared with Coconino Community College as an inaugural regional

deployment through the Northern Arizona AI Alliance. The academic certificate creates a transcribed, workforce-aligned AI literacy credential for students from any discipline, with relevance to business, health care, education, computing, and other sectors important to Arizona's economy. Through AZARCH and the Northern Arizona AI Alliance, the work also contributes to broader statewide and regional AI readiness.

Collaboration and distributed leadership were especially effective. The CAIC champion model enabled peer-led adoption and extended AI literacy beyond what a centralized IT team could accomplish alone. Partnership with Microsoft supported early access to program opportunities and streamlined deployment of enterprise tools, contributing to strong engagement in the Microsoft 365 Copilot Premium cohort. On the academic side, collaboration with Cline Library, the Teaching and Learning Center, and the School of Informatics, Computing, and Cyber Systems helped accelerate programming, shared-governance approval, and curricular development. Faculty-led innovation through TRAIL also proved effective in integrating AI learning across courses and disciplines.

Challenges included phased staffing timelines, shifting vendor cost models, initial budget omissions for ERE and core hardware/network costs, and discovery of duplicative or previously unknown AI-related work across campus. ITS addressed immediate operational needs by reallocating salary and licensing surplus to hardware, network, and licensing needs, including support for a Claude Enterprise pilot. IAAAI is responding to duplicative work by developing a more complete inventory of AI-related activity across Academic Affairs, including courses, faculty research, and related initiatives. These lessons point to the need for flexible licensing, clearer coordination mechanisms, and continued inventory and alignment of AI work across the institution.

Overall Project Assessment

Overall, Year 1 demonstrates strong progress across the initiative's multiple parallel dimensions: governance, academic transformation, workforce-focused AI literacy, technical infrastructure, user enablement, and regional partnership development. The ITS and IAAAI efforts are complementary: ITS built the operational, technical, and adoption infrastructure needed to scale AI use across the university, while IAAAI advanced curricular development, faculty innovation, scholarly engagement, and shared-governance pathways for academic transformation. Together, these efforts establish a strong foundation for sustainable growth, broader campus adoption, and regional impact. The initiative remains on schedule and in progress, with early outcomes indicating strong engagement and meaningful progress toward the broader goal of preparing NAU and Arizona for an AI-enhanced future.

Investment Detail

	2026	2027	2028	Total
Infrastructure	\$ 584,862	\$ 0	\$ 0	\$ 584,862
Basic Research	\$ 0	\$ 0	\$ 0	\$ 0
Applied Research	\$ 0	\$ 0	\$ 0	\$ 0
Development	\$ 0	\$ 0	\$ 0	\$ 0
Total	\$ 584,862	\$ 0	\$ 0	\$ 584,862

Investment Narrative

The FY2026 allocation for the Institute for Advancing Applications of Artificial Intelligence (IAAAI) was designated to support faculty-led leadership, university-wide fellows, curriculum development, professional development, the TRAIL program, guest speakers, materials and licenses, and operational support. While these broad investment priorities remained constant, specific spending and implementation plans evolved following a deeper assessment of NAU's needs and extensive input from faculty, staff, and university stakeholders. Complementing these academic and faculty-focused efforts, Information Technology Services supported AI literacy, university-wide adoption, and integration of AI tools into development and support activities through investments in licensing, personnel, and employee-related expenses, helping establish the infrastructure and support necessary for institution-wide AI engagement.

Budget Detail

	2026	2027	2028	Total
Salaries	\$ 320,634	\$ 0	\$ 0	\$ 320,634
ERE	\$ 96,090	\$ 0	\$ 0	\$ 96,090
Travel	\$ 7,669	\$ 0	\$ 0	\$ 7,669
Equipment	\$ 113,267	\$ 0	\$ 0	\$ 113,267
Supplies & Materials	\$ 30,311	\$ 0	\$ 0	\$ 30,311
Contracts & Consultants	\$ 16,891	\$ 0	\$ 0	\$ 16,891
Meetings & Conferences	\$ 0	\$ 0	\$ 0	\$ 0
Sub Awards	\$ 0	\$ 0	\$ 0	\$ 0
Total	\$ 584,862	\$ 0	\$ 0	\$ 584,862

Budget Narrative

Year 1 expenditures totaled 52% of the FY2026 budget. Expenditures were lower than anticipated due to delayed onboarding of the IAAAI leadership team until Spring 2026, the postponement of the IAAAI Fellows program to Fall 2026, contributions from Cline Library that reduced direct costs, and a budget reconfiguration approved by the Advisory Council to better align resources with program priorities. Despite lower expenditures, significant progress was made in institute development, programming, governance, and curriculum initiatives. In addition, Information Technology Services supported AI literacy, university-wide adoption, and integration of AI tools into development and support activities, including licensing, personnel, and employee-related expenses (ERE). The FY2027 budget is expected to be fully utilized to support implementation of the IAAAI Fellows program, AI Hub Ambassadors,

discipline-specific certificate development, expansion of the TRAIL program, member services, communications, and events.

Unspent FY2026 funds will be carried forward and allocated across FY2027 and FY2028 through a proposal process involving institute leadership, Fellows, membership, and the Advisory Council.

Metric

Enrollment in AI certificate

2026		2027		2028	
Projected	0	Projected	10	Projected	30
Actual	0	Actual		Actual	

Metric

Institutional AI Literacy & Training: Cumulative module completions of the NAU AI Literacy course and training session outreach.

2026		2027		2028	
Projected	25,000	Projected	60,000	Projected	85,000
Actual	41,446	Actual		Actual	

Metric

Enterprise Tool Adoption & Utilization: Monthly utilization rate of premium enterprise AI seat allocations.

2026		2027		2028	
Projected	0.5	Projected	0.75	Projected	
Actual	0.767	Actual	0.75	Actual	

Metric

Direct Student Support Engagement: Student engagement volume and session resolution with the public-facing NAU LOUIE Chat Agent.

2026		2027		2028	
Projected	0	Projected	25,000	Projected	50,000
Actual	3,100	Actual		Actual	

Institution	Northern Arizona University	
Grant Type	University Research, Attainment, and Workforce	
TRIF Investment Area	Improving Health	
Program Name	Community-engaged Health	
Project Lead	Jason Wilder, Vice President for Research, Jason.Wilder@nau.edu	

Proposal

Problem Statement

Arizona's rural and tribal communities experience persistent health challenges, including limited access to care, higher chronic disease rates, and inadequate health infrastructure. These gaps are compounded by workforce shortages and geographic isolation, creating barriers to improved health outcomes. Addressing these challenges requires culturally responsive research, innovative care delivery models, and workforce development to improve health equity across the state.

Program Description

This program supports community-based health research through NAU's Center for Community Health and Engaged Research (CHER), the Program for Native American Cancer Prevention (NACP), and numerous academic units across campus. The program advances health improvement in underserved, rural, and tribal areas through community-based and translational research. It serves populations by addressing critical health challenges such as cancer prevention, mental health, and water quality. Key activities include telehealth innovations and policy-relevant research. The program also provides graduate education, faculty mentorship, and workforce training with a goal of improving health services and a developing a pipeline of skilled health researchers.

Institution Advantage

NAU hosts NIH-funded centers such as CHER and NACP, providing robust infrastructure for health equity research. Over the years, NAU has developed trusted partnerships with communities across Arizona, including with numerous Tribal Nations, in rural areas, and along Arizona's southern border. TRIF funding supports faculty recruitment, graduate programs, and research capacity building. These resources enhance competitiveness for federal grants from NIH, NCI, and other agencies, ensuring sustainability and growth of community health initiatives.

Arizona Specific Benefit

The program improves health outcomes for Arizona's most vulnerable populations by expanding access to care, informing state and tribal health policies, and strengthening the health workforce. Community engagement fosters trust and collaboration, while research findings guide interventions that reduce disparities and promote long-term health equity across the state.

Substantive changes to the original proposal

None

Project Continuation	In progress
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Project Status	On Schedule
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Progress Report

Work Completed

During the reporting period, the Community Engaged Health program, anchored by NAU's Center for Health Engaged Research (CHER) and the Center for Native American Cancer Prevention (NACP) delivered a broad portfolio of research, outreach, and workforce development activities. CHER managed a multi-million dollar award portfolio and produced substantial scholarly outputs including 80 peer-reviewed publications and over 40 research presentations. Outreach efforts included nearly 40 community presentations and expanded engagement across Tribal Nations and community partners. Complementing these activities, NACP conducted ongoing cancer disparity research, student training programs, internships, and community-driven initiatives such as culturally tailored cancer prevention education, screening outreach, and collaborative research with Tribal partners. Taken together, this reinforces the program's emphasis on applied, community-centered health research.

Milestones Achieved

Significant milestones include continued progress under the Southwest Health Engaged Research Cooperative (SHERC) program, with affiliated faculty securing new grants and launching pilot projects focused on culturally responsive interventions, digital health tools, and disease prevention. Additional milestones include expansion of research infrastructure (e.g., data systems, technical assistance platforms), growth in outreach reach and engagement, and sustained delivery of workforce training initiatives such as the Arizona Biomedical Research Center (ABRC) workshop series. NACP-related milestones further include strengthening partnerships with Tribal communities, advancing cancer health equity research, and expanding student training pipelines through internships and collaborative research programs, all of which align with long-term capacity-building goals.

Arizona Benefit or Impact

The program has delivered meaningful benefits to Arizona by advancing health equity and improving health outcomes in rural and Tribal communities. Research and outreach efforts supported culturally centered interventions in areas such as cancer prevention, substance use, chronic disease, and telehealth access, while NACP initiatives specifically addressed cancer disparities among

Native populations through community-engaged education, screening, and workforce development. These activities strengthened community trust, informed policy and public health strategies, and expanded opportunities for students, particularly those from rural areas of the state and tribal lands, to engage in health research and careers, contributing to a more robust statewide health workforce.

What Worked Well

The program's success is rooted in its community-engaged model, emphasizing strong, bi-directional partnerships with Tribal Nations, community organizations, and healthcare providers. Integrated structures such as CHER, SHERC, and NACP enabled effective collaboration across research, training, and outreach activities. Centralized services enhanced research capacity, while culturally grounded approaches ensured that interventions were relevant and impactful. Workforce development strategies, including student mentorship, internships, and community-based training, proved particularly effective in simultaneously advancing research productivity and workforce pipeline goals.

Challenges and Lessons Learned

Challenges included sustaining staffing capacity, scaling technical infrastructure, and navigating competitive and uncertain federal funding environments. Coordinating across diverse community partners and maintaining long-term engagement required significant time and resources, while growing demand for technical assistance highlighted the need for additional operational support. Despite these challenges, the program demonstrates a highly integrated model in which research, community engagement, workforce development, and infrastructure operate in parallel and reinforce one another. This integrated approach has enabled the program to effectively translate research into practice while maintaining strong community partnerships and measurable impact.

Overall Project Assessment

The Community-Engaged Health program demonstrates strong overall performance through an integrated and mutually reinforcing approach to research, community engagement, and workforce development. Program researchers manage substantial annual research funding and continue to produce significant scholarly outputs, while also expanding community and Tribal partnerships and delivery of culturally responsive health interventions addressing critical issues in the community. Key milestones, including growth of the SHERC program, expansion of research infrastructure, and continued success of NACP training and outreach activities, reflect sustained progress toward long-term capacity-building goals. Despite challenges related to staffing, infrastructure demands, and a competitive funding environment, the program has maintained strong momentum and measurable impact by leveraging collaborative partnerships and community-engaged practices. By translating research into practice, the program is strengthening Arizona's public health and research capacity, improving health equity in rural and Tribal communities, and developing a robust future health workforce. It is positioned well for continued success and broad statewide benefit.

Investment Detail

	2026		2027		2028		Total
Infrastructure	\$	842,335	\$	0	\$	0	\$ 842,335
Basic Research	\$	84,087	\$	0	\$	0	\$ 84,087
Applied Research	\$	0	\$	0	\$	0	\$ 0
Development	\$	0	\$	0	\$	0	\$ 0
Total	\$	926,422	\$	0	\$	0	\$ 926,422

Investment Narrative

TRIF investment in Community Engaged Health advances Arizona's commitment to improving health outcomes, reducing health disparities, and expanding access to healthcare research in rural and Tribal communities. Through integrated efforts led by CHER, SHERC, and NACP, the initiative translates research into actionable solutions that address cancer prevention, chronic disease management, substance use, telehealth access, and community wellness. TRIF resources support trusted partnerships with Tribal Nations and community organizations while fostering workforce pathways for students interested in health professions and research careers. The initiative's success in attracting external funding, producing impactful research, and engaging underserved populations demonstrates strong alignment with Arizona's long-term public health and economic priorities. Continued investment will strengthen community-based research infrastructure and help address persistent healthcare challenges across the state.

Budget Detail

	2026		2027		2028		Total
Salaries	\$	566,856	\$	0	\$	0	\$ 566,856
ERE	\$	214,287	\$	0	\$	0	\$ 214,287
Travel	\$	27,239	\$	0	\$	0	\$ 27,239
Equipment	\$	52,557	\$	0	\$	0	\$ 52,557
Supplies & Materials	\$	52,788	\$	0	\$	0	\$ 52,788
Contracts & Consultants	\$	10,340	\$	0	\$	0	\$ 10,340
Meetings & Conferences	\$	2,355	\$	0	\$	0	\$ 2,355
Sub Awards	\$	0	\$	0	\$	0	\$ 0
Total	\$	926,422	\$	0	\$	0	\$ 926,422

Budget Narrative

TRIF funds supported personnel, community engagement activities, student training, pilot research projects, technical assistance programs, and infrastructure required to sustain community-engaged health research throughout Arizona. Investments facilitated partnerships with Tribal Nations, rural communities, healthcare providers, and public health organizations to address health disparities and improve health outcomes. Funding also supported workforce development efforts, student mentorship, outreach programs, and research capacity-building activities that strengthen Arizona's healthcare and public health workforce. These strategic investments enabled the translation of research into practice while advancing health equity and supporting solutions to critical statewide health challenges.

Metric

Peer-reviewed publications

2026		2027		2028	
Projected	70	Projected	74	Projected	78
Actual	80	Actual		Actual	

Metric

Undergraduate student research experiences

2026		2027		2028	
Projected	40	Projected	42	Projected	44
Actual	71	Actual		Actual	

Metric

Graduate student research experiences

2026		2027		2028	
Projected	70	Projected	72	Projected	75
Actual	77	Actual		Actual	

Metric

Sponsored project expenditures

2026		2027		2028	
Projected	\$ 8,700,000	Projected	\$8,750,000	Projected	\$8,800,000
Actual	\$10,840,000	Actual		Actual	

Institution	Northern Arizona University	
Grant Type	University Research, Attainment, and Workforce	
TRIF Investment Area	Improving Health	
Program Name	Continued Investment in NAU Health Program Personnel	
Project Lead	Karen Pugliesi, Executive Vice President and University Provost, Karen.Pugliesi@nau.edu	

Proposal		
Problem Statement NAU's leadership in healthcare workforce development is essential to addressing Arizona's need for qualified providers across a range of disciplines. Through a suite of programs offered in Health Professions, Nursing, and Behavioral Health, NAU is working to double the number of degrees awarded in these fields through program expansions throughout the state and innovative partnerships and collaboration.		
Program Description Investment in personnel will increase the capacity potential for NAU's healthcare education programs, including nursing, physician assistant, and physical therapy, and ensure NAU delivers exceptional instruction to students in these areas. The investment will support positions in nursing and the health professions that will enable NAU to maintain the growth trajectory planned as part of its contributions to the Arizona Healthy Tomorrow initiative.		
Institution Advantage This investment supports NAU's continued growth trajectory that began with early investments in the New Economy Initiative and that have been sustained by ABOR's Arizona Healthy Tomorrow funding.		
Arizona Specific Benefit NAU's strategic growth plan ensures greater access to healthcare workforce education through a range of programs, sites, and modalities that together will educate and retain health professionals in the state and contribute to better health outcomes in all of Arizona's communities, stretching from the Phoenix metropolitan area to rural and tribal lands that face critical gaps in healthcare services.		
Substantive changes to the original proposal None		
Project Continuation	Pending	
Project Status		

Progress Report		
TRIF-supported personnel investments helped sustain and expand instructional and operational capacity in nursing and health professions programs. During the reporting period, NAU continued implementation of its health workforce expansion strategy, supported the standalone College of Nursing, advanced enrollment growth initiatives, and expanded capacity planning across Nursing, Physical Therapy, Physician Assistant Studies, and other health professions programs.		
NAU's health programs have strong enrollment and graduate numbers. In the Sanghi College of Nursing, the Bachelor of Science in Nursing programs experienced a 39% increase in enrollments between 2023 and 2025. Within the College of Health and Human Services, enrollment also saw increases in AY25-26, with 119 enrollments in the Master of Physician Assistant Studies (MPAS) program, 82 enrollments in the Doctor of Medical Science (DMSc) program, and 432 in the Physical Therapy (PT) program. Graduate numbers show strong momentum in priority programs with a 47% increase in the undergraduate BSN programs between 2023 and 2025. The MPAS awarded 58 degrees last year, the DMSc awarded 26 degrees and Physical Therapy awarded 126 degrees.		
Personnel investments supported continued expansion of healthcare workforce education in Arizona. By increasing instructional and programmatic capacity in nursing and health professions programs, NAU is helping address workforce shortages throughout the state while improving access to healthcare education for students in urban, rural, and Tribal communities.		
The university has expanded around core sites in Flagstaff, PBC and Yuma, while also using hybrid and virtual delivery models to reduce infrastructure costs and reach time- and place-bound students. NAU has strong demand for health programs with demand exceeding capacity, supporting the case for continued personnel and capacity investments.		
The primary challenges are capacity-related, including physical space, lab capacity, clinical placements, and faculty availability. These constraints affect how quickly NAU can expand seats in programs where demand exceeds capacity.		

Overall Project Assessment

The Continued Investment in NAU Health Program Personnel initiative has successfully supported NAU's broader strategy to expand healthcare workforce education and advance Arizona Healthy Tomorrow objectives. Personnel investments have helped sustain enrollment growth, support instructional quality, and maintain expansion efforts in Nursing, Physician Assistant Studies, Physical Therapy, and related health professions programs. Progress during the reporting period reflects the importance of continued investment in faculty, staff, and supporting infrastructure to meet growing student demand and statewide workforce needs. While capacity challenges related to clinical placements, laboratory space, and faculty availability remain, the project has strengthened NAU's ability to serve Arizona communities and advance its goal of increasing the number of healthcare professionals educated across the state.

Investment Detail

	2026		2027		2028		Total
Infrastructure	\$	0	\$	0	\$	0	0
Basic Research	\$	0	\$	0	\$	0	0
Applied Research	\$	0	\$	0	\$	0	0
Development	\$	0	\$	0	\$	0	0
Total	\$	0	\$	0	\$	0	0

Investment Narrative

Funds allocated to support the continued investment in NAU Health program expansions will be required in future years when existing sources are fully exhausted. This will occur in FY27 and as such, no allocation of funds was made to continuing health investments in FY26. We expect to allocate and expend \$7.5 million in FY27 and 28.

Budget Detail

	2026		2027		2028		Total
Salaries	\$	0	\$	0	\$	0	0
ERE	\$	0	\$	0	\$	0	0
Travel	\$	0	\$	0	\$	0	0
Equipment	\$	0	\$	0	\$	0	0
Supplies & Materials	\$	0	\$	0	\$	0	0
Contracts & Consultants	\$	0	\$	0	\$	0	0
Meetings & Conferences	\$	0	\$	0	\$	0	0
Sub Awards	\$	0	\$	0	\$	0	0
Total	\$	0	\$	0	\$	0	0

Budget Narrative

No expense activity in FY26 as other sources of funds were exhausted before tapping into TRIF funds.

Metric

Nursing Enrollments

2026		2027		2028	
Projected	482	Projected	755	Projected	791
Actual	495	Actual		Actual	

Metric

Nursing Graduates

2026		2027		2028	
Projected	406	Projected	796	Projected	772
Actual	364	Actual		Actual	

Metric

CHHS Enrollments (Physical Therapy, Physician Assistant, Doctorate in Medical Science)

2026		2027		2028	
Projected	640	Projected	582	Projected	614
Actual	633	Actual		Actual	

Metric					
CHHS Degrees Awarded (Physical Therapy, Physician Assistant, Doctorate in Medical Science)					
2026			2027		2028
Projected	216		Projected	212	Projected
Actual	211		Actual		Actual

Institution	Northern Arizona University	
Grant Type	University Research, Attainment, and Workforce	
TRIF Investment Area	Workforce Development	
Program Name	Continuing Support for Existing and Expanded Access and Workforce Development Programs	
Project Lead	Karen Pugliesi, Executive Vice President and University Provost; Karen.Pugliesi@nau.edu	

Proposal

Problem Statement

Arizona faces a critical gap in adult educational attainment and workforce readiness, with many residents lacking access to flexible, career-aligned programs. NAU's continued and proposed expansion addresses this need by delivering targeted degrees and training statewide, empowering adult learners and meeting unique and urgent labor market demands. Continued TRIF funding is essential to bridge this gap and build a resilient, future-ready workforce.

Program Description

NAU seeks continued support to expand access and workforce development programs that meet Arizona's evolving educational and economic needs. Over the next three years, we will deliver flexible, high-quality online, hybrid, and in-person programs for adult learners, especially those with some college but no degree, and working professionals seeking career advancement. Strategic expansion of reduced-credit degrees and enhanced student support services will lessen time to degree and improve student outcomes. This investment will strengthen Arizona's workforce, promote economic mobility, and ensure equitable access to quality higher education statewide.

Institution Advantage

AWD TRIF funds have supported over sixty full-time faculty and staff positions dedicated to delivering programs statewide and online for two decades. We continue to look for opportunities to strategically optimize usage of TRIF funds but rely on the funds for the continued operation of a large portion of our statewide workforce-oriented programming. Rising costs and flat allocations have forced difficult decisions in recent years. Annual funding increases reflect inflationary impacts on expenditures.

Arizona Specific Benefit

Almost 800,000 Arizonans have some college, but no credentials. Many adult learners are first generation students who pay their way through college alongside work and family commitments. Arizona's economy needs a skilled workforce who has opportunities for lifelong learning and upskilling. Offering digitally enhanced, supportive, workforce-aligned credentials address our regional labor needs while reducing costs for students. Holistic student support accelerates credential completion, which has transformative impacts for individual learners, their family, and their communities.

Substantive changes to the original proposal

None

Project Continuation	In progress
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Project Status	On Schedule
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Progress Report

NAU continued to support online and in-person statewide programs designed to meet adult learners where they work, live, and learn. Undergraduate offerings primarily supported adults with some college and no degree, while graduate programs supported learners seeking career advancement through master's and terminal degrees. The project supported expanded statewide offerings in behavioral health, including School Psychology, School Counseling, and Clinical Mental Health Counseling, and continued investment in education and health science programs. NAU also invested in statewide and online operations, including recruitment and retention support, community college partnerships, success coaching, instructional design, and distance learning compliance.

Key milestones included continued enrollment growth in expanded behavioral health programs, with increases of 26% in FY26. In FY26, NAU streamlined its statewide footprint from 14 locations into NAU's Desert Campuses, now operating in five locations with plans to further refine the model to three or four. Additional workforce-aligned launches included reduced-credit Bachelor of Professional Studies programs in Engineering Technology and Hospitality Business Administration, expansion of the MBA through NAU Online, graduate healthcare credentials, and new artificial intelligence-related undergraduate and certificate offerings.

The project directly benefits Arizona by expanding access to workforce-aligned credentials across the state and online, particularly for adult learners and students in regions with high job demand and lower educational attainment levels. NAU partners with Arizona community colleges to support Arizona's post-secondary attainment rate and offers programs on-site at four colleges. In FY26, NAU awarded 609 degrees and 47 certificates in education and health science disciplines, resulting in 656 candidates prepared for jobs in hospitals, clinics, and schools. Of these graduates, 52 completed master's or terminal degrees, preparing them for leadership and other high-wage careers.

Several approaches contributed to progress, including alignment of program offerings with Arizona workforce needs, partnership with

Arizona community colleges, and investments in statewide and online student support infrastructure. NAU Online's retention-focused success coaching team contributed to improved 1-year retention rates amongst online student populations, including an 8.4% improvement for first-time full-time students and a 4.1% improvement for transfer students who began in Fall 2024. The team also piloted engagement tools, including InScribe and Mogli, and refined orientation and intake processes to strengthen students' sense of belonging. The recent integration of the Advanced Creative and Instructional Design team with the Teaching and Learning Center will create a unified instructional design unit to support online course production, faculty training, quality assurance, and digital learning tools across online and hybrid modalities.

Challenges include a highly competitive market for students seeking strong returns on their educational investments. Marketing costs are expensive, requiring small investments to yield the greatest possible impact. Online and statewide students also have distinctive support needs, and students from lower socioeconomic backgrounds may experience greater disruptions due to cost pressures and competing employment and family responsibilities. These lessons reinforce the importance of targeted recruitment, carefully prioritized marketing investments, tailored student support, and continued refinement of statewide and online program models.

Overall Project Assessment

The project continues to advance its goal of expanding access to workforce-aligned education for Arizona residents through coordinated efforts in academic program development, statewide and online delivery, student support, and workforce partnerships. During the reporting period, NAU expanded and refined its academic portfolio, launched new workforce-focused programs, strengthened retention and student success initiatives, and streamlined statewide operations to better align resources with student and workforce needs.

These efforts have increased access to flexible educational pathways for adult learners while supporting Arizona's workforce priorities in education, healthcare, technology, and other high-demand fields. Although challenges remain related to student recruitment, marketing costs, and the needs of working adult learners, the project remains aligned with its objectives and continues to demonstrate positive progress toward improving educational attainment, workforce readiness, and economic opportunity across Arizona.

Investment Detail

	2026	2027	2028	Total
Infrastructure	\$ 6,630,000	\$ 0	\$ 0	\$ 6,630,000
Basic Research	\$ 0	\$ 0	\$ 0	\$ 0
Applied Research	\$ 0	\$ 0	\$ 0	\$ 0
Development	\$ 0	\$ 0	\$ 0	\$ 0
Total	\$ 6,630,000	\$ 0	\$ 0	\$ 6,630,000

Investment Narrative

Internal allocations allot 39% of NAU's base allocation to AWD initiatives. For FY26 that amounted to \$6,630,000, which was allocated entirely to continuing support for existing AWD programs.

Budget Detail

	2026	2027	2028	Total
Salaries	\$ 4,726,814	\$ 0	\$ 0	\$ 4,726,814
ERE	\$ 1,628,406	\$ 0	\$ 0	\$ 1,628,406
Travel	\$ 11,081	\$ 0	\$ 0	\$ 11,081
Equipment	\$ 0	\$ 0	\$ 0	\$ 0
Supplies & Materials	\$ 150,804	\$ 0	\$ 0	\$ 150,804
Contracts & Consultants	\$ 112,896	\$ 0	\$ 0	\$ 112,896
Meetings & Conferences	\$ 0	\$ 0	\$ 0	\$ 0
Sub Awards	\$ 0	\$ 0	\$ 0	\$ 0
Total	\$ 6,630,000	\$ 0	\$ 0	\$ 6,630,000

Budget Narrative

The vast majority (96%) of the budget in FY26 was spent on personnel related expenses. Over 60 full-time faculty and staff are funded from continuing AWD funding as well as over 100 PT faculty teaching courses statewide and online. These position are critical to the ongoing success of our access efforts.

Metric

Desert Campuses: 1-year retention rate

2026		2027		2028	
Projected	80.0%	Projected	80.0%	Projected	80.0%
Actual	68.9%	Actual		Actual	

Metric

Desert Campuses: 4-year graduation rate

2026		2027		2028	
Projected	90.0%	Projected	90.0%	Projected	90.0%
Actual	87.0%	Actual		Actual	

Metric

NAU Online: 1-year retention rate

2026		2027		2028	
Projected	65.0%	Projected	67.0%	Projected	69.0%
Actual	65.1%	Actual		Actual	

Metric

NAU Online: Graduate students (retention & graduation combined)

2026		2027		2028	
Projected	80.0%	Projected	80.0%	Projected	80.0%
Actual	77.9%	Actual		Actual	

Institution	Northern Arizona University	
Grant Type	University Research, Attainment, and Workforce	
TRIF Investment Area	Water, Environment and Energy Solutions	
Program Name	Forest Health, Wildfire and Environment	
Project Lead	Jason Wilder, Vice President for Research, Jason.Wilder@nau.edu	

Proposal		
Problem Statement		
Arizona's forests and ecosystems face increasing threats from wildfires, climate change, drought, and biodiversity loss. Science-based restoration strategies and interdisciplinary research are needed to address these challenges and build resilience in both natural landscapes and communities.		
Program Description		
This program combines NAU's strengths in forest restoration, wildfire science, climate science and ecosystem adaptation through the Ecological Restoration Institute (ERI), School of Forestry, Center for Ecosystem Science and Society (ECOSS), Center for Adaptable Western Landscapes (CAWL), as well as associated academic units. Key activities include post-fire recovery studies, soil health research, biodiversity conservation, and student field training. The program engages tribal and rural communities and informs land management and policy through interdisciplinary research in biology, informatics, and social science.		
Institution Advantage		
TRIF funding supports program operations, interdisciplinary labs, and federal collaborations, enabling infrastructure upgrades and student research experiences. Program researchers secure external funding from NSF, DoD, USDA and other agencies, reinforcing NAU's leadership in forest and environmental science.		
Arizona Specific Benefit		
The program improves forest resilience, informs land use and wildfire policy for regional, statewide and nationwide stakeholders, and supports rural economies and tribal partnerships. Through dedicated public outreach and stakeholder and land owner engagement efforts, the program provides science-based insights and recommendations that impact the safety and well-being of Arizona's residents. Efforts of program researchers also help grow Arizona's STEM workforce in the natural resource industries.		
Substantive changes to the original proposal		
None		
Project Continuation	In progress	
Project Status	On Schedule	

Progress Report		
Work Completed		
During the reporting period, program researchers advanced a highly integrated portfolio of forest health, wildfire, and ecosystem science research through three of NAU's research centers (Center for Advanced Western Landscapes, Center for Ecosystem Science and Society, and the Ecological Restoration Institute), and the School of Forestry. Program researchers collectively produced over 110 peer-reviewed publications, supported more than 180 undergraduate and graduate students, and delivered extensive field-based, laboratory, and computational research on ecosystem resilience, biodiversity, and climate impacts. Contributions were also made in applied research focused on ecological restoration implementation and wildfire risk reduction, including work on forest thinning economics, post-wildfire recovery, and fuels treatment effectiveness. Additional activities included development of decision-support tools (e.g., the ReSHAPE Program's Treatment and Wildfire Interagency Geodatabase), large-scale outreach and engagement events, and collaborative research tied to industry-funded projects addressing watershed protection, invasive species, and post-wildfire ecosystem recovery.		
Milestones Achieved		
Key milestones include major advances in actionable wildfire and forest management science. ERI researchers demonstrated that stump-to-truck processing and transportation account for 94–96% of mechanical thinning costs and identified opportunities to improve cost estimation, supporting efforts to increase the pace and scale of fuel treatment implementation. Ecosystem researchers achieved a landmark publication demonstrating that boreal forests dominated by deciduous species release less than half as much carbon during wildfire compared to conifer systems, reshaping understanding of climate–fire feedbacks. CAWL sustained strong funding and productivity and hosting a regional conference with ~450 participants. Additional milestones include confirmation of new externally funded projects, expansion of national data infrastructure for fuel treatments, and implementation of collaborative efforts with the Salt River Project addressing water, habitat, and ecosystem restoration challenges. TRIF investments have also been leveraged to advance the Wildfire Insurance and Resilient Economies (WIRE) initiative, including planning for a forest insurance workshop and development of longer-term research capacity focused on wildfire risk, insurance, and community resilience.		
Arizona Benefit or Impact		
The programs provide substantial benefits to Arizona by directly informing forest management, wildfire mitigation, and watershed		

protection strategies. ERI research demonstrates the feasibility and scalability of forest thinning and restoration treatments, accelerating efforts to reduce hazardous fuels and protect communities. Additional benefits to Arizona include the development and implementation of science-based approaches for communicating post-wildfire flood risk, helping land managers and local communities improve preparedness, target mitigation efforts, and support more effective recovery following wildfire. ERI research has identified best practices for tailoring risk communication, coordinating across jurisdictions, and encouraging long-term investments that reduce flood vulnerability and strengthen community resilience. CAWL and Ecos research further supports land managers and Tribal communities through applied work on dryland ecosystems, culturally important species, and post-fire recovery. Collectively, these efforts also provide hands-on training opportunities for undergraduate and graduate students, as well as early-career professionals, strengthening Arizona's workforce in forestry, ecology, wildfire science, and environmental management.

What Worked Well

The programs' success is driven by strong integration across basic research, applied science, and stakeholder engagement. Interdisciplinary collaboration enabled translation of research into actionable management strategies, while partnerships with federal agencies, Tribal Nations, and industry amplified impact. Development and application of lidar and other emerging technologies for forest monitoring improved the capacity of researchers and land managers to quantify forest structure, evaluate treatment outcomes, and inform restoration and wildfire mitigation strategies across jurisdictions. Experiential learning through fieldwork, research assistantships, and applied projects proved highly effective for student training. In addition, co-production of knowledge with Indigenous communities and land managers ensured that research outcomes were relevant, culturally grounded, and readily adopted in practice.

Challenges and Lessons Learned

The programs faced challenges related to shifting federal funding landscapes, including grant cancellations and reduced availability of research resources. The programs also faced challenges associated with evolving federal priorities, staffing transitions, and the need to sustain interdisciplinary research and stakeholder engagement across institutions, Tribal Nations, and land management agencies while translating scientific advances into operational tools and practices. Collectively, these challenges underscore the importance of long-term investments in collaborative infrastructure and applied science, adaptable funding strategies, improved economic tools for restoration planning, and continued investment in workforce pipelines. Overall, however, the programs demonstrate a highly integrated system in which research, infrastructure, training, and partnerships operate in parallel, reinforcing progress toward resilient forest and ecosystem management outcomes.

Overall Project Assessment

The Forest Health and Ecosystem Science program is meeting its goals through an integrated approach that combines research, applied management science, workforce development, and stakeholder engagement. Significant accomplishments include high research productivity, development of decision-support tools, advances in wildfire mitigation and ecological restoration science, and expanded collaborations with agencies, Tribal Nations, and industry partners. The program is delivering direct benefits to Arizona by informing forest management, wildfire risk reduction, and watershed protection while providing a significant number of student training opportunities. Despite challenges related to funding uncertainty and sustaining collaborative networks, the program has successfully aligned research, infrastructure, training, and partnerships to advance resilient forest and ecosystem management outcomes across the state.

Investment Detail

	2026	2027	2028	Total
Infrastructure	\$ 1,974,787	\$ 0	\$ 0	\$ 1,974,787
Basic Research	\$ 124,913	\$ 0	\$ 0	\$ 124,913
Applied Research	\$ 0	\$ 0	\$ 0	\$ 0
Development	\$ 0	\$ 0	\$ 0	\$ 0
Total	\$ 2,099,700	\$ 0	\$ 0	\$ 2,099,700

Investment Narrative

Wildfire risk, forest resilience, watershed protection, and climate adaptation remain among Arizona's most pressing environmental challenges. TRIF investment in Forest Health, Wildfire and Environment supports research that delivers actionable solutions for communities, land managers, Tribal Nations, and policymakers throughout the state. By integrating basic science, applied research, stakeholder engagement, and workforce development, the initiative generates knowledge and tools that improve forest restoration strategies, wildfire mitigation efforts, and ecosystem management practices. Research outcomes directly inform decision-making and support investments that protect communities, natural resources, and critical watersheds. Continued TRIF support is essential to maintaining Arizona's leadership in wildfire science and environmental resilience while ensuring the state has the skilled workforce and scientific expertise needed to address increasingly complex environmental challenges.

Budget Detail					
	2026	2027	2028	Total	
Salaries	\$ 1,387,301	\$ 0	\$ 0	\$	1,387,301
ERE	\$ 452,541	\$ 0	\$ 0	\$	452,541
Travel	\$ 24,524	\$ 0	\$ 0	\$	24,524
Equipment	\$ 39,195	\$ 0	\$ 0	\$	39,195
Supplies & Materials	\$ 158,468	\$ 0	\$ 0	\$	158,468
Contracts & Consultants	\$ 29,497	\$ 0	\$ 0	\$	29,497
Meetings & Conferences	\$ 8,174	\$ 0	\$ 0	\$	8,174
Sub Awards	\$ 0	\$ 0	\$ 0	\$	0
Total	\$ 2,099,700	\$ 0	\$ 0	\$	2,099,700

Budget Narrative

TRIF funding supported personnel, field operations, data collection, technology development, student training, and stakeholder engagement activities focused on wildfire mitigation, forest restoration, ecosystem resilience, and environmental sustainability. Resources enabled researchers to conduct applied and basic research addressing Arizona's most pressing natural resource challenges while developing tools and information used by land managers, policymakers, Tribal Nations, and local communities. Funding also provided valuable experiential learning opportunities for students pursuing careers in forestry, ecology, environmental science, and natural resource management. These investments contribute directly to protecting Arizona communities, watersheds, forests, and economic assets from the growing impacts of wildfire and environmental change.

Metric

Peer-reviewed publications

2026		2027		2028	
Projected	110	Projected	115	Projected	120
Actual	115	Actual		Actual	

Metric

Undergraduate student research experiences

2026		2027		2028	
Projected	75	Projected	80	Projected	85
Actual	88	Actual		Actual	

Metric

Graduate student research experiences

2026		2027		2028	
Projected	86	Projected	88	Projected	90
Actual	94	Actual		Actual	

Metric

Sponsored project expenditures

2026		2027		2028	
Projected	\$ 9,100,000	Projected	\$9,150,000	Projected	\$9,200,000
Actual	\$11,900,000	Actual		Actual	

Institution	Northern Arizona University	
Grant Type	University Research, Attainment, and Workforce	
TRIF Investment Area	Water, Environment and Energy Solutions	
Program Name	Forestry and Wildfire Management	
Project Lead	Karen Pugliesi, Executive Vice President and University Provost; Karen.Pugliesi@nau.edu	

Proposal		
Problem Statement		
NAU's Forestry and Wildfire Management efforts 1.) tackle the growing insurance crisis in the Western U.S., driven by the increasing severity of wildfires, and 2.) bridge fire science, urban planning, and applied mitigation strategies to redefine wildfire risk by focusing on urban fire dynamics and advancing prevention strategies that address both wildland and urban ignition sources.		
Program Description		
Understanding the failure of insurance will lead to 1.) the development of actionable insurance model innovations that prioritize prevention and resilience, 2.) engagement activities that focus on shifting public and policymaker perspectives to recognize the economic and ecological benefits of proactive wildfire management, and 3.) establishment of new valuation frameworks that integrate ecosystem services into economic and policy decisions. Additionally, urban fire dynamics research will lead to 1.) actionable insights to enhance resilience and reduce wildfire impacts in both wildland and urban communities, and 2.) inform policy shifts and practical applications for at-risk regions across the Western U.S.		
Institution Advantage		
The Wildfire / Forestry projects expand upon the state's \$5M investment in the Wildfire initiative via federal grant funding and represent NAU's strongest opportunities for securing additional federal funding to amplify their impact given the traditional bipartisan support in this area.		
Arizona Specific Benefit		
NAU proposes several projects that will expand the impact of its nationally recognized Forestry programs, enhancing forest resilience, mitigating wildfire risks, and redefining economic approaches to wildfire management.		
Substantive changes to the original proposal		
None		
Project Continuation	In progress	
Project Status	On Schedule	

Progress Report		
During the first year, efforts focused on project planning and recruitment of the interdisciplinary team needed to implement the initiative. A national search was conducted for four key positions, and three positions were successfully filled including the Program Manager, Research Associate, and tenure-track economist. Planning also began for a Fall 2026 workshop with Kimiko Barrett of the Alliance for Wildfire Resilience to support project implementation and partnership development.		
A major milestone was the successful recruitment of three of the four planned positions, establishing much of the interdisciplinary expertise needed to advance the project's research and workforce development goals. Recruitment of the final faculty position is nearing completion, with negotiations underway with the selected candidate. Planning for the Fall 2026 stakeholder workshop also marks an important implementation milestone.		
The project will strengthen Arizona's capacity to address wildfire and forest management challenges through integrated research, workforce development, and stakeholder engagement. Building an interdisciplinary team and cultivating partnerships will support the development of knowledge, workforce expertise, and collaborative approaches needed to address critical forest and wildfire issues across the state.		
The national recruitment strategy was effective in attracting highly qualified candidates and successfully filling three key positions during the first year. Early planning efforts and engagement with external partners, including the Alliance for Wildfire Resilience, have helped establish a strong foundation for future project activities.		
No significant challenges have been encountered to date. The primary remaining risk is the timing of the final faculty hire. While a delay until Spring 2027 could require minor adjustments to planning and coordination, it is not expected to affect the overall scope or objectives of the project. This highlights the importance of maintaining flexibility in project timelines while continuing implementation activities.		

Overall Project Assessment

Although the project is scheduled to begin in August 2026, planning and recruitment activities have already begun to support implementation. Three of the four planned positions have been filled, including the Program Manager, Research Associate, and tenure-track economist, and planning has begun for a fall workshop with collaborators Kimiko Barrett (Alliance for Wildfire Resilience) and Doug Green (Doki Solutions) to support project coordination and stakeholder engagement.

Investment Detail

	2026	2027	2028	Total
Infrastructure	\$ 125,227	\$ 0	\$ 0	\$ 125,227
Basic Research	\$ 0	\$ 0	\$ 0	\$ 0
Applied Research	\$ 0	\$ 0	\$ 0	\$ 0
Development	\$ 0	\$ 0	\$ 0	\$ 0
Total	\$ 125,227	\$ 0	\$ 0	\$ 125,227

Investment Narrative

Year 1 investments focused on establishing the personnel and organizational capacity necessary for long-term project success. Resources supported strategic recruitment, project planning, and the development of interdisciplinary collaborations that will enable the initiative to address Arizona's forestry and wildfire management challenges through integrated research, education, and stakeholder engagement.

Budget Detail

	2026	2027	2028	Total
Salaries	\$ 91,145	\$ 0	\$ 0	\$ 91,145
ERE	\$ 25,847	\$ 0	\$ 0	\$ 25,847
Travel	\$ 5,052	\$ 0	\$ 0	\$ 5,052
Equipment	\$ 0	\$ 0	\$ 0	\$ 0
Supplies & Materials	\$ 3,182	\$ 0	\$ 0	\$ 3,182
Contracts & Consultants	\$ 0	\$ 0	\$ 0	\$ 0
Meetings & Conferences	\$ 0	\$ 0	\$ 0	\$ 0
Sub Awards	\$ 0	\$ 0	\$ 0	\$ 0
Total	\$ 125,227	\$ 0	\$ 0	\$ 125,227

Budget Narrative

Year 1 expenditures primarily supported personnel recruitment and project start-up activities. Funding was used for student worker support, personnel-related expenses, travel associated with project planning and recruitment, candidate interview expenses for strategic faculty and staff positions, and routine communication costs. These investments were consistent with the planned first-year emphasis on building project capacity and establishing the interdisciplinary team needed to implement the initiative.

Metric

Hiring 4 key project positions

2026	2027	2028
Projected 4	Projected 4	Projected 4
Actual 3	Actual	Actual

Metric

Initiate collaborative planning activities: Planning interdisciplinary workshops with the first to take place September 11, 2026

2026	2027	2028
Projected 0	Projected 1	Projected 2
Actual 0	Actual	Actual

Institution	Northern Arizona University	
Grant Type	University Research, Attainment, and Workforce	
TRIF Investment Area	Improving Health	
Program Name	Pathogen Genomics & Microbiome Science	
Project Lead	Jason Wilder, Vice President for Research, Jason.Wilder@nau.edu	

Proposal		
Problem Statement Arizona faces ongoing threats from pathogenic infectious disease; at the same time, there are outstanding opportunities in microbiome science to better understand human and environmental health. Current diagnostic tools and data science methods can provide more timely detection and response to disease outbreaks, characterize microbial pathogens, and better direct health interventions. There is a need for continued research focused on advanced genomic technologies and robust data science pipelines to address these critical health issues.		
Program Description NAU's Pathogen and Microbiome Institute (PMI), focuses on understanding the ecology, evolution, and transmission of infectious agents, while also advancing research that characterizes microbial communities to understand interactions with human and environmental health. This institute serves public health agencies, healthcare providers, and research communities by developing genomic surveillance systems, diagnostic innovations, environmental monitoring tools, and novel data analysis pipelines. Activities include sequencing pathogen genomes, studying microbiome-host interactions, and training students in bioinformatics. Outcomes include faster disease detection, improved outbreak response, new data analysis tools, and the development of new and optimized treatments for infectious diseases and other human health issues.		
Institution Advantage NAU's PMI houses state-of-the-art facilities, including a world-class biosafety level 3 laboratory, advanced sequencing and analysis platforms, and exclusive access to unique microbial specimen banks. TRIF funding has expanded infrastructure and supported over 70 active research awards. These resources position NAU to attract competitive federal grants from agencies such as NIH, CDC, and DoD, while fostering collaborations with healthcare systems and industry partners.		
Arizona Specific Benefit The program strengthens Arizona's public health infrastructure by improving diagnostic speed and accuracy, which in turn, enables early detection of pathogens in clinical and environmental settings. It enhances the state's ability to respond to outbreaks, better directs disease treatment, supports STEM workforce development through experiential training, and drives economic growth through technology commercialization and industrial partnerships.		
Substantive changes to the original proposal None		
Project Continuation	In progress	
Project Status	On Schedule	

Progress Report		
Work Completed During the reporting period, the Pathogen Genomics and Microbiome Sciences program advanced a comprehensive portfolio of research in infectious disease genomics and microbiome science through the efforts of a multidisciplinary team of over 120 faculty, staff, and students. Activities focused on genomic surveillance, diagnostic innovation, environmental monitoring, and microbiome-host interaction studies, among others. Researchers developed improved pathogen detection tools, conducted studies across clinical and environmental settings, and pursued collaborative work on treatments for diseases such as Valley Fever. TRIF funding supported expansion of sequencing capabilities, laboratory infrastructure, and bioinformatics training programs, while also enabling strong research productivity and continued student engagement in hands-on scientific work.		
Milestones Achieved Key milestones include sustained progress in externally funded research activity, with over 40 active awards, as well as a high level of scholarly output, including more than 50 peer-reviewed publications and multiple patents. The program achieved major advances in rapid pathogen characterization, including improved genomic surveillance systems and validated diagnostic tools that increase detection speed and accuracy. Environmental monitoring efforts spanning wastewater, household, and wildlife contexts represent an important benchmark in expanding early detection capabilities. In addition, collaborative research initiatives targeting Valley Fever and other infectious diseases mark important scientific and public health milestones.		
Arizona Benefit or Impact The Pathogen Genomics and Microbiome Sciences program has delivered strong benefits to Arizona by enhancing public health preparedness and strengthening the state's research ecosystem. Advances in genomic surveillance and diagnostics improve the state's capacity to detect and respond to infectious disease outbreaks, while research insights inform public health decision-making.		

For example, the program assisted the Arizona Department of Health Services with genomics-based investigations of two recent human plague cases in Arizona, one of them fatal. The program also contributes to workforce development by training students and postdoctoral researchers in high-demand areas such as genomics and bioinformatics. These efforts elevate NAU's reputation, attract federal funding, and foster collaborations that drive economic and scientific growth across Arizona.

What Worked Well

The program's success has been driven by its interdisciplinary structure, strong external partnerships, and targeted investment in infrastructure and training. Collaboration across scientific domains, coupled with access to advanced laboratory facilities such as biosafety level 3 environments, enabled rapid progress in addressing complex infectious disease challenges. TRIF funding proved particularly effective in supporting both research capacity (e.g., sequencing and diagnostics) and workforce development through student training in bioinformatics and applied research. The integration of research, training, and real-world application allowed the program to deliver both scientific and societal impact simultaneously.

Challenges and Lessons Learned

The program continues to navigate challenges associated with maintaining advanced research infrastructure, particularly high-containment laboratory facilities, as well as rising costs for labor and equipment. Recruitment and retention of specialized personnel remain ongoing concerns, compounded by broader cost-of-living pressures. Additionally, shifting federal funding priorities and increasing regulatory complexity present uncertainties for sustaining long-term research efforts. These challenges highlight the importance of strategic planning and diversified funding strategies. Overall, the program demonstrates strong integrated performance, with parallel advances in research, infrastructure, and workforce development reinforcing each other while informing adaptive strategies for continued success.

Overall Project Assessment

The Pathogen Genomics & Microbiome Science initiative demonstrates strong overall alignment between its original proposal goals and progress to date, effectively advancing a multi-dimensional research portfolio that integrates genomic surveillance, diagnostic innovation, environmental monitoring, and microbiome science. Leveraging NAU's established infrastructure and interdisciplinary expertise, the program has operationalized its objectives through coordinated efforts that link data science, laboratory research, and real-world public health applications. Measurable outcomes (robust publication output, external funding success, and student training in bioinformatics and genomics) indicate that TRIF investments are strengthening both research competitiveness and workforce development. The project has delivered meaningful benefits to Arizona by improving disease detection capacity and public health responses while supporting economic growth through partnerships and innovation. Despite ongoing challenges related to infrastructure costs and evolving federal requirements, the initiative shows a high level of integration and resilience, with parallel research, training, and translational activities reinforcing one another to produce sustained scientific and societal impact.

Investment Detail

	2026	2027	2028	Total
Infrastructure	\$ 1,268,280	\$ 0	\$ 0	\$ 1,268,280
Basic Research	\$ 28,091	\$ 0	\$ 0	\$ 28,091
Applied Research	\$ 0	\$ 0	\$ 0	\$ 0
Development	\$ 0	\$ 0	\$ 0	\$ 0
Total	\$ 1,296,371	\$ 0	\$ 0	\$ 1,296,371

Investment Narrative

TRIF investment in Pathogen Genomics and Microbiome Sciences continues to generate substantial returns for Arizona through advancements in public health, workforce development, and externally funded research. The initiative has built and sustained nationally recognized capabilities in pathogen surveillance, diagnostics, genomics, and microbiome science that directly support Arizona's ability to respond to emerging infectious disease threats. Investments in laboratory infrastructure, sequencing technologies, and bioinformatics training have strengthened research capacity while producing meaningful public health outcomes. The program's strong record of publications, external funding, patents, and partnerships demonstrates that TRIF funding serves as a catalyst for scientific innovation and economic impact. Continued investment will ensure Arizona remains a leader in infectious disease research while developing a highly skilled workforce prepared to address future health challenges.

Budget Detail

	2026	2027	2028	Total
Salaries	\$ 795,535	\$ 0	\$ 0	\$ 795,535
ERE	\$ 239,849	\$ 0	\$ 0	\$ 239,849
Travel	\$ 12,187	\$ 0	\$ 0	\$ 12,187
Equipment	\$ 0	\$ 0	\$ 0	\$ 0
Supplies & Materials	\$ 222,641	\$ 0	\$ 0	\$ 222,641
Contracts & Consultants	\$ 24,591	\$ 0	\$ 0	\$ 24,591
Meetings & Conferences	\$ 1,568	\$ 0	\$ 0	\$ 1,568
Sub Awards	\$ 0	\$ 0	\$ 0	\$ 0
Total	\$ 1,296,371	\$ 0	\$ 0	\$ 1,296,371

Budget Narrative

TRIF funding supported critical investments in personnel, laboratory operations, genomic sequencing capabilities, bioinformatics infrastructure, student training, and research support activities necessary to maintain Arizona's leadership in pathogen genomics and microbiome science. Funding enabled researchers to conduct advanced infectious disease surveillance, develop diagnostic tools, expand environmental monitoring programs, and strengthen collaborative public health partnerships. Resources also supported workforce development through student and postdoctoral training in high-demand fields including genomics, bioinformatics, and data science. These investments enhanced Arizona's public health preparedness, increased the competitiveness of researchers for external funding opportunities, and generated scientific discoveries with direct benefits to the state's residents and healthcare systems.

Metric

Peer-reviewed publications

2026		2027		2028	
Projected	50	Projected	53	Projected	56
Actual	56	Actual		Actual	

Metric

Undergraduate student research experiences

2026		2027		2028	
Projected	35	Projected	39	Projected	41
Actual	37	Actual		Actual	

Metric

Graduate student research experiences

2026		2027		2028	
Projected	30	Projected	33	Projected	34
Actual	32	Actual		Actual	

Metric

Sponsored project expenditures

2026		2027		2028	
Projected	\$7,500,000	Projected	\$7,550,000	Projected	\$7,600,000
Actual	\$9,210,000	Actual		Actual	

Institution	Northern Arizona University	
Grant Type	University Research, Attainment, and Workforce	
TRIF Investment Area	Water, Environment and Energy Solutions	
Program Name	Remote Sensing Applications & Instrument Development	
Project Lead	Jason Wilder, Vice President for Research, Jason.Wilder@nau.edu	

Proposal

Problem Statement

Research that utilizes remote sensing-based technologies is drastically and rapidly changing methods of data acquisition and analysis across a broad array of scientific fields, with applications that span the earth, environmental and planetary sciences, agricultural technology development, defense-related purposes, and more. Arizona lacks a centralized hub for remote sensing research and instrument development, despite having significant faculty expertise in this area and growing demand in the space, geology, forestry, and ecological/cultural resource monitoring sectors.

Program Description

NAU addresses the problem through research in the Radiant Center for Remote Sensing, which unites over 30 faculty across multiple colleges to advance remote sensing science and instrument development. The program supports research in planetary science, ecology, forestry, archaeology, agriculture and engineering, while fostering student engagement through hands-on training, interdisciplinary coursework, and career readiness initiatives. A goal of this new program is to develop novel sensing technologies and applications, expand public-private partnerships, and elevate NAU's national profile in remote sensing innovation.

Institution Advantage

The program benefits from NAU's strategic investment through TRIF funding into research instrumentation and cluster hiring initiatives. It leverages diverse federal, state, and private funding sources, including NASA, NSF, USDA, and DoD. Dedicated grant support staff and internal proposal review processes further enhance funding success.

Arizona Specific Benefit

Program researchers prepare students for careers in Arizona's aerospace, environmental, and technology sectors through technical training and research experiences. It supports Tribal and community partners with non-invasive sensing for cultural and ecological stewardship, and strengthens Arizona's leadership in planetary science, climate resilience, and remote sensing innovation.

Substantive changes to the original proposal

None

Project Continuation	In progress
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Project Status	On Schedule
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Progress Report

Work Completed

During the reporting period, activities aligned with the Remote Sensing and Instrument Development initiative advanced through the establishment and early implementation of NAU's Radiant Center for Remote Sensing. Building on faculty across multiple disciplines, the program coalesced expertise in remote sensing applications, data science, and engineering-driven instrument development into a coordinated, multidisciplinary framework. Work included development and application of advanced sensing approaches across platforms (UAV, terrestrial, satellite, and space-based systems), expansion of computing and data infrastructure, and integration of engineering and science teams to design and test new instruments. Faculty and student research spanned ecological monitoring, wildfire impacts, planetary science, cultural resource documentation, and hazard detection, with associated efforts in coursework development, certificate planning, and hands-on training experiences to support workforce readiness. In its first year of formation, Radiant has coalesced ~70 members from across the university, including 18 core researchers, 11 affiliate researchers, 10 administrative and technical staff, 8 postdoctoral scholars, and more than 24 graduate students.

Milestones Achieved

Key milestones include the formal organization of the Radiant Center as a cross-college entity and the successful integration of cluster-hire faculty into ongoing research programs. The program established four core activity domains (applications, science innovations, instrument development, and mission/platform development) creating a structured pathway from basic research to large-scale instrument and mission proposals. Additional milestones include the advancement of instrument development capabilities in UAV-based sensing, hyperspectral imaging, lidar, and radar applications. Development of collaborative proposal strategies and progress toward new academic offerings such as a remote sensing certificate were also key accomplishments. The program strengthened partnerships with federal, state, and Tribal stakeholders and positioned itself for major funding opportunities (NASA, NSF, DoD, USDA, and USGS programs), marking a transition toward sustained, externally funded operations. Radiant also successfully won two NASA spaceflight instrument development programs in partnership with ASU and UA to send a suite of NAU-built instruments to the lunar surface in the coming years.

Arizona Benefit or Impact

The initiative delivers significant benefits to Arizona by addressing critical environmental, cultural, and resource management challenges through advanced sensing technologies. Remote sensing research supports wildfire monitoring, forest health assessment, water and drought analysis, and land-use planning, while also enabling non-invasive documentation of culturally significant sites in collaboration with Tribal communities. Regional field environments such as the Colorado Plateau and Grand Canyon provide unique resources for place-based research and student training. The program also contributes to workforce development by preparing students with in-demand technical skills in geospatial analysis, instrumentation, and data science, supporting Arizona's growing aerospace, environmental monitoring, and technology sectors. In support of our flight-development programs, we are actively recruiting talent from existing student pipelines to established industry partners. Further we are working to establish partnerships with industry to fabricate and design components within Arizona.

What Worked Well

The program's success is driven by its integrated model linking scientific applications with engineering innovation. Bringing together diverse faculty across colleges enabled rapid development of cross-disciplinary projects and strengthened proposal competitiveness. The combination of distributed expertise with centralized administrative and technical support improved efficiency in grant development and project execution. Additionally, strong engagement with external partners ensured that research outcomes were directly relevant to stakeholder needs. Experiential learning through fieldwork, instrument design, and real-world applications proved particularly effective for student training and career preparation.

Challenges and Lessons Learned

The program faces challenges related to scaling interdisciplinary collaboration, managing complex infrastructure needs, and sustaining funding in a competitive federal environment. The distributed nature of faculty and facilities initially limits efficiency, highlighting the importance of long-term plans to co-locate personnel and laboratories. High-cost instrumentation and data infrastructure require strategic investment and shared governance models which have begun. Additionally, the complexity of integrating engineering and science workflows underscores the need for dedicated technical staff and project coordination. Despite these challenges, the initiative demonstrates strong integration across research, training, and infrastructure, with parallel activities in instrument development, data science, and applied research reinforcing one another and positioning Radiant as a cohesive and scalable research enterprise.

Overall Project Assessment

The Remote Sensing and Instrument Development initiative has established a highly integrated research enterprise at NAU, in particular through the Radiant Center for Remote Sensing. The program successfully unified expertise across remote sensing, data science, engineering, and applied research, in order to foster a coordinated framework that supports scientific discovery, instrument development and workforce training. Notable accomplishments include the expansion of advanced sensing and instrumentation capabilities, successful NASA-funded lunar instrument development projects, and progress toward new educational pathways and student training opportunities. The initiative is generating meaningful benefits for Arizona by addressing critical environmental, resource management, and cultural heritage challenges while preparing students for careers in aerospace, geospatial technologies, and data science. Although challenges remain related to infrastructure needs, interdisciplinary coordination, and long-term funding sustainability, the program has established a strong foundation and demonstrates an effective model in which research, training, and technology development coalesce to create lasting scientific, educational, and economic impact.

Investment Detail

	2026	2027	2028	Total
Infrastructure	\$ 2,279,351	\$ 0	\$ 0	\$ 2,279,351
Basic Research	\$ 17,964	\$ 0	\$ 0	\$ 17,964
Applied Research	\$ 0	\$ 0	\$ 0	\$ 0
Development	\$ 0	\$ 0	\$ 0	\$ 0
Total	\$ 2,297,315	\$ 0	\$ 0	\$ 2,297,315

Investment Narrative

TRIF investment in Remote Sensing and Instrument Development enables Arizona to capitalize on growing opportunities in aerospace, environmental monitoring, geospatial technologies, and national security research. Through the Radiant Center for Remote Sensing, TRIF funding has established a multidisciplinary platform that integrates scientific discovery, engineering innovation, workforce training, and technology development. Investments have supported the development of advanced sensor technologies, data infrastructure, and collaborative research programs while positioning Arizona researchers to compete successfully for major federal funding opportunities. The initiative provides direct benefits to the state through applications in wildfire monitoring, water resources management, drought assessment, cultural resource preservation, and space exploration. Continued investment will accelerate technology innovation, strengthen Arizona's aerospace sector, and prepare students for high-demand careers in emerging technical fields.

Budget Detail					
	2026	2027	2028	Total	
Salaries	\$ 1,346,438	\$ 0	\$ 0	\$	1,346,438
ERE	\$ 448,535	\$ 0	\$ 0	\$	448,535
Travel	\$ 74,032	\$ 0	\$ 0	\$	74,032
Equipment	\$ 220,533	\$ 0	\$ 0	\$	220,533
Supplies & Materials	\$ 188,927	\$ 0	\$ 0	\$	188,927
Contracts & Consultants	\$ 13,094	\$ 0	\$ 0	\$	13,094
Meetings & Conferences	\$ 5,756	\$ 0	\$ 0	\$	5,756
Sub Awards	\$ 0	\$ 0	\$ 0	\$	0
Total	\$ 2,297,315	\$ 0	\$ 0	\$	2,297,315

Budget Narrative

TRIF funds supported faculty recruitment, research infrastructure, instrumentation development, computing resources, student training, and collaborative research activities associated with the Radiant Center for Remote Sensing and other areas. Investments enabled multidisciplinary research teams to advance next-generation sensing technologies and innovative applications addressing natural resource management, wildfire monitoring, environmental assessment, hazard detection, and space science. Funding also supported workforce development by providing students with hands-on experience in remote sensing, instrumentation, data analytics, and engineering. These investments position Arizona as a leader in emerging aerospace, geospatial, and environmental technology sectors while increasing competitiveness for federal research funding.

Metric

Peer-reviewed publications

2026		2027		2028	
Projected	45	Projected	49	Projected	55
Actual	57	Actual		Actual	

Metric

Undergraduate student research experiences

2026		2027		2028	
Projected	20	Projected	22	Projected	24
Actual	29	Actual		Actual	

Metric

Graduate student research experiences

2026		2027		2028	
Projected	35	Projected	39	Projected	44
Actual	46	Actual		Actual	

Metric

Sponsored project expenditures

2026		2027		2028	
Projected	\$5,800,000	Projected	\$6,000,000	Projected	\$6,200,000
Actual	\$5,900,000	Actual		Actual	

Institution	Northern Arizona University	
Grant Type	University Research, Attainment, and Workforce	
TRIF Investment Area	Workforce Development	
Program Name	Research Infrastructure, Innovation and Student Engagement	
Project Lead	Jason Wilder, Vice President for Research, Jason.Wilder@nau.edu	

Proposal

Problem Statement

Universities face mounting pressure from a rapidly changing federal funding landscape, rising compliance costs and an increased federal emphasis on innovation and translational research. These challenges demand universities become more agile, balancing regulatory demands with the need to rapidly adapt and support cutting-edge, impactful research. Success hinges on flexible infrastructure, streamlined processes, and strategic investment in talent and technology to remain competitive in a fast-evolving research landscape.

Program Description

The project strengthens NAU's ability to navigate compliance and innovation demands while ensuring that transformative student research experiences remain a priority. It funds mentored research opportunities for undergraduate and graduate students and modernizes facilities to support cutting-edge work. The program also supports high-performance computing resources for data-intensive research in informatics and planetary science. To enable these experiences, the initiative invests in compliance personnel and software, expands technology transfer and industry engagement, and deploys research administrative staff within colleges. Beyond reducing operational barriers and fostering partnerships, the program creates a dynamic environment for the evolving needs of an impactful research program.

Institution Advantage

The program leverages TRIF funding to expand undergraduate and graduate research opportunities, course-based research experiences, and traineeships. It invests in modernizing core facilities, providing instrument and high-performance computational support, and acquiring advanced research tools. Additionally, it ensures adequate compliance personnel to meet evolving federal requirements in health research, biological safety, and data security. These resources create a robust infrastructure that empowers students and faculty to pursue innovative, high-impact research.

Arizona Specific Benefit

NAU's teacher-scholar faculty have long prioritized exceptional student experiences and preparing graduates to meet Arizona's workforce needs. By optimizing the research enterprise—through compliance support, modernized facilities, and expanded research opportunities—this program ensures those goals are fully realized. Students gain hands-on, mentored research that builds critical skills, while faculty advance innovation aligned with state priorities. The result is a stronger talent pipeline and a research ecosystem that drives Arizona's economic and societal progress.

Substantive changes to the original proposal

None

Project Continuation	In progress
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Project Status	On Schedule
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Progress Report

Work Completed

The Research Infrastructure, Innovation, and Student Engagement program continued to advance a comprehensive portfolio of activities with strong emphasis on reinforcing and developing research infrastructure and programs and fostering student success. Core investments supported campus-wide laboratory, instrumentation and high-performance computing infrastructure, while also expanding direct research support for both graduate and undergraduate students. The program significantly scaled student engagement through mentored research experiences, course-based undergraduate research experiences (CUREs), and experiential learning opportunities embedded within academic programs. In alignment with prior-year priorities, TRIF funds also supported small pilot projects, instrumentation upgrades, and graduate research efforts, while additional resources were directed toward implementation of federally required cybersecurity measures to ensure secure, compliant research operations.

Milestones Achieved

A major milestone of the program is the scale and impact of student support and engagement. Building on the program's success in prior years, it facilitated over 250 mentored research experiences for undergraduate students. This was accomplished through coordinated efforts between the Office of Undergraduate Research and Creative Activities and the Office of the Vice President for Research. The expansion of these transformative hands-on training opportunities represents one of the most significant outcomes of the program as they directly empower students to enter into the next phase of their career in the research workforce. The program continued to host targeted initiatives for specialized student populations, such as a partnership with NAU's Veterans and Military Service office to provide mentored research experiences for returning veterans to enable their entry into research careers. Graduate student support was also provided, with focused efforts to position students competitively for prestigious external fellowships such as

the NSF Graduate Research Fellowship Program and NASA FINESST awards. Infrastructure milestones, including continued investment in supercomputing and cybersecurity compliance, further strengthened institutional research capacity and responsiveness to evolving needs of the sponsor.

Arizona Benefit or Impact

The Research Infrastructure, Innovation, and Student Engagement program delivers strong and direct benefits to Arizona through workforce development, student success, and enhanced research capacity. Expanded undergraduate and graduate research opportunities equip students with advanced technical, analytical, and problem-solving skills aligned with high-demand fields in Arizona's growing innovation economy. The program's emphasis on inclusive participation, including targeted engagement of military-affiliated students, broadens access to research careers and strengthens workforce diversity. Investments in graduate student development and fellowship competitiveness further contribute to retaining top talent and enhancing Arizona's research pipeline. At the same time, infrastructure investments such as high-performance computing and cybersecurity compliance enable cutting-edge research that addresses statewide challenges and ensures continued eligibility for federal funding, supporting long-term economic and scientific growth.

What Worked Well

The integration of infrastructure investment with student engagement proved highly effective. High-performance computing resources enabled faculty and students to conduct advanced, data-intensive research, while direct student support ensured meaningful participation in those activities. The combination of mentored research and CURE-based models successfully expanded access to research experiences at scale, significantly increasing student participation. Targeted initiatives demonstrated the effectiveness of tailored engagement strategies. Additionally, investments in pilot projects and instrumentation upgrades provided flexible support for emerging research, and proactive cybersecurity implementation ensured compliance with minimal disruption to ongoing projects.

Challenges and Lessons Learned

Challenges include the growing cost and demand associated with ensuring compliance across the research enterprise. The implementation of federal cybersecurity requirements added operational complexity, requiring coordinated efforts across units and sustained investment in systems and expertise. Expanding student engagement highlighted the need for continued faculty mentorship capacity and program coordination to maintain quality outcomes. These challenges reinforce the importance of sustained investment and strategic integration across infrastructure, compliance, and student support. Overall, the program continues to demonstrate a highly effective, multi-dimensional model where infrastructure, research enablement, and student engagement operate in parallel to reinforce institutional capacity.

Overall Project Assessment

The Research Infrastructure, Innovation, and Student Engagement program is performing strongly through an integrated approach that combines student workforce development with investment into the overall research infrastructure at the university. Significant accomplishments include expanded opportunities for undergraduate and graduate research (including direct support for more than 350 student research experiences), investments in high-performance computing and cybersecurity compliance, and targeted initiatives to broaden participation in research careers. These efforts have strengthened NAU's research capacity while preparing students with skills needed for Arizona's innovation-driven workforce. Despite challenges related to compliance requirements, resource demands, and mentorship capacity, the program demonstrates an effective model in which infrastructure, student engagement, and research support operate in concert to deliver long-term benefits to Arizona.

Investment Detail

	2026	2027	2028	Total
Infrastructure	\$ 3,686,243	\$ 0	\$ 0	\$ 3,686,243
Basic Research	\$ 33,948	\$ 0	\$ 0	\$ 33,948
Applied Research	\$ 0	\$ 0	\$ 0	\$ 0
Development	\$ 0	\$ 0	\$ 0	\$ 0
Total	\$ 3,720,191	\$ 0	\$ 0	\$ 3,720,191

Investment Narrative

TRIF investment in Research Infrastructure, Innovation and Student Engagement serves as a foundational catalyst that strengthens Arizona's entire research enterprise while developing the next generation of highly skilled professionals. Investments in shared research infrastructure, high-performance computing, cybersecurity compliance, instrumentation, pilot projects, and student research experiences create broad institutional capacity that benefits all areas of research and innovation. The program's emphasis on undergraduate and graduate research engagement provides students with transformative experiences that improve retention, degree completion, workforce readiness, and competitiveness for advanced study and employment. By supporting both research infrastructure and student development, TRIF funding generates lasting economic and workforce benefits for Arizona. Continued investment ensures the state maintains a robust research ecosystem capable of attracting external funding, addressing emerging challenges, and preparing a diverse talent pipeline for Arizona's innovation-driven economy.

Budget Detail					
	2026	2027	2028	Total	
Salaries	\$ 1,860,375	\$ 0	\$ 0	\$	1,860,375
ERE	\$ 595,020	\$ 0	\$ 0	\$	595,020
Travel	\$ 57,403	\$ 0	\$ 0	\$	57,403
Equipment	\$ 281,701	\$ 0	\$ 0	\$	281,701
Supplies & Materials	\$ 542,428	\$ 0	\$ 0	\$	542,428
Contracts & Consultants	\$ 365,665	\$ 0	\$ 0	\$	365,665
Meetings & Conferences	\$ 17,599	\$ 0	\$ 0	\$	17,599
Sub Awards	\$ 0	\$ 0	\$ 0	\$	0
Total	\$ 3,720,191	\$ 0	\$ 0	\$	3,720,191

Budget Narrative

TRIF funding supported shared research infrastructure, high-performance computing resources, instrumentation upgrades, cybersecurity compliance requirements, pilot research projects, and expanded student research opportunities. Investments strengthened institutional research capacity while ensuring compliance with evolving federal requirements and maintaining competitiveness for external funding. Funding also increased access to undergraduate and graduate research experiences, supporting workforce development and student success across multiple disciplines. By enhancing foundational research capabilities and expanding participation in research, these investments generate broad benefits across Arizona's innovation ecosystem and help develop the highly skilled workforce needed to support the state's future economic growth.

Metric					
Peer-reviewed publications					
2026		2027		2028	
Projected	0	Projected	0	Projected	0
Actual	0	Actual		Actual	

Metric					
Undergraduate student research experiences					
2026		2027		2028	
Projected	200	Projected	210	Projected	220
Actual	256	Actual		Actual	

Metric					
Graduate student research experiences					
2026		2027		2028	
Projected	70	Projected	72	Projected	74
Actual	112	Actual		Actual	

Metric					
Sponsored project expenditures					
2026		2027		2028	
Projected	0	Projected	0	Projected	0
Actual	0	Actual		Actual	

Institution	Northern Arizona University	
Grant Type	University Research, Attainment, and Workforce	
TRIF Investment Area	Workforce Development	
Program Name	Semiconductor and Microelectronic Research	
Project Lead	Jason Wilder, Vice President for Research, Jason.Wilder@nau.edu	

Proposal		
Problem Statement		
Arizona faces a shortage of skilled professionals in semiconductor design and fabrication, metrology, materials science, quantum computing, and microelectronics research. There is a need for advanced research and workforce training in these critical areas.		
Program Description		
NAU is actively expanding its role in semiconductor manufacturing through partnerships with industry leaders like TSMC and the Arizona Commerce Authority (ACA). The university has launched a three-year engineering technology degree focused on semiconductor fabrication and manufacturing, and is part of a statewide apprenticeship initiative to prepare students for high-demand careers in the sector. NAU's research in materials and microelectronics includes advanced instrumentation, materials design and characterization, metrology and measurement science, and secure edge computing. The university's interdisciplinary approach leverages faculty expertise across electrical and mechanical engineering, physics, chemistry and computer science to develop next-generation technologies, testing and prototyping.		
Institution Advantage		
NAU established the Metrology Center, a campus-wide facility that integrates expertise from electrical, computer, and mechanical engineering, physics, chemistry, and informatics to enable advanced research and to foster new educational opportunities. Supported by a \$13 million ACA investment, the lab focuses on precision measurement science essential for semiconductor process control, yield improvement, and quality assurance. Researchers in this area position NAU for continued funding with the DoD, DoE, NSF, and industry partners.		
Arizona Specific Benefit		
Through targeted investments, academic innovation, and industry partnerships, NAU is helping to fill critical gaps in Arizona's semiconductor workforce while advancing research in metrology and microelectronics. These initiatives support the state's economic growth and technological leadership in the global semiconductor industry, and will help position Arizona as a national leader in semiconductor innovation and workforce readiness.		
Substantive changes to the original proposal		
None		
Project Continuation	Pending	
Project Status		

Progress Report		
Work Completed		
The Semiconductor and Microelectronics Research program has advanced a coordinated portfolio of research, infrastructure development, and workforce training aligned with the burgeoning industrial needs of the state. NAU is in the process of expanding its microelectronics ecosystem, highlighted by the development of the Microelectronics Processing and Characterization Testing (MPaCT) Lab, a \$13M shared-use facility sponsored by the Arizona Commerce Authority, supporting semiconductor fabrication, metrology, and characterization. Research efforts also included materials science, quantum-enabled systems, and photonics collaborations, supported by new awards such as the National Science Foundation's Expanding Quantum Information Science and Engineering (NSF EXPAND-QISE) and Partnerships for Research and Education in Materials (NSF PREM), as well as various DoD-funded programs. Student-focused initiatives, including Research Experiences for Undergraduates (REU), mentored research experiences, and internships, expanded significantly, while workforce training programs and partnerships (e.g., semiconductor apprenticeships and training centers) provided hands-on, industry-aligned experiences.		
Milestones Achieved		
Key milestones include the launch of new academic and workforce pathways, notably a three-year Bachelor of Professional Studies in Engineering Technology designed to prepare students for careers in semiconductor manufacturing and advanced microelectronics. Infrastructure milestones include expansion of metrology capabilities and development of advanced research facilities such as MPaCT and the Quantum Explorations Laboratory, enhancing NAU's ability to conduct cutting-edge semiconductor and quantum research. The program also achieved major student success benchmarks, including national fellowships, REU participation, and strong research output. Additionally, statewide and national collaborations with institutions, federal agencies, and industry partners such as TSMC represent critical milestones in scaling both research and workforce development capacity.		
Arizona Benefit or Impact		

The program directly supports Arizona's rapidly expanding semiconductor industry, which has seen over \$200 billion in investments and growing workforce demand. By developing workforce pipelines through new degree programs, apprenticeship pathways, and certificate trainings in metrology and advanced manufacturing, NAU is helping meet urgent industry needs and strengthen Arizona's position as a national hub for semiconductor innovation. The program also expands access to high-paying technical careers for students across the state while fostering broader STEM participation through outreach programs. These efforts contribute to economic development, innovation capacity, and workforce readiness across Arizona.

What Worked Well

The integration of research, workforce training, and access initiatives enabled simultaneous progress in scientific discovery and talent development. Strong partnerships with industry (e.g., TSMC), state agencies (Arizona Commerce Authority), and academic collaborators enhanced program relevance and funding competitiveness. Investments in shared-use infrastructure provided critical platforms for both research and training, while hands-on, applied learning models ensured students gained job-ready skills aligned with industry expectations.

Challenges and Lessons Learned

The program faced challenges related to funding uncertainty, including the sunset of key federal programs (e.g. PREM), and broader volatility in STEM funding landscapes. Rapid growth in the semiconductor sector also creates pressure to scale infrastructure, faculty, and training capacity quickly enough to meet demand. These challenges highlight the importance of diversified funding, adaptable program design, and continued investment in shared infrastructure and partnerships. Overall, the program demonstrates a highly integrated model in which research, workforce training, outreach, and infrastructure development operate in parallel and reinforce each other to advance semiconductor innovation and education.

Overall Project Assessment

The Semiconductor and Microelectronics Research program is making strong progress across research, infrastructure development, and workforce training. Major investments in facilities such as the MPaCT Lab and Quantum Explorations Laboratory, combined with new federally funded research initiatives, have expanded NAU's capacity to support semiconductor and quantum innovation. Program researchers have launched new academic and workforce pathways, increased student engagement in research, and strengthened collaborations with industry, government, and academic partners. These efforts directly support Arizona's growing semiconductor sector by developing a skilled workforce and contributing to statewide economic growth and innovation. Despite challenges related to funding uncertainty and the need to scale capacity to meet industry demand, the program demonstrates a well-integrated model in which research, education, workforce development, and infrastructure investments operate in parallel to achieve significant and lasting impact for Arizona.

Investment Detail

	2026		2027		2028		Total
Infrastructure	\$	0	\$	0	\$	0	\$ 0
Basic Research	\$	0	\$	0	\$	0	\$ 0
Applied Research	\$	0	\$	0	\$	0	\$ 0
Development	\$	0	\$	0	\$	0	\$ 0
Total	\$	0	\$	0	\$	0	\$ 0

Investment Narrative

The investment in this initiative will begin in FY 27 after the end of the ACA grant.

Budget Detail

	2026		2027		2028		Total
Salaries	\$	0	\$	0	\$	0	\$ 0
ERE	\$	0	\$	0	\$	0	\$ 0
Travel	\$	0	\$	0	\$	0	\$ 0
Equipment	\$	0	\$	0	\$	0	\$ 0
Supplies & Materials	\$	0	\$	0	\$	0	\$ 0
Contracts & Consultants	\$	0	\$	0	\$	0	\$ 0
Meetings & Conferences	\$	0	\$	0	\$	0	\$ 0
Sub Awards	\$	0	\$	0	\$	0	\$ 0
Total	\$	0	\$	0	\$	0	\$ 0

Budget Narrative

The investment in this initiative will begin in FY 27 after the end of the ACA grant.

Metric					
Peer-reviewed publications					
2026		2027		2028	
Projected	0	Projected	20	Projected	22
Actual	0	Actual		Actual	

Metric					
Undergraduate student research experiences					
2026		2027		2028	
Projected	0	Projected	18	Projected	20
Actual	0	Actual		Actual	

Metric					
Graduate student research experiences					
2026		2027		2028	
Projected	0	Projected	32	Projected	36
Actual	0	Actual		Actual	

Metric					
Sponsored project expenditures					
2026		2027		2028	
Projected	\$0	Projected	\$2,900,000	Projected	\$3,000,000
Actual	\$0	Actual		Actual	

Institution	Northern Arizona University	
Grant Type	University Research, Attainment, and Workforce	
TRIF Investment Area	Workforce Development	
Program Name	Start up for New Access and Workforce Development Programs	
Project Lead	Karen Pugliesi, Executive Vice President and University Provost; Karen.Pugliesi@nau.edu	

Proposal	
Problem Statement In a constantly changing external environment, NAU seeks to be responsive to workforce needs. The availability of funding is one barrier we face when presented with opportunities to introduce new or expand existing programming based on changing student and employer demands. The availability of funds that can be used on a short-term, revolving basis to develop and launch new programs before institutionalizing the expenses through increased revenues would greatly increase our ability to be responsive.	
Program Description NAU seeks start-up funding to launch new access and workforce development programs aligned with Arizona's evolving needs. Initial offerings beyond existing reduced-credit degrees will target behavioral health, healthcare administration, technology, and early childhood education. Developing these programs requires up-front investment in faculty time and instructional design to create engaging, accessible learning experiences. Programs will serve adult learners through online, hybrid, and in-person formats, accelerating degree completion and career advancement. Funding will support program design, staffing, and infrastructure, empowering adult learners and strengthening Arizona's workforce through targeted education and statewide business partnerships.	
Institution Advantage Funds will be used to launch new or expand existing programs. A lack of dedicated funds to start up new degree programs significantly hampers our ability to be responsive to evolving job markets and skills required. After growth is achieved in a particular program, we will look to cover the expenses through increased tuition and fee revenues, freeing up the development funds for other new opportunities.	
Arizona Specific Benefit Arizona employers and residents will have access to the most relevant degree programs and workforce training to meet the evolving needs of the current market.	
Substantive changes to the original proposal None	
Project Continuation	Pending
Project Status	

Progress Report
N/A. We didn't have the funding to launch new initiatives this year but hope to in the future.
Overall Project Assessment
N/A

Investment Detail				
	2026	2027	2028	Total
Infrastructure	\$ 0	\$ 0	\$ 0	\$ 0
Basic Research	\$ 0	\$ 0	\$ 0	\$ 0
Applied Research	\$ 0	\$ 0	\$ 0	\$ 0
Development	\$ 0	\$ 0	\$ 0	\$ 0
Total	\$ 0	\$ 0	\$ 0	\$ 0
Investment Narrative				
N/A				

Budget Detail							
	2026		2027		2028		Total
Salaries	\$	0	\$	0	\$	0	\$ 0
ERE	\$	0	\$	0	\$	0	\$ 0
Travel	\$	0	\$	0	\$	0	\$ 0
Equipment	\$	0	\$	0	\$	0	\$ 0
Supplies & Materials	\$	0	\$	0	\$	0	\$ 0
Contracts & Consultants	\$	0	\$	0	\$	0	\$ 0
Meetings & Conferences	\$	0	\$	0	\$	0	\$ 0
Sub Awards	\$	0	\$	0	\$	0	\$ 0
Total	\$	0	\$	0	\$	0	\$ 0
Budget Narrative							
N/A							

Metric			
N/A Project Pending			
2026		2027	
Projected		Projected	
Actual		Actual	

Institution	University of Arizona	
Grant Type	University Opportunity	
TRIF Investment Area	Workforce Development	
Program Name	4th IR Capstones and Senior Design Projects in the College of Engineering	
Project Lead	Larry Head	

Proposal

Problem Statement

The Fourth Industrial Revolution is upon us, and the University is expanding our engineering and technological research, curriculum, and STEM student-centric programming and experiential opportunities. Some of the finest opportunities to assist our future alumni in making connections with industry and strengthening their academic portfolios is through Capstone Projects and Senior Design Projects. These activities, which are normally envisioned and managed in partnership with external industry and well-placed alumni guidance and feedback, are created to allow students to get a true sense of the processes and practices needed in industry to bring a project through the entire process from conception to completion, to explore their fields of interest in practical terms, and to further connect them with potential employers or advisors as they enter their careers. Students emerge with interesting portfolios, examples of dealing with research and operational constraints and challenges to discuss in their professional interviews, and increasingly, they leave the University with publications and/or disclosed intellectual property. Students with these experiences quickly rise to the top of the interview and hiring priority lists.

Program Description

Expand the number of capstone and senior design projects to strengthen connections to industry and workforce readiness, with a 4IR emphasis on autonomous industrial vehicles, cybersecurity, and sustainable practices for mining and agriculture. The projects align with ACA thriving-industry focus areas (aerospace and defense; technology and innovation) and ACA big-ideas focus areas (automated vehicles, smart materials, and agricultural technology).

Institution Advantage

Tucson's entrepreneurship ecosystem — FORGE, Startup Tucson, Tech Launch Arizona — gives the University a startup pipeline other institutions would need to build from scratch, pairing 850–1,000 students annually with authentic industry and startup projects while giving local startups prototyping and testing support they can't otherwise fund. The Engineering Design Fellow model brings senior industry engineers in as resident mentors, and alignment with the Software Factory shares infrastructure across programs. These investments strengthen Arizona's tech workforce pipeline and tie the College of Engineering directly to Tucson's startup ecosystem — a regional advantage other institutions can't easily replicate.

Arizona Specific Benefit

Approximately 850–1,000 students per year will gain dedicated project space, expert mentorship, and industry-standard documentation tools, strengthening Arizona's technology workforce pipeline. Tucson startups — through FORGE, Startup Tucson, Tech Launch Arizona, and related programs — will receive prototyping, design, and testing support they cannot otherwise fund, with a target of 15 startup partnerships and 140–150 industry-sponsored projects annually by 2025.

Substantive changes to the original proposal

None

Project Continuation	Completed
Project Status	On Schedule

Progress Report

1. Work Completed: The University scoped five investments to expand Capstone and Senior Design projects in support of its 4IR research leadership: dedicated design and prototyping space, sponsored startup partnerships, an Engineering Design Fellow mentorship model, modern documentation infrastructure (MBSE/DevOps), and an iterative design curriculum. The College of Engineering submitted a space request (December 2021), began fundraising for the Engineering Design Building, and implemented initial iterative changes to the curriculum.

2. Milestones Achieved: The College of Engineering formally committed to securing dedicated design space, with Engineering Design Building groundbreaking expected 2024–2025. The Engineering Design Fellow role was defined, placing senior industry engineers in the design center as resident mentors. The Software Factory was identified as a directly applicable platform for managing capstone design deliverables.

3. Arizona Benefit or Impact: Approximately 850–1,000 students per year will gain dedicated project space, expert mentorship, and industry-standard documentation tools, strengthening Arizona's technology workforce pipeline. Tucson startups — through FORGE, Startup Tucson, Tech Launch Arizona, and related programs — will receive prototyping, design, and testing support they cannot otherwise fund, with a target of 15 startup partnerships and 140–150 industry-sponsored projects annually by 2025.

4. What Worked Well: Leveraging Tucson's entrepreneurship ecosystem gives students authentic projects while establishing the

program as a startup resource. The Design Fellow model shows that industry mentorship during design, build, and test measurably improves learning. Aligning with the Software Factory maximizes return by sharing tools across the capstone and Software Engineering programs.

5. Challenges and Lessons Learned: The lack of dedicated prototyping space remains the primary constraint; securing interim space is a near-term priority. Fragmented documentation (Word, Excel, and CAD files submitted through D2L) burdens students and sponsors — the lesson is that documentation must be integrated into design activities via MBSE/DevOps rather than treated separately. The waterfall curriculum also proved insufficient; new learning modules with videos, examples, and templates are needed to support a fully iterative design process.

Overall Project Assessment

The project is advancing well across five mutually reinforcing tracks — space, startup partnerships, expert mentorship, documentation infrastructure, and curriculum redesign — all aimed at preparing 850–1,000 students per year for Arizona's 4IR workforce. Foundational milestones are on track, including the Engineering Design Building timeline and the Design Fellow mentorship model, and the project effectively leverages cross-university synergies such as applying Software Factory tools to capstone documentation. The main risks are sequencing-related: interim space, documentation rollout, and curriculum modules must mature before scaling to 140–150 projects annually by 2025. Overall, the project is well-designed and on course, with clear near-term priorities to meet its growth targets.

Investment Detail

	2026	2027	2028	Total
Infrastructure	\$ 39,292	\$ 0	\$ 0	\$ 39,292
Basic Research	\$ 0	\$ 0	\$ 0	\$ 0
Applied Research	\$ 0	\$ 0	\$ 0	\$ 0
Development	\$ 0	\$ 0	\$ 0	\$ 0
Total	\$ 39,292	\$ 0	\$ 0	\$ 39,292

Investment Narrative

Investment Narrative: Capstone expenditures fund instructional and design resources — dedicated prototyping space, equipment, expert mentorship, and modern documentation systems — that support experiential engineering research and technology transfer rather than a commercialization timeline. Investments advance the Engineering Design Building and interim design space, the Engineering Design Fellow (resident industry expert) mentorship model, and modern documentation infrastructure based on Model-Based Systems Engineering (MBSE) and DevOps practices. The program also connects student design teams to Tucson's startup ecosystem, providing prototyping, design, and testing capacity to early-stage companies. These are resources and services that build institutional capacity for hands-on engineering and technology transfer, placing the spending in the Infrastructure category.

Budget Narrative: FY26 4IR expenditures totaled \$39K in direct spending. Spending was personnel-driven, with salaries and employee-related expenses (ERE), supporting project coordination and program administration.

Budget Detail

	2026	2027	2028	Total
Salaries	\$ 29,767	\$ 0	\$ 0	\$ 29,767
ERE	\$ 9,525	\$ 0	\$ 0	\$ 9,525
Travel	\$ 0	\$ 0	\$ 0	\$ 0
Equipment	\$ 0	\$ 0	\$ 0	\$ 0
Supplies & Materials	\$ 0	\$ 0	\$ 0	\$ 0
Contracts & Consultants	\$ 0	\$ 0	\$ 0	\$ 0
Meetings & Conferences	\$ 0	\$ 0	\$ 0	\$ 0
Sub Awards	\$ 0	\$ 0	\$ 0	\$ 0
Total	\$ 39,292	\$ 0	\$ 0	\$ 39,292

Budget Narrative

Investment Narrative: Capstone expenditures fund instructional and design resources — dedicated prototyping space, equipment, expert mentorship, and modern documentation systems — that support experiential engineering research and technology transfer rather than a commercialization timeline. Investments advance the Engineering Design Building and interim design space, the Engineering Design Fellow (resident industry expert) mentorship model, and modern documentation infrastructure based on Model-Based Systems Engineering (MBSE) and DevOps practices. The program also connects student design teams to Tucson's startup ecosystem, providing prototyping, design, and testing capacity to early-stage companies. These are resources and services that build institutional capacity for hands-on engineering and technology transfer, placing the spending in the Infrastructure category.

Budget Narrative: FY26 4IR expenditures totaled \$39K in direct spending. Spending was personnel-driven, with salaries and employee-related expenses (ERE), supporting project coordination and program administration.

Metric									
Capstone Projects									
2026				2027				2028	
Projected	10			Projected				Projected	
Actual	10			Actual				Actual	

Metric									
Total enabled students									
2026				2027				2028	
Projected	1,000			Projected				Projected	
Actual	1,000			Actual				Actual	

Metric									
Startup Partnerships									
2026				2027				2028	
Projected	15			Projected				Projected	
Actual	15			Actual				Actual	

Metric									
Industry-sponsored projects (count)									
2026				2027				2028	
Projected	150			Projected				Projected	
Actual	150			Actual				Actual	

Institution	University of Arizona	
Grant Type	University Opportunity	
TRIF Investment Area	Improving Health	
Program Name	AI-Driven Health Care Innovation	
Project Lead	David Ebert, PhD, Sr. Advisory for AI and Healthcare	

Proposal

Problem Statement

While Arizona has made strides in healthcare, including rural care, the integration of artificial intelligence remains limited, leaving missed opportunities for early diagnosis, personalized treatment and improved patient outcomes. Robust AI-driven infrastructure and interdisciplinary collaboration can spur innovation and access to care. The desired state is a healthcare system in which AI transforms care delivery, accelerates research and enhances economic growth through scalable, ethical and equitable solutions.

Program Description

The AI and Health initiative advances healthcare through artificial intelligence, serving researchers, students, clinicians and industry partners. Its purpose is to improve patient outcomes by leveraging AI for diagnostics, predictive modeling, access to care and treatment optimization. Key activities include developing AI-driven tools and training the next generation of health professionals. Intended outcomes are enhanced care delivery, scalable solutions for public health challenges and a skilled workforce prepared to lead AI-driven healthcare innovation for Arizona and beyond.

Institution Advantage

The U of A's AI and Health advantage is strengthened by the new Office of the Chief AI and Data Science Officer — one of only seven among R1 universities — alongside advanced core facilities and refreshed high-performance computing infrastructure. These resources enable scalable, interdisciplinary research and rapid translation of AI-driven health solutions, positioning the university to lead in innovation and responsible AI application for Arizona's population.

Arizona Specific Benefit

AI and Health benefits from the U of A's expertise in AI and health sciences, including two medical schools, a comprehensive cancer center and research strengths in cardiovascular, neurological and surgical care. The university's unique access to diverse patient populations — including rural, veteran and tribal health communities — enables tailored AI solutions for Arizona's specific health challenges. These institutional strengths position the program to drive innovation, improve health outcomes and foster care across the state.

Substantive changes to the original proposal

none

Project Continuation	In progress
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Project Status	On Schedule
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Progress Report

- 1. Work Completed:** In its foundational year, the AI Health Innovation Initiative established core infrastructure across the U of A and launched ORAI as the university-wide hub for responsible AI. More than \$900,000 in seed funding advanced projects led by 12 transdisciplinary research teams, enabling them to generate preliminary data, build partnerships and pursue larger external grants. The Convergent Digital Health for Remote Access (CoDIRA) Big Idea Challenge project contributed key innovations, including a community-based rural AI health kiosk concept, a provisional patent (CliniAI) and an ocular ultrasound invention disclosure.
- 2. Milestones Achieved:** ORAI hosted the inaugural AI in Health Innovation Symposium on Feb. 25, 2026, convening 135 faculty, staff, students and national academic, clinical and tribal leaders on advancing innovative, ethical and equitable AI research and clinical practice. The National AI in Health Innovation Symposium, scheduled for early 2027, will position the U of A as a national hub for AI-enabled health innovation. CoDIRA secured a \$750,000 invited proposal and approximately \$175,000 in additional internal awards. ORAI, AI²S, the Center for Rural Health and the Arizona Telemedicine Program convened an AI + Rural Health networking and ideation event connecting faculty shaping the future of AI and rural health, surfacing complementary research and opportunities for interdisciplinary collaboration and funding.
- 3. Arizona Benefit or Impact:** The AI Health Strategic Forecast identified five high-impact focus areas: discovery and translation (accelerating the journey from laboratory insight to clinical implementation); responsible AI and policy (ethical, transparent, accountable governance); expanding access (AI-enabled telemedicine and mobile diagnostics for underserved and rural regions); workforce development (AI-fluent health professionals through interdisciplinary curricula and micro-credentials); and the health innovation economy (scalable, investable products driving regional growth). For Arizona's long-term competitiveness in health and biosciences, the initiative is embedding AI literacy and applied analytics across medicine, nursing, public health and engineering curricula. Networks of 12 AI Health Champions and more than 40 AI Health Ambassadors provide the cross-disciplinary leadership infrastructure that sustains the healthcare workforce pipeline. The second Public Health & AI Summer School gathered 75 participants from the U of A and public health organizations in Arizona, Colorado, Nevada, California, New York, Kansas and Brazil. CoDIRA and ORAI continue to engage multiple tribal and community partners.

4. What Worked Well: Seed funding for 12 AI health projects; the AI in Health Innovation Symposium's transdisciplinary collaboration with Banner Health, regional healthcare providers and local partners, including Tribal Nations and rural hospitals, ensuring health priorities and infrastructure limitations are addressed through partnership; and CoDIRA's community-engaged design, an effective model replicable across other AI Health projects.

5. Challenges and Lessons Learned: A key challenge has been ensuring the infrastructure needed to support ORAI's research and operations, including upgrading the U of A's high-performance computing and HIPAA-compliant environment — planned in FY26, with implementation targeted for FY27.

Overall Project Assessment

The AI Health Innovation Initiative's foundational year reflects a well-integrated, multi-dimensional effort rather than a single linear project. Establishing ORAI as the university-wide hub for responsible AI, working alongside AI²S, gave the initiative the institutional backbone and coordination capacity to manage 12 concurrent research teams and cross-cutting programming, while more than \$900,000 in seed funding enabled the teams to generate preliminary data and pursue external funding. CoDIRA exemplifies this pipeline in action: a Big Idea Challenge seed grant translated into a \$750,000 invited proposal, \$175,000 in additional internal awards, a provisional patent (CliniAI) and an invention disclosure for AI-enabled ocular ultrasound, while building durable partnerships with Mariposa Community Health Center, TMC-Benson Hospital and Banner rural sites. The inaugural AI in Health Innovation Symposium and the AI + Rural Health networking events established the U of A's credibility as a convener, setting favorable conditions for the National AI in Health Innovation Symposium in early 2027. The networks of AI Health Champions (12) and Ambassadors (more than 40), plus the Public Health & AI Summer School, have built a strong foundation.

Investment Detail

	2026	2027	2028	Total
Infrastructure	\$ 1,305,380	\$ 0	\$ 0	\$ 1,305,380
Basic Research	\$ 0	\$ 0	\$ 0	\$ 0
Applied Research	\$ 0	\$ 0	\$ 0	\$ 0
Development	\$ 93,198	\$ 0	\$ 0	\$ 93,198
Total	\$ 1,398,577	\$ 0	\$ 0	\$ 1,398,577

Investment Narrative

FY26 TRIF investment in AI-Driven Health Care Innovation totaled \$1.40 million, with 93% classified as Infrastructure and the remainder supporting TRIF Development, funding the computational and institutional foundation for AI health research. Investments advanced the CoDiRA initiative's AI-powered rural healthcare kiosk platform for underserved Arizona communities — generating a \$750K invited Arizona Biomedical Research Commission proposal — and supported university-wide AI capacity through the AI Insights Series (22 sessions, 672 attendees) and the Public Health & AI Summer School, where participants built 20 working AI prototypes alongside practitioners from Tribal Nations and county health departments. These programs engaged 17 undergraduate students, 36 graduate students, and 14 postdocs in AI and digital health research training.

Budget Detail

	2026	2027	2028	Total
Salaries	\$ 76,261	\$ 0	\$ 0	\$ 76,261
ERE	\$ 26,759	\$ 0	\$ 0	\$ 26,759
Travel	\$ 2,787	\$ 0	\$ 0	\$ 2,787
Equipment	\$ 1,007,885	\$ 0	\$ 0	\$ 1,007,885
Supplies & Materials	\$ 83,504	\$ 0	\$ 0	\$ 83,504
Contracts & Consultants	\$ 201,202	\$ 0	\$ 0	\$ 201,202
Meetings & Conferences	\$ 180	\$ 0	\$ 0	\$ 180
Sub Awards	\$ 0	\$ 0	\$ 0	\$ 0
Total	\$ 1,398,577	\$ 0	\$ 0	\$ 1,398,577

Budget Narrative

FY26 expenditures totaled \$1.40 million. Direct spending was dominated by capital equipment at \$1.0M (90% of direct expenditures), reflecting major investment in computational infrastructure, with personnel accounting for most of the remainder. Allocated overhead contributed additional contracts and consultants (\$201K) and supplies and materials support.

Metric

Sponsored Projects Funding

	2026	2027	2028
Projected	\$692,611	Projected \$3,615,093	Projected \$1,692,297
Actual	\$692,611	Actual	Actual

Metric									
Total Enabled Workforce (Undergraduates, Graduates, Postdocs)									
2026				2027				2028	
Projected	67			Projected	40			Projected	65
Actual	67			Actual				Actual	

Institution	University of Arizona	
Grant Type	University Opportunity	
TRIF Investment Area	Improving Health	
Program Name	AZ Healthy Tomorrow	
Project Lead	Dr. Christine Childers (PT Program) and Dr. Kevin Lohenry (PA Program)	

Proposal

Problem Statement

Similar to many states, Arizona is facing a shortage of healthcare professionals in various fields, including nursing, primary care, and mental health. The shortage of healthcare professionals has led to limited access to services, longer wait times, decreased quality of care, and increased healthcare costs. These challenges are especially magnified in rural areas. Additionally, the shortage of healthcare professionals in the state has resulted in a high turnover rate among healthcare providers, leading to decreased continuity of care for patients, and a negative economic impact on the state's healthcare sector.

Program Description

Tasks the U of A with developing strategies for expanding healthcare professionals, including medical school students and needed residencies, and identifying opportunities for expanding healthcare research. The U of A is expected to submit a strategic plan or roadmap with an accompanying business plan detailing the expected use of the TRIF funds, in accordance with this narrative, to the board by January 31, 2024.

Institution Advantage

The university has substantial institutional resources, including TRIF investments, state and federal grants, and philanthropic contributions. These funding mechanisms enable catalytic discovery, interdisciplinary research, and translational projects. The university also offers seed, pilot, and equipment grants, as well as postdoctoral fellowships, to accelerate innovation and support faculty, students, and industry partners. Further U of A supports these innovations through critical core facilities offering world-class facilities for research and training.

Arizona Specific Benefit

The programs directly address Arizona's provider shortages. Each Arizona physician can oversee two PAs (four in a designated Health Professional Shortage Area), extending primary care reach, while the DPT program targets the state's above-average population over 65 and rural, underserved communities with needs in cardiopulmonary, geriatric, and neurological care. At full enrollment, the two programs will produce roughly 100 new providers per year focused on rural, preventive, and primary care for the State of Arizona.

Substantive changes to the original proposal

None

Project Continuation	In progress
Project Status	On Schedule

Progress Report

1. Work Completed: UAHS successfully launched two new health professions programs — a Doctor of Physical Therapy (DPT) program and a Physician Assistant (PA) program — to address provider workforce shortages statewide. Both programs completed the full pre-enrollment build-out (curriculum development, admissions, and financial aid) and secured successful initial accreditation decisions. The DPT program enrolled its inaugural cohort of 52 students in Fall 2025 and has retained all but one to date (currently on approved leave of absence, not left the program); a second class of 50+ begins next month. The PA program recruited its inaugural class of 50, who also begin next month.

2. Milestones Achieved: Both programs reached their most significant benchmarks: successful initial accreditation and enrollment of inaugural cohorts. The DPT program — the only such degree in Southern Arizona — matriculated 52 students in Fall 2025 with strong early retention (51 of 52). The PA program completed recruitment of its full inaugural class of 50. Both programs are on track to graduate approximately 50 students per year each, leveraging interprofessional partnerships across UAHS's five health sciences colleges, including potential dual-degree pathways such as a PharmD/PA.

3. Arizona Benefit or Impact: The programs directly address Arizona's provider shortages. Each Arizona physician can oversee two PAs (four in a designated Health Professional Shortage Area), extending primary care reach, while the DPT program targets the state's above-average population over 65 and rural, underserved communities with needs in cardiopulmonary, geriatric, and neurological care. At full enrollment, the two programs will produce roughly 100 new providers per year focused on rural, preventive, and primary care for the State of Arizona.

4. What Worked Well: Leveraging existing UAHS infrastructure across five health sciences colleges enabled both programs to reach accreditation and enrollment efficiently rather than building from scratch. The interprofessional, partnership-based design — dual degrees, shared clinical affiliations, and service-learning — strengthened both programs while extending services to underserved

communities. Strong early DPT retention (51 of 52) indicates effective student recruitment and support.

5. Challenges and Lessons Learned: Accreditation and the full pre-enrollment build-out were time- and resource-intensive, requiring sustained faculty and staff investment ahead of the first cohorts — the critical near-term dependency, now successfully cleared. The lesson learned is that front-loaded investment in curriculum, accreditation, and program staffing is essential to launch on schedule, a model both programs validated by reaching accreditation and enrolling full inaugural classes on their target timelines.

Overall Project Assessment

The Health Professions initiative is a well-integrated effort that has successfully stood up two new provider programs (DPT and PA) in parallel, both leveraging shared UAHS infrastructure and interprofessional partnerships to address Arizona's primary care and rehabilitative workforce shortages. The initiative has cleared its most important milestones on schedule: both programs secured successful initial accreditation, the DPT program enrolled 52 students in Fall 2025 with retention of 51, and both programs enroll new cohorts next month — including the PA program's inaugural class of 50. At full scale the programs will produce roughly 100 graduates per year focused on rural, preventive, and underserved-community care. The core strength is efficient use of existing resources and cross-college collaboration; the principal early challenge — the accreditation and pre-enrollment timeline — has been successfully met. On balance, the initiative is well-designed, on schedule, and demonstrably delivering, well on its way to producing high-quality health care graduates for the State of Arizona.

Investment Detail

	2026	2027	2028	Total
Infrastructure	\$ 267,999	\$ 0	\$ 0	\$ 267,999
Basic Research	\$ 0	\$ 0	\$ 0	\$ 0
Applied Research	\$ 0	\$ 0	\$ 0	\$ 0
Development	\$ 0	\$ 0	\$ 0	\$ 0
Total	\$ 267,999	\$ 0	\$ 0	\$ 267,999

Investment Narrative

Health professions expenditures fund the academic programs, curriculum, accreditation, and clinical training capacity that expand Arizona's health care provider pipeline — enabling resources and services rather than research with a commercialization horizon. Investments established two new accredited programs (Doctor of Physical Therapy and Physician Assistant), both of which secured successful initial accreditation and enrolled inaugural cohorts, leveraging shared UAHS infrastructure across five health sciences colleges and interprofessional clinical affiliations. These are workforce and institutional capacity investments that support research and health care delivery statewide, placing the spending in the Infrastructure category.

Budget Detail

	2026	2027	2028	Total
Salaries	\$ 151,625	\$ 0	\$ 0	\$ 151,625
ERE	\$ 48,520	\$ 0	\$ 0	\$ 48,520
Travel	\$ 1,090	\$ 0	\$ 0	\$ 1,090
Equipment	\$ 0	\$ 0	\$ 0	\$ 0
Supplies & Materials	\$ 45	\$ 0	\$ 0	\$ 45
Contracts & Consultants	\$ 65,923	\$ 0	\$ 0	\$ 65,923
Meetings & Conferences	\$ 795	\$ 0	\$ 0	\$ 795
Sub Awards	\$ 0	\$ 0	\$ 0	\$ 0
Total	\$ 267,999	\$ 0	\$ 0	\$ 267,999

Budget Narrative

FY26 AZ Healthy Tomorrow expenditures totaled \$267K in direct spending. Combined spending was personnel-driven, with salaries and employee-related expenses (ERE) accounting for approximately 75% (\$199K) of total expenditures. Contracts and consultants (\$66K, 25%) and travel (\$1K, <1%) supported program implementation and related activities.

Metric

DPT Program

	2026	2027	2028
Projected	52	53	54
Actual	52		

Metric									
PA Program (inaugural class)									
2026				2027				2028	
Projected	0			Projected	50			Projected	51
Actual	0			Actual				Actual	

Institution	University of Arizona	
Grant Type	University Opportunity	
TRIF Investment Area	Improving Health	
Program Name	Capital Projects	
Project Lead	Garth Perry/Josh Wright	

Proposal

Problem Statement

The Arizona Healthy Tomorrow initiative, launched by the Arizona Board of Regents, aims to tackle the state's pressing health care workforce shortage. Arizona State University, Northern Arizona University, and the University of Arizona are expanding their medical and health education programs, including new medical schools and specialized training centers. These efforts are intended to increase the number of healthcare professionals, particularly in underserved and rural areas, to improve access and health outcomes for Arizona residents. As the universities enter a second year of planning and implementation, the universities will leverage additional funding to advance the initiatives and attract further community and partner investment.

Program Description

The Medical Innovations Building (MIB) is a \$9M capital construction project in the Phoenix Biosciences Core, designed to translate basic discoveries in immunology into new biotechnology companies and therapies for cancer, autoimmunity, and infectious diseases. Construction is progressing on schedule toward a fall 2027 grand opening, with structural concrete, shear walls, columns, and floor decks recently completed and significant progress underway on exterior systems, mechanical, electrical, and life safety infrastructure. Once complete, MIB will serve as the anchor for the Phoenix Bioscience Core's innovation district, positioning the University as a center for immunology research, start-up activity, and corporate engagement.

Institution Advantage

The university has substantial institutional resources, including TRIF investments, state and federal grants, and philanthropic contributions. These funding mechanisms enable catalytic discovery, interdisciplinary research, and translational projects. The university also offers seed, pilot, and equipment grants, as well as postdoctoral fellowships, to accelerate innovation and support faculty, students, and industry partners. Further U of A supports these innovations through critical core facilities offering world-class facilities for research and training.

Arizona Specific Benefit

MIB will support translating basic discoveries in immunology into new biotechnology companies and therapies for cancer, autoimmunity and infectious diseases. MIB will serve as the anchor for the Phoenix Bioscience Core's innovation district, a center of research, start-up activity and corporate engagement.

Substantive changes to the original proposal

None

Project Continuation	In progress
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Project Status	On Schedule
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Progress Report

1. Work Completed: The university invested \$9M in constructing the new Medical Innovations Building (MIB) in the Phoenix Biosciences Core.

2. Milestones Achieved: MIB construction is progressing on schedule, with projected grand opening in fall 2027. This month, the project met a major milestone with the completion of the building structural concrete, shear walls, columns, and floor decks. Significant progress has been made on exterior sheathing, masonry, glass curtain walls, electrical gear and panels, mechanical air handlers, stairs and elevator shafts, underground utilities, fire protection, and plumbing systems. On July 22, a concrete topping-out ceremony was held to celebrate progress on the project and the many trades involved in keeping the project on schedule and on budget.

3. Arizona Benefit or Impact: MIB will support translating basic discoveries in immunology into new biotechnology companies and therapies for cancer, autoimmunity and infectious diseases. MIB will serve as the anchor for the Phoenix Bioscience Core's innovation district, a center of research, start-up activity and corporate engagement.

4. What Worked Well: Construction project – N/A

5. Challenges and Lessons Learned: Construction project – N/A

Overall Project Assessment

Construction project – N/A

Investment Detail

	2026	2027	2028	Total
Infrastructure	\$ 9,000,000	\$ 0	\$ 0	\$ 9,000,000
Basic Research	\$ 0	\$ 0	\$ 0	\$ 0
Applied Research	\$ 0	\$ 0	\$ 0	\$ 0
Development	\$ 0	\$ 0	\$ 0	\$ 0
Total	\$ 9,000,000	\$ 0	\$ 0	\$ 9,000,000

Investment Narrative

This investment falls under the Infrastructure ABOR Research Category, consistent with Plant Fund account classification.

Budget Detail

	2026	2027	2028	Total
Salaries	\$ 0	\$ 0	\$ 0	\$ 0
ERE	\$ 0	\$ 0	\$ 0	\$ 0
Travel	\$ 0	\$ 0	\$ 0	\$ 0
Equipment	\$ 0	\$ 0	\$ 0	\$ 0
Supplies & Materials	\$ 0	\$ 0	\$ 0	\$ 0
Contracts & Consultants	\$ 9,000,000	\$ 0	\$ 0	\$ 9,000,000
Meetings & Conferences	\$ 0	\$ 0	\$ 0	\$ 0
Sub Awards	\$ 0	\$ 0	\$ 0	\$ 0
Total	\$ 9,000,000	\$ 0	\$ 0	\$ 9,000,000

Budget Narrative

\$9M was used for capital construction expenditures associated with the MIB project, reported in full under the Contract & Consultants expense category, reflecting the account's total FY26 construction-related activity.

Metric

Grand Opening Year

2026		2027	2028	
Projected	2027	Projected	Projected	
Actual	2027	Actual	Actual	

Institution	University of Arizona	
Grant Type	University Opportunity	
TRIF Investment Area	National Security Systems	
Program Name	National Security in Space	
Project Lead	General (RET) Robin Rand, Sr. National Security Advisor to the Sr. Vice President for Research & Partnerships	

Proposal

Problem Statement

Arizona's world-class space science expertise, combined with growing national security priorities in cislunar operations and satellite systems security, positions the state to lead the nation in integrated space and defense innovation. By uniting advanced research, strategic partnerships — with installations as well as the services' research laboratories — and cutting-edge infrastructure, Arizona can pioneer solutions for space domain awareness, secure satellite communications and resilient space systems, driving both national security and economic growth.

Program Description

National Security in Space integrates research, education and industry collaboration to advance space defense technologies, serving researchers, students, government partners and industry leaders. The program focuses on directed energy applications, cislunar operations, Earth observation, spectrum dominance and quantum communications in space. Key activities include developing advanced sensors, secure satellite systems and resilient space infrastructure. Expected outcomes are enhanced national security, new defense technologies and a skilled workforce prepared for next-generation challenges, positioning Arizona as a national leader in space security and innovation.

Institution Advantage

National Security in Space leverages the U of A's expertise in science, engineering and policy, and builds on Department of Defense grants and industry partnerships. The program benefits from state-of-the-art research infrastructure — including the Applied Research Building and the Applied Research Corporation — and access to NASA missions. These institutional strengths and funding streams enable the university to lead in space defense research, workforce development and the creation of new technologies.

Arizona Specific Benefit

The economic impact of Southern Arizona's defense-related activities, including installations and private-sector aerospace and defense companies, exceeds \$3 billion. Capitalizing on this, plus the U of A's existing strength in space sciences, prepares the university and its students to deliver long-term benefit to the state.

Substantive changes to the original proposal

No substantive changes to the initiative's strategy or focus areas. The most notable development — a consolidation rather than a departure — is the organization of these efforts under the newly established Kyl Institute for National Security (KINS), which formalizes the connection between the university's research enterprise and its national security partners.

Project Continuation	In progress
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Project Status	On Schedule
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Progress Report

1. Work Completed: FY26 TRIF Opportunity investments in National Security in Space totaled approximately \$814,000 across six commitments, anchored by the establishment of the Kyl Institute for National Security (KINS). The largest share — roughly \$548,000 — supported KINS operations and personnel, standing up a university-wide institute that connects the U of A's research enterprise to federal, defense, industry and policy partners and is building scalable secure infrastructure: accredited secure facilities, CMMC Level 2-certified enclaves for Controlled Unclassified Information (CUI) research, classified network and secure video-teleconferencing capability, and multi-user computation labs. Funded projects also advanced specific capabilities: installation of the Oculus optical glass-molding machine and continued development of rapid space-optics fabrication at Steward Observatory; an ongoing systems-testing lead position at the Arizona Space Institute supporting the Applied Research Building (ARB) environmental-test complex; cost-share support for the Mars Reconnaissance Orbiter's HiRISE imaging instrument; and a Big Idea Challenge award to develop scalable off-Earth cloud computing and data infrastructure. The Oculus effort completed engineering and site-selection studies and Department of War-funded thermal-vacuum and vibration testing, and the Space Institute completed 2025 commissioning of its large thermal-vacuum chamber, dynamics laboratory and anechoic chamber.

2. Milestones Achieved: The defining milestone was the establishment of KINS itself — led by president and CEO Gen. Robin Rand (U.S. Air Force, retired) and governed by a board chaired by the university's senior vice president for research and partnerships — creating a single, mission-aligned connection point among government, academia and industry, organized across five strategic focus areas: space, hypersonics, optics, information dominance and national security policy. Individual projects reached significant benchmarks as well. Oculus secured a \$4 million award to build a rapid space-optics fabrication facility, advanced technology readiness through successful launch-survival (thermal-vacuum and vibration) testing, founded the astrOptica spin-off company (now working with Tech Launch Arizona on licensing), attracted partnership interest from NASA JPL, the Space Telescope Science Institute, Northrop Grumman, NASA Goddard and MIT, and now supports a multi-billion-dollar NASA mission concept built on the

technology, with discussions underway on a contract valued at more than \$100 million. The Arizona Space Institute transitioned its newly commissioned test facilities from university-only use to external and commercial customers — supporting payload and hardware testing for Aspera, Rocket Lab and NASA Goddard — and anticipates tripling its customer base in 2026–27.

3. Arizona Benefit or Impact: The portfolio benefits Arizona along three reinforcing lines. Economically, it positions the state to capture large national security and space contracts: the Oculus/astrOptica effort alone is in discussions on contracts exceeding \$100 million and targets a space economy projected to reach \$1.8 trillion by 2030, while the Space Institute provides affordable, world-class environmental testing to local, national and global aerospace industry. For workforce, funded research trains students in high-value, durable space and optics skills — Oculus reported hands-on training for four undergraduates, six graduate students and four postdoctoral researchers in space sciences, optical design and optical fabrication, and the Space Institute introduces undergraduates to spaceflight hardware and operations — while KINS is explicitly chartered to advance national security workforce development. For the state's defense standing, the portfolio delivers hardened space-optics capability, environmental-test infrastructure serving defense customers and, through KINS, the secure facilities and CMMC/CUI capability that allow the university to perform controlled and classified national security research and serve as a trusted doorway for defense and intelligence partners in Southern Arizona.

4. What Worked Well: The most effective element was flexible TRIF Opportunity funding that made it possible both to stand up a new institute and to fill the capital and timing gaps external sponsors will not cover — flexibility investigators credited as critical to securing much larger external awards. The institute model is a second strength: KINS functions as connective tissue, identifying national security requirements, aligning them with university capabilities, supporting proposal capture and managing programs once they become active contracts — a structure designed to convert Arizona's research strengths into mission-ready solutions. Shared infrastructure is a third: the ARB environmental-test complex and emerging secure enclaves serve multiple projects and external customers rather than a single laboratory. Finally, deep partnerships — with the Department of War, NASA, aerospace primes, Arizona small businesses and Tech Launch Arizona — combined with the university's established space sciences and optics leadership to accelerate progress and ground the work in real mission needs.

5. Challenges and Lessons Learned: The most substantive challenges were project-level and largely a function of the pace of scaling ambitious, capital-intensive space capabilities. The Arizona Space Institute reported that commissioning its large thermal-vacuum chamber took longer than anticipated, and it continues to manage staffing and funding continuity as demand for its testing services grows. The Oculus team noted that securing even modest flexible funding at key moments can be difficult — precisely the gap TRIF Opportunity support fills. As KINS builds out its secure facilities and CMMC Level 2 enclaves, sequencing that infrastructure to match incoming partner demand remains a natural focus for a new institute. The lessons are constructive: plan facility commissioning and infrastructure milestones early, and sustain flexible bridge funding so promising space capabilities move smoothly from seed investment to the larger federal and defense contracts they are designed to win.

Overall Project Assessment

National Security in Space is best understood as a portfolio being consolidated under a single organizing structure — the newly established Kyl Institute for National Security (KINS) — rather than as a set of independent projects. FY26 TRIF Opportunity funding of roughly \$814,000 reflects this dual character: the majority (about \$548,000) built KINS's institutional connective tissue and personnel, while the remainder advanced specific, mission-relevant capabilities in space optics, environmental testing, planetary imaging and off-Earth computing. Assessed against KINS's stated mission — to connect the university's research enterprise with national security partners and move critical ideas from concept to operational impact — the initiative is early in its life but strategically coherent and, in its most mature components, already delivering.

KINS supplies the framework. Led by Gen. Robin Rand (U.S. Air Force, retired) and governed by a board chaired by the university's research leadership, it is standing up the secure facilities, CMMC Level 2-certified enclaves and classified/CUI infrastructure that serious national security work requires, and it organizes activity across five focus areas: space, hypersonics, optics, information dominance and national security policy. This structure converts a collection of individually strong efforts into an initiative with a common front door for defense, intelligence and industry partners, a capture and program management capability, and an explicit workforce mission. Because KINS is new, much of this remains capability-in-progress rather than demonstrated throughput; its trajectory, however, aligns tightly with the funded research beneath it.

The funded research most concretely substantiates the space and optics focus areas. The Oculus space-optics effort is the portfolio's flagship: TRIF support installed the molding machine and sustained a capability that has won a \$4 million facility award, passed launch-survival testing, spun out the astrOptica company, drawn partnership interest from NASA JPL, the Space Telescope Science Institute, Northrop Grumman, NASA Goddard and MIT, and seeded a multi-billion-dollar NASA mission concept, with a contract exceeding \$100 million under discussion. The Arizona Space Institute's ARB environmental-test complex — supported here through a systems-testing lead position — completed commissioning and now serves defense and commercial customers, providing the rapid-characterization and testing backbone the space focus area calls for. HiRISE cost-share and the Big Idea Challenge award for off-Earth cloud computing extend the portfolio into planetary imaging and resilient space-data infrastructure, though those outcomes are not yet reported.

Across the portfolio, the initiative advances Arizona's economic and workforce goals: positioning Southern Arizona to capture large space and defense contracts, offering industry a world-class testing resource, training students in durable space and optics skills and — through KINS — building the trusted, secure pathway that keeps national security research and its economic benefits in the state. The recurring mechanism is catalytic, flexible funding: modest TRIF dollars that stand up institutions, install enabling equipment and de-risk capabilities that then attract far larger federal and defense investment.

The considerations ahead are the manageable ones of a portfolio scaling ambitious capabilities: continuity of federal funding and staffing for capital-intensive facilities, early and detailed planning for complex commissioning, and completing KINS's secure infrastructure and partner pathways — the expected, healthy work of standing up an enduring national security enterprise. On balance, National Security in Space is well conceived and on a credible trajectory: it pairs a purpose-built institute with genuine,

contract-winning capabilities in space optics and testing, positioning Arizona to lead in next-generation security capability as the initiative matures.

Investment Detail

	2026		2027		2028		Total
Infrastructure	\$	986,366	\$	0	\$	0	\$ 986,366
Basic Research	\$	0	\$	0	\$	0	\$ 0
Applied Research	\$	0	\$	0	\$	0	\$ 0
Development	\$	102,002	\$	0	\$	0	\$ 102,002
Total	\$	1,088,368	\$	0	\$	0	\$ 1,088,368

Investment Narrative

FY26 TRIF investment in National Security in Space totaled \$1.09 million, with 91% classified as Infrastructure and 9% supporting TRIF Development. Funds supported the engineering and site-selection study for a new laboratory centered on Oculus, an externally funded custom optical glass-pressing machine that will make Arizona home to the world's most capable facility for producing large space-imaging lenses — enabling roughly 100x faster optics production at a tenth of the cost and leveraging a \$4M external grant. Investment also sustained UA Space Institute testing services, including thermal vacuum chamber capabilities now offered to external organizations, bringing aerospace projects and revenue into Arizona while training 4 undergraduates, 6 graduate students, and 4 postdocs in space sciences and optical fabrication.

Budget Detail

	2026		2027		2028		Total
Salaries	\$	410,670	\$	0	\$	0	\$ 410,670
ERE	\$	134,719	\$	0	\$	0	\$ 134,719
Travel	\$	30,072	\$	0	\$	0	\$ 30,072
Equipment	\$	65,750	\$	0	\$	0	\$ 65,750
Supplies & Materials	\$	100,550	\$	0	\$	0	\$ 100,550
Contracts & Consultants	\$	326,640	\$	0	\$	0	\$ 326,640
Meetings & Conferences	\$	19,968	\$	0	\$	0	\$ 19,968
Sub Awards	\$	0	\$	0	\$	0	\$ 0
Total	\$	1,088,368	\$	0	\$	0	\$ 1,088,368

Budget Narrative

FY26 expenditures totaled \$1.09 million. Direct spending was led by personnel at 70% (salaries and ERE), with contracts and consultants (14%) and capital equipment (8%) supporting specialized technical work. Including allocated overhead, contracts and consultants totaled \$327K, the largest non-personnel category.

Metric

Tech Startups

2026		2027		2028	
Projected	0	Projected	2	Projected	3
Actual	0	Actual		Actual	

Metric

Total Enabled Workforce (Undergraduates, Graduates, Postdocs)

2026		2027		2028	
Projected	18	Projected	20	Projected	24
Actual	18	Actual		Actual	

Institution	University of Arizona	
Grant Type	University Opportunity	
TRIF Investment Area	Workforce Development	
Program Name	Student Experiential Learning Enterprise at Scale	
Project Lead	Kimberly Sierra, Jennifer Fields	

Proposal

Problem Statement

According to the NACE survey of Employers, most recruiters want to see that a recent college graduate has experience working on a team and solving complex problems. Subsequently, meaningful experiential learning is a large retention and student success factor among campuses nationwide. Additionally, the future of work for our students is uncertain, requires new knowledge, and is increasingly independent. It is imperative, therefore, that our student cohorts be imbued with an entrepreneurial mindset and have opportunities for experiential, hands-on learning.

Program Description

Rapidly expand the base of experiential learning opportunities for undergraduates, delivering both workplace experience and an entrepreneurial mindset. We use the Network for Teaching Entrepreneurship definition of an entrepreneurial mindset as "a set of skills that enable people to identify and make the most of opportunities, overcome and learn from setbacks, and succeed in a variety of settings." These skills specifically include critical thinking, creativity and innovation, collaboration and communication, comfort with risk, initiative and self-reliance, future orientation, opportunity recognition, and flexibility and adaptability. If COVID, remote work, and economic uncertainty have taught us anything, it is that our alumni will be more resilient and agile if they have an entrepreneurial mindset, both to inform their personal and professional lives.

Institution Advantage

As an HSI-designated, Tier 1 land grant university, Arizona is positioned to scale experiential learning tied to its student population and economy. Embedding entrepreneurial training and CUREs into foundational courses reaches first-generation students at scale, showing measurable critical-thinking gains for this group. Partnerships across the Provost's Office, FORGE, and ORP let the initiative expand toward 100% student engagement without building new infrastructure, and Arizona FORGE strengthens the pipeline into TRIF-designated industries — tying workforce development to Arizona's targeted economic sectors in a way institutions without a TRIF-aligned mission can't replicate.

Arizona Specific Benefit

As an HSI-designated, Tier 1 land grant university, Arizona is positioned to deliver experiential learning that improves retention and workforce readiness statewide. Early research yields measurable gains in critical thinking, especially for first-generation students, and programs like Arizona FORGE strengthen the pipeline into TRIF industries and the state economy.

Substantive changes to the original proposal

None

Project Continuation	Completed
Project Status	On Schedule

Progress Report

1. Work Completed: The initiative expanded experiential learning across two tracks: cutting-edge workforce development programs that build an entrepreneurial mindset through teamwork and complex problem-solving, and broadened early undergraduate research access. Activities included developing new course-based undergraduate research experiences (CUREs) for first- and second-year students, expanding research positions, and launching a research mentor training for faculty, staff, and graduate students.

2. Milestones Achieved: Milestones include adopting the Network for Teaching Entrepreneurship framework for defining and assessing entrepreneurial skills, developing new CURE courses and early-career research positions, and formalizing research mentor training. Partnerships across RII [flag: elsewhere in this project the office is called "ORP" (Office of Research & Partnerships) — confirm which name to use], the Provost's Office, and FORGE were consolidated to support scaling toward 100% student engagement.

3. Arizona Benefit or Impact: As an HSI-designated, Tier 1 land grant university, Arizona is positioned to deliver experiential learning that improves retention and workforce readiness statewide. Early research yields measurable gains in critical thinking, especially for first-generation students, and programs like Arizona FORGE strengthen the pipeline into TRIF industries and the state economy.

4. What Worked Well: Pairing entrepreneurial mindset training with authentic research reached students through both curricular and co-curricular pathways. Embedding research into foundational courses via CUREs scaled high-impact practices early, and cross-unit partnerships let existing programs expand reach rather than build from scratch.

5. Challenges and Lessons Learned: Reaching 100% engagement strains program capacity and mentor availability, and the most meaningful outcomes — career results and salaries — are long-term. The lesson is that standardized assessment must be

embedded early, with near-term progress tracked through leading indicators like modules completed, courses redesigned, and credentials earned.

Overall Project Assessment

The initiative is a well-integrated effort advancing two mutually reinforcing tracks — entrepreneurial mindset development and early undergraduate research — toward 100% student engagement. Progress spans new CURE courses, expanded research positions, formalized mentor training, and consolidated partnerships across ORP, the Provost's Office, and FORGE, leveraging the University's HSI and land-grant position to reach first-generation and early-career students. The main challenges are scale and measurement: universal engagement stresses capacity, and key outcomes are only measurable long-term, making disciplined leading-indicator tracking essential. Overall, the project is coherently designed, effectively partnered, and progressing on multiple fronts, with clear next steps in scaling capacity and strengthening assessment.

Investment Detail

	2026	2027	2028	Total
Infrastructure	\$ 419	\$ 0	\$ 0	\$ 419
Basic Research	\$ 0	\$ 0	\$ 0	\$ 0
Applied Research	\$ 0	\$ 0	\$ 0	\$ 0
Development	\$ 0	\$ 0	\$ 0	\$ 0
Total	\$ 419	\$ 0	\$ 0	\$ 419

Investment Narrative

Experiential learning expenditures fund the programs, courses, mentorship, and credentialing services that support undergraduate research and workforce development rather than commercial product development. Investments developed course-based undergraduate research experiences (CUREs) for early-career and first-generation students, expanded positions in existing undergraduate research programs, established research mentor training, and built entrepreneurial-mindset and micro-credentialing pathways in partnership with ORP, the Provost's Office, and Arizona FORGE. These are enabling resources and services that expand access to research experience and build the University's research talent pipeline, consistent with the Infrastructure definition.

Budget Detail

	2026	2027	2028	Total
Salaries	\$ 404	\$ 0	\$ 0	\$ 404
ERE	\$ 15	\$ 0	\$ 0	\$ 15
Travel	\$ 0	\$ 0	\$ 0	\$ 0
Equipment	\$ 0	\$ 0	\$ 0	\$ 0
Supplies & Materials	\$ 0	\$ 0	\$ 0	\$ 0
Contracts & Consultants	\$ 0	\$ 0	\$ 0	\$ 0
Meetings & Conferences	\$ 0	\$ 0	\$ 0	\$ 0
Sub Awards	\$ 0	\$ 0	\$ 0	\$ 0
Total	\$ 419	\$ 0	\$ 0	\$ 419

Budget Narrative

FY26 expenditures totaled \$418 in direct spending related to salaries supporting program operations and activities. This nominal spend reflects an initiative in its closeout phase as funding has been fully utilized.

Metric

Total enabled students/postdocs

2026		2027	2028
Projected	171	Projected	Projected
Actual	171	Actual	Actual

Institution	University of Arizona	
Grant Type	University Opportunity	
TRIF Investment Area	Workforce Development	
Program Name	The Institute for the Future of Data and Computing's (IFDC)	
Project Lead	Emerging Leaders Program	
	Arthur Maccabe and Angela Cruze	

Proposal

Problem Statement

The Fourth Industrial Revolution will forever change both how our economy functions and how academic research can advance discovery, insight, and innovation. The University of Arizona is embarking on a concerted effort to capture the future of digital capacities that underlie the 4IR and ensure that Arizona is America's leader in computer and data innovation. As part of this effort, the IFDC is a new transdisciplinary institute designed to usher in the next generation of data, networking, and computing platforms. The institute will provide seed funding to early-stage faculty pursuing industry-linked research and mentoring students in company internships; create and implement training for the University community and regional partners to engage with cutting-edge applications of data and computing; and build a corporate-engagement landscape of internships and other experiential learning opportunities for students.

Program Description

Within IFDC, the Emerging Leaders Program will combine support for the faculty, students, and corporate engagement efforts necessary to build the ecosystem that will drive innovation in data and compute. We will develop an effective training system so the entire University community can engage with the advanced data and computing infrastructure at IFDC. Students will acquire core skills that will enable experiential opportunities in industrial internships and research centers across campus. We will create a micro-credentials program in data- and computing-based methodologies, with an emphasis on core competencies while enabling specialization. The program will connect to Software Carpentry and other communities to improve sustainability and use an agile approach (offer courses and adapt). Individual courses will be self-paced with tutorial sessions, for individualized instruction. Through training, faculty will become better acquainted with data- and computing-based approaches in their disciplines. We will establish a distinguished lecture series by complementing and expanding the TRIPODS seminar series. We also will develop a distinguished visitors program that includes a longer term (two- to four-week) engagement and possibly a workshop (e.g., "Los Alamos - Arizona Days"). Further, faculty will be supported to seed exploratory efforts to rapidly identify fruitful research avenues that can expand on existing corporate capabilities and interests, unlocking new markets. Students will be directly involved in these pre-competitive exploratory efforts, to not only use the research tools first-hand, but contribute to a broader consideration of the possibilities for those research efforts that perform well. The program also will support corporate engagement to establish internships and other experiential learning opportunities so students can develop both academic and practical skills in these new data and computation areas. We will build a virtuous cycle between (local) industry and student internships, establishing an industry council consisting of industrial members from department/college advisory committees.

Institution Advantage

The institute positioned the University as Arizona's central coordinating body for AI governance, via the AI Access and Integrity Working Group established with the Provost's Office — a structure other institutions would need to build from scratch. Migrating AI Core, Cyber Ops, and Cybersecurity training into InfoSci secured a permanent academic home for this expertise. The K-14 pipeline, built with the College of Education and Natives Who Code, extends data science education to Arizona's rural and Indigenous communities, while Yuma data-infrastructure connections tie the work to HPC/AI applications in agriculture — a sector core to the state's economy. The pivot toward DOE national labs and the Genesis Mission builds on Arizona's existing federal lab partnerships, opening national-scale funding pathways other states would take years to establish.

Arizona Specific Benefit

The institute positioned the University as the coordinating body for responsible AI use on campus and strengthened Arizona's data and computing ecosystem. The K-14 pipeline extends data science education to rural and Indigenous communities, and connections to the data infrastructure being built in Yuma support HPC/AI applications in agriculture — a sector of direct economic importance to the state. The pivot toward DOE labs and the Genesis Mission opens national-scale research and funding pathways for Arizona.

Substantive changes to the original proposal

None

Project Continuation	In progress
Project Status	On Schedule

Progress Report

1. Work Completed: Rather than operating as the originally proposed Emerging Leaders Program, the institute became the campus focal point for artificial intelligence, partnering with the Provost's Office to establish the AI Access and Integrity Working Group (2023) and producing the Data Connects Us brochure highlighting data-driven, faculty-led research across campus. Micro-credential training was delivered through the Data Lab, jointly created by the institute and the Data Science Institute (DSI). The institute also provided bridge support to sustain the AI Core, Cyber Ops, and Cybersecurity programs, and built a K-14 pipeline program focused on rural

and Indigenous communities.

2. Milestones Achieved: Key milestones include establishing the AI Access and Integrity Working Group as the campus AI governance body; migrating core training programs to the College of Information Science (InfoSci) for long-term sustainability, with Greg Chism, Ash Black (AI Core), and Paul Wagner (Cyber Ops/Cybersecurity) transitioning into InfoSci; absorbing the Data Science Academy into a new K-14 pipeline in partnership with the College of Education and the Natives Who Code program; and formulating a campus-wide vision for Advanced Information Infrastructure. The institute also pivoted strategically toward the DOE national laboratories and the Genesis Mission.

3. Arizona Benefit or Impact: The institute positioned the University as the coordinating body for responsible AI use on campus and strengthened Arizona's data and computing ecosystem. The K-14 pipeline extends data science education to rural and Indigenous communities, and connections to the data infrastructure being built in Yuma support HPC/AI applications in agriculture — a sector of direct economic importance to the state. The pivot toward DOE labs and the Genesis Mission opens national-scale research and funding pathways for Arizona.

4. What Worked Well: The most durable success was migrating workforce and training programs into an academic home (InfoSci), which secures their long-term sustainability beyond the institute's lifespan — a stronger outcome than keeping them dependent on institute funding. Serving as the neutral, cross-campus convener for AI governance through the Provost's partnership proved effective, as did leveraging existing efforts (the Data Science Academy, Natives Who Code, DSI's Data Lab) rather than building duplicative programs.

5. Challenges and Lessons Learned: The original plan did not survive contact with a fast-changing environment: the anticipated faculty seed program never materialized, and campus IT centralization significantly disrupted Advanced Information Infrastructure planning. The administration's decision to separate research-institute and academic-unit roles required relocating or winding down workforce development activities, and the current status of some Data Lab micro-credential programs is unclear following staff transitions. The central lesson is that institutes operating at the frontier of a fast-moving field (AI) deliver the most lasting value by incubating programs and then transitioning them into permanent academic and infrastructure homes, rather than holding them indefinitely.

Overall Project Assessment

The institute's trajectory is best understood as a successful strategic pivot rather than execution of the original proposal. Confronted with the rapid rise of AI, an administrative redefinition of institute-versus-academic-unit roles, and campus-wide IT centralization, the institute repositioned itself as the campus focal point for AI governance (via the Provost-partnered AI Access and Integrity Working Group) while deliberately migrating its training and workforce programs — AI Core, Cyber Ops, and Cybersecurity — into the College of Information Science to secure their sustainability. Parallel efforts advanced on multiple fronts: a K-14 pipeline for rural and Indigenous communities absorbing the Data Science Academy, connections to Yuma data infrastructure and HPC/AI in agriculture, a strategic pivot toward the DOE labs and Genesis Mission, and a formulated vision for Advanced Information Infrastructure. The principal challenges were environmental and structural — the unrealized faculty seed concept, IT-centralization disruption, and uncertainty around some transitioned Data Lab programs — rather than failures of design. On balance, the institute demonstrated adaptability and institutional value by incubating high-impact programs and transitioning them into durable academic and infrastructure homes, leaving a stronger, more sustainable footprint than the original plan envisioned.

Investment Detail

	2026		2027		2028		Total
Infrastructure	\$	601,694	\$	0	\$	0	\$ 601,694
Basic Research	\$	0	\$	0	\$	0	\$ 0
Applied Research	\$	0	\$	0	\$	0	\$ 0
Development	\$	0	\$	0	\$	0	\$ 0
Total	\$	601,694	\$	0	\$	0	\$ 601,694

Investment Narrative

IFDC expenditures support the resources, services, and human capacity that enable data- and computing-driven research across the University rather than producing a specific commercial product. Investments established the campus focal point for AI governance (the Provost-partnered AI Access and Integrity Working Group), sustained shared training and data-science capabilities through the Data Lab, and transitioned core programs (AI Core, Cyber Ops, Cybersecurity) into the College of Information Science for long-term availability. Additional infrastructure work advanced a K-14 data-science pipeline for rural and Indigenous communities and a campus-wide vision for Advanced Information Infrastructure, including connections to Yuma data infrastructure supporting HPC/AI in agriculture. These are enabling resources and services that broaden the research community's access to advanced data and computing, consistent with the Infrastructure definition.

Budget Detail					
	2026	2027	2028	Total	
Salaries	\$ 341,428	\$ 0	\$ 0	\$	341,428
ERE	\$ 114,368	\$ 0	\$ 0	\$	114,368
Travel	\$ 55,070	\$ 0	\$ 0	\$	55,070
Equipment	\$ 0	\$ 0	\$ 0	\$	0
Supplies & Materials	\$ 34,609	\$ 0	\$ 0	\$	34,609
Contracts & Consultants	\$ 42,604	\$ 0	\$ 0	\$	42,604
Meetings & Conferences	\$ 13,616	\$ 0	\$ 0	\$	13,616
Sub Awards	\$ 0	\$ 0	\$ 0	\$	0
Total	\$ 601,694	\$ 0	\$ 0	\$	601,694
Budget Narrative					
FY26 IFDC Emerging Leaders Program expenditures totaled \$601K in direct spending. Combined spending was personnel-driven, with salaries at approximately 57% (\$341K) of total expenditures. Travel (\$55K, 9%), contracts and consultants (\$42K, 7%), supplies and materials (\$34K, 6%), and meetings and conferences (\$13K, 2%) supported program operations, participant engagement, and professional development.					

Metric					
Total faculty, staff and students engaged in the AI Access and Integrity Working Group					
2026		2027		2028	
Projected	400	Projected	408	Projected	416
Actual	400	Actual		Actual	

Institution	University of Arizona	
Grant Type	University Opportunity	
TRIF Investment Area	Water, Environment and Energy Solutions	
Program Name	The Promise of Fusion Energy	
Project Lead	Horst Hahn, PhD, Sr. Advisor for Fusion Commercialization, (520) 621-3513, hhahn@arizona.edu; Office of Research & Partnerships (ORP) POC: Kim Patten, Sr. Associate Vice President for Research & Partnerships, (520) 621-5429, kjpatten@arizona.edu	

Proposal	
Problem Statement The University of Arizona is at the forefront of fusion energy commercialization, with significant investments in advanced technology, world-class research infrastructure, and strong partnerships with industry and national labs, particularly the NNSA labs. By building on these strengths, the university is positioned to accelerate clean energy innovation, drive economic growth, and lead Arizona toward a future where fusion energy powers commercialization and creates new high-tech opportunities for the state.	
Program Description Fusion Commercialization advances fusion energy research and commercialization to position Arizona as a global leader in clean energy innovation. The program targets researchers, students, and industry partners, focusing on plasma physics, fusion reactor engineering, and materials science. Key activities include collaborative research, technology development, and workforce training. Intended outcomes are commercial fusion energy solutions, new industries, and a skilled workforce prepared for next-generation energy challenges. The initiative also fosters partnerships with national labs and industry to accelerate the transition from research to real-world deployment, driving economic growth and energy security for Arizona and beyond.	
Institution Advantage Fusion Commercialization leverages the our expertise in engineering and physics. Fusion energy is a top priority for the Department of Energy per the recently announced Fusion Science & Technology Roadmap (2025), which outlines a national strategy to commercialization. The U of A program also benefits from a growing ecosystem of venture funds (over \$8B to date), enabling access to capital, industry (including existing industry in Southern Arizona) positioning Arizona as a leader in abundant energy.	
Arizona Specific Benefit Fusion Commercialization will position Arizona as a leader in fusion energy, creating new industries and high-tech jobs. The initiative drives economic growth, strengthens supply chains, and attracts cutting-edge companies, while training the next generation of skilled workers. Arizona's role in fusion research and commercialization will anchor long-term prosperity and innovation in the state.	
Substantive changes to the original proposal No substantive changes have been made to the original proposal. Over the last 12 months, the Fusion Energy Initiative has focused on building a strong research program by engaging with faculty, national laboratories, fusion startup companies, and industry partners across the fusion supply chain. These interactions have enabled the identification of high-priority engineering challenges and research opportunities where the University of Arizona can make a meaningful and lasting impact on the development and commercialization of fusion energy technologies.	
Project Continuation	In progress
Project Status	On Schedule

Progress Report
1. Work Completed: During FY26, the University of Arizona established a university-wide Fusion Energy Engineering program under TRIF Opportunity Funds, bringing together faculty from Materials Science, Optical Sciences, Physics, Industrial Engineering, Aerospace and Mechanical Engineering, and Chemical Engineering. The initiative engaged directly with the fusion industry to identify priority research areas—including tritium breeding and regeneration, first-wall materials, target manufacturing and tracking, activation analysis, and radiation detection—and launched an internal call for proposals to stimulate research. A competitive review process selected 16 interdisciplinary projects involving industrial partners and national laboratories, all beginning in FY27. The program also began construction of a facility for parallel testing of up to twelve high-power laser diodes, to be installed in the GCRB laboratories, and engaged three students (one undergraduate, two graduate) in early workforce development activities. 2. Milestones Achieved: Key milestones included securing an \$825,000 DOE BRIDGE project in partnership with fusion startup Inertia and Lawrence Livermore National Laboratory (LLNL) to study the reliability and lifetime of high-power, high-repetition-rate edge-emitting laser diodes for inertial confinement fusion; receiving a \$1 million private donation to support industry-collaborative fusion engineering projects; completing the competitive selection of 16 seed projects; submitting a proposal to the DOE Milestone Program with LLNL and Inertia; and presenting a white paper for a Fusion Energy Engineering Test Stand to the DOE Office of Fusion Energy Sciences, with follow-up discussions planned for Fall 2026. The initiative also formalized collaborations with Innoven, TAE Technologies, Leonardo Electronics, General Atomics, and internationally with the Karlsruhe Institute of Technology (Germany), and joined the STARFIRE Hub.

3. Arizona Benefit or Impact: The initiative has positioned the University of Arizona—and by extension the state—as an emerging leader in fusion energy engineering, an area with significant potential for high-technology economic growth. Participation in DOE-funded projects, national laboratory partnerships, and industry collaborations has raised Arizona's visibility within the national fusion ecosystem. Tech Park Arizona's involvement is helping position Tucson as an attractive location for future fusion-related investment. Students and researchers are gaining early exposure to an emerging industry, supporting long-term workforce development goals, and the foundation built in FY26 creates pathways for technology transfer, external funding, and the attraction of fusion-related companies to the state.

4. What Worked Well: Several approaches proved particularly effective. The Office of Research & Partnerships managed all administrative aspects of the internal call for proposals, enabling smooth implementation. University IT and research computing teams delivered timely support for large fusion-simulation datasets. Contracting and technology transfer offices facilitated the MOUs, NDAs, and IP agreements needed for industry partnerships. Tech Park Arizona's industry engagement experience was instrumental in building collaborator relationships, and ABOR special funds provided critical seed funding for early-stage interdisciplinary pilot projects. The response to the internal call—strong in number, quality, and interdisciplinary breadth—confirmed substantial faculty interest and validated the program's potential.

5. Challenges and Lessons Learned: The primary challenge was a delay in the internal proposal cycle: while funded projects were initially expected to begin in March or April 2026, the review process and final funding decisions took longer than anticipated, pushing the official start to July 1, 2026. The lesson is to build more realistic timelines for competitive review and funding decisions into future calls. Because research projects had not yet commenced, FY26 produced no TRIF-attributed peer-reviewed publications and limited direct student engagement—both expected to increase substantially in FY27. Aside from this modest delay, momentum remains strong, and the initiative's direction is unchanged: launching the 16 seed projects, completing the laser diode test facility, and pursuing larger federal and industry funding opportunities.

Overall Project Assessment

The Promise of Fusion Energy initiative's foundational year is best understood as deliberate program-building rather than a single linear project. Assessed against the proposal's central premise — that the U of A can convert its engineering and physics strengths, industry partnerships and national-laboratory relationships into leadership in fusion energy commercialization — FY26 delivered the structures that premise requires. A university-wide fusion engineering program now spans six disciplines; engagement with the fusion industry identified the initiative's key research areas, including tritium breeding, first-wall materials, target manufacturing, activation analysis and radiation detection; and a competitive internal call selected 16 interdisciplinary seed projects, with industry and national-laboratory partners, to begin in FY27. External validation arrived early: an \$825,000 Department of Energy BRIDGE project with fusion startup Inertia and Lawrence Livermore National Laboratory, a \$1 million private donation, a DOE Milestone Program proposal, a Fusion Energy Engineering Test Stand white paper presented to the DOE Office of Fusion Energy Sciences, and membership in the STARFIRE Hub, alongside partnerships including Innoven, TAE Technologies, General Atomics, Leonardo Electronics and Germany's Karlsruhe Institute of Technology. The principal consideration ahead is execution: research outcomes, publications and student training remain largely prospective until the seed projects ramp up in FY27, and the review-cycle delay that pushed project starts to July 2026 argues for more schedule buffer in future calls. On balance, the initiative is on a credible trajectory — strategically coherent, externally validated and positioned to convert TRIF's foundational investment into the larger federal and industry awards that fusion commercialization will require.

Investment Detail

	2026		2027		2028		Total
Infrastructure	\$	784,732	\$	0	\$	0	\$ 784,732
Basic Research	\$	0	\$	0	\$	0	\$ 0
Applied Research	\$	0	\$	0	\$	0	\$ 0
Development	\$	97,879	\$	0	\$	0	\$ 97,879
Total	\$	882,611	\$	0	\$	0	\$ 882,611

Investment Narrative

FY26 TRIF investment in Fusion Energy totaled \$883K, with 89% classified as Infrastructure and 11% supporting TRIF Development, establishing a university-wide fusion energy engineering program spanning six disciplines. The initiative selected 16 interdisciplinary projects through a competitive internal call (launching FY27), secured an \$825K DOE BRIDGE project with fusion startup Inertia and Lawrence Livermore National Laboratory to study high-power laser diodes for inertial confinement fusion, and received a \$1 million private donation for industry-partnered fusion engineering. Partnerships with TAE Technologies, General Atomics, Leonardo Electronics, and Germany's Karlsruhe Institute of Technology, along with STARFIRE Hub membership, position Arizona as an emerging contributor to the national fusion energy ecosystem.

Budget Detail					
	2026	2027	2028	Total	
Salaries	\$ 328,384	\$ 0	\$ 0	\$	328,384
ERE	\$ 102,745	\$ 0	\$ 0	\$	102,745
Travel	\$ 50,596	\$ 0	\$ 0	\$	50,596
Equipment	\$ 35,001	\$ 0	\$ 0	\$	35,001
Supplies & Materials	\$ 130,695	\$ 0	\$ 0	\$	130,695
Contracts & Consultants	\$ 221,734	\$ 0	\$ 0	\$	221,734
Meetings & Conferences	\$ 13,456	\$ 0	\$ 0	\$	13,456
Sub Awards	\$ 0	\$ 0	\$ 0	\$	0
Total	\$ 882,611	\$ 0	\$ 0	\$	882,611
Budget Narrative					
FY26 expenditures totaled \$883k. Direct spending was personnel-driven, with salaries and ERE at 75% of direct expenditures, supplemented by travel (9%) supporting research collaboration and program development. Combined with allocated overhead, contracts and consultants (\$222K) and supplies and materials (\$131K) round out the spending profile.					

Metric					
Sponsored Projects Funding					
2026		2027		2028	
Projected	\$484,222	Projected	\$493,906	Projected	\$503,785
Actual	\$484,222	Actual		Actual	

Metric					
Total Enabled Workforce (Undergraduates, Graduates, Postdocs)					
2026		2027		2028	
Projected	5	Projected	7	Projected	9
Actual	5	Actual	7	Actual	9

Institution	University of Arizona	
Grant Type	University Opportunity	
TRIF Investment Area	Improving Health	
Program Name	UArizona's Health Enterprise for Arizona's long term health care needs	
Project Lead	Deepta Bhattacharya (CAMI); Justin Starren (CB2)	

Proposal

Problem Statement

Similar to many states, Arizona is facing a shortage of healthcare professionals in various fields, including nursing, primary care, and mental health. The shortage of healthcare professionals has led to limited access to services, longer wait times, decreased quality of care, and increased healthcare costs. These challenges are especially magnified in rural areas.

Program Description

Develop strategies for expanding healthcare professionals including medical school students and needed residencies, as well as identifying opportunities for expanding healthcare research.

Institution Advantage

TRIF investment leverages assets unique to Arizona. CAMI's Phoenix Bioscience Core location gives it partnership pathways to ASU, NAU, Mayo Clinic, and TGen — a concentration of biomedical institutions few regions can match — and has already produced two startup spinouts and early SBIR/foundation funding. CB2 builds statewide shared research infrastructure (data platforms, tumor molecular registry, wearable-sensor research) supporting collaborations with Banner Health, ADHS, and NIH while addressing Arizona-specific priorities like Valley Fever, rural health, and maternal health. Together, these in-state clinical partnerships and centralized infrastructure give the University a translational research capacity that out-of-state institutions can't easily replicate.

Arizona Specific Benefit

CAMI's precision-medicine focus ensures local and regional access to personalized immune-based therapies that are difficult to scale nationally. CB2 strengthened statewide research capacity, workforce development, and healthcare innovation — supporting research on Arizona priorities (skin cancer, maternal health, Valley Fever, pediatric asthma, aging, rural health), training students and professionals in AI and informatics, deepening collaborations with Banner Health, ADHS, and NIH, and raising the University's national visibility in biomedical informatics and translational data science.

Substantive changes to the original proposal

None

Project Continuation	In progress
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Project Status	On Schedule
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Progress Report

1. Work Completed: UAHS advanced two new centers — the Center for Advanced Molecular Immunotherapies (CAMI) and the Center for Biomedical Informatics and Biostatistics (CB2) — recruiting Center Directors (initial salary and lab start-up) and defining their research and translational agendas. CB2 significantly expanded the University's biomedical informatics and research infrastructure in FY26, scaling enterprise data platforms (REDCap, OpenSpecimen, Power BI), providing statistical and data-science support for numerous NIH, DoD, and other proposals, advancing precision-medicine tools (data harmonization, tumor molecular registries, wearable sensors, AI-enabled infrastructure), and launching new Digital Health and Health Informatics educational programs.

2. Milestones Achieved: CAMI was positioned as the anchor of a Phoenix Bioscience Core innovation district with partnership pathways to ASU, NAU, Mayo Clinic, and TGen, and spun out two startups: Aleutian Therapeutics (Type 1 diabetes) and Ocotillo Bio (personalized cancer immunization). CB2 won a CTSA grant and launched its informatics activities, completed major infrastructure upgrades, launched a Digital Health curriculum with four new graduate courses, supported 40+ grant submissions, built a patient tumor molecular registry exceeding 3,000 genomic records, expanded wearable-sensor research to 400+ participants, and completed Part-11 and CMS MARS-E compliance for AHCCCS data.

3. Arizona Benefit or Impact: CAMI's precision-medicine focus ensures local and regional access to personalized immune-based therapies that are difficult to scale nationally. CB2 strengthened statewide research capacity, workforce development, and healthcare innovation — supporting research on Arizona priorities (skin cancer, maternal health, Valley Fever, pediatric asthma, aging, rural health), training students and professionals in AI and informatics, deepening collaborations with Banner Health, ADHS, and NIH, and raising the University's national visibility in biomedical informatics and translational data science.

4. What Worked Well: Anchoring CAMI in a Phoenix innovation district effectively linked academic research to startups and industry, and its explicit focus on translation and commercialization drew early SBIR, foundation, and philanthropic funding. CB2 enabled multiple large interdisciplinary grants (including the CTSA) through strong cross-college and state-agency collaboration, shared

research infrastructure, sustained workforce training, and standardized, automated workflows that improved efficiency and reproducibility.

5. Challenges and Lessons Learned: Both centers depend on Director recruitment and start-up investment before research and commercialization can scale, with major outcomes maturing over multi-year horizons; for CAMI, attracting executive-level biotech talent to Phoenix will be critical. Growing service demand is outpacing available personnel, staffing transitions underscored the need for documentation and succession planning, and university administrative delays plus federal funding uncertainty affected hiring and program launches. The lesson is that early foundational investment in leadership and infrastructure is a prerequisite for the long-term research, grant, and workforce returns these centers are built to deliver.

Overall Project Assessment

The Immunotherapy and Data Science initiative advances two complementary centers — CAMI in molecular immunotherapy and CB2 in biomedical informatics — that together strengthen Arizona's capacity in precision and population medicine. Progress centers on foundational build-out: Director recruitment and start-up support, CAMI's positioning as a Phoenix Bioscience Core anchor, and CB2 serving as the data science hub for the AI in Health initiative. Reinforced by partnerships with ASU, NAU, Mayo Clinic, and TGen, CB2 leveraged TRIF funding to expand research data infrastructure, advance AI-enabled health research, support competitive grants, and launch workforce-training programs — producing advances across precision medicine, clinical informatics, wearable sensors, and translational bioinformatics that improve Arizona health outcomes and federal competitiveness. The enduring challenge is that returns — grant awards, commercialization, and new degree programs — are long-term and contingent on the foundational investments now underway. On balance, the TRIF investment has established a critical foundation for future research growth and economic returns to Arizona.

Investment Detail

	2026	2027	2028	Total
Infrastructure	\$ 4,987,020	\$ 0	\$ 0	\$ 4,987,020
Basic Research	\$ 0	\$ 0	\$ 0	\$ 0
Applied Research	\$ 0	\$ 0	\$ 0	\$ 0
Development	\$ 0	\$ 0	\$ 0	\$ 0
Total	\$ 4,987,020	\$ 0	\$ 0	\$ 4,987,020

Investment Narrative

FY26 TRIF investment of approximately \$4.99M supported the University's long-term health care enterprise entirely as infrastructure, standing up two new centers — the Center for Advanced Molecular Immunotherapies (CAMI) and the Center for Biomedical Informatics and Biostatistics (CB2). Funds recruited founding Center Directors and provided lab start-up, and expanded enterprise research infrastructure by scaling data platforms (REDCap, OpenSpecimen, Power BI), building a tumor molecular registry of 3,000+ genomic records, and completing Part-11 and CMS MARS-E compliance for AHCCCS data. This foundational investment anchored CAMI within the Phoenix Bioscience Core innovation district — spinning out two startups and forging partnerships with ASU, NAU, Mayo Clinic, and TGen — while CB2 won a CTSA grant, supported 40+ grant submissions, and launched new Digital Health graduate programs. Because both centers depend on early leadership and infrastructure investment before research and commercialization scale, FY26 establishes the base for multi-year returns in Arizona health priorities, workforce development, and statewide research capacity.

Budget Detail

	2026	2027	2028	Total
Salaries	\$ 3,169,000	\$ 0	\$ 0	\$ 3,169,000
ERE	\$ 1,004,000	\$ 0	\$ 0	\$ 1,004,000
Travel	\$ 20,785	\$ 0	\$ 0	\$ 20,785
Equipment	\$ 125,597	\$ 0	\$ 0	\$ 125,597
Supplies & Materials	\$ 533,260	\$ 0	\$ 0	\$ 533,260
Contracts & Consultants	\$ 117,898	\$ 0	\$ 0	\$ 117,898
Meetings & Conferences	\$ 16,481	\$ 0	\$ 0	\$ 16,481
Sub Awards	\$ 0	\$ 0	\$ 0	\$ 0
Total	\$ 4,987,020	\$ 0	\$ 0	\$ 4,987,020

Budget Narrative

FY26 expenditures for UArizona's Health Enterprise for Arizona's long-term health care needs totaled \$4.9M in direct spending. Combined spending was personnel-driven, with salaries and employee-related expenses (ERE) accounting for approximately 82% (\$4.0M) of total expenditures. Supplies and materials (\$533K, 11%), capital equipment (\$125K, 3%), and contracts and consultants (\$117K, 2%) supported research operations, clinical infrastructure, and program-related activities.

Metric					
Total grants enabled/supported (CB2)					
2026		2027		2028	
Projected	\$185,000,000	Projected	\$188,700,000	Projected	\$192,474,000
Actual	\$185,000,000	Actual		Actual	

Metric					
Start-up companies (CAMI)					
2026		2027		2028	
Projected	2	Projected	3	Projected	4
Actual	2	Actual		Actual	

Institution	University of Arizona	
Grant Type	University Research, Attainment, and Workforce	
TRIF Investment Area	Workforce Development	
Program Name	Access & Workforce Development (AWD)	
Project Lead	Kim Patten, Sr. Associate Vice President for Research & Partnerships, (520) 621-5429, kjpatten@arizona.edu	

Proposal		
Problem Statement		
U of A is well positioned to address Arizona's STEM workforce shortage by training highly skilled researchers, postdoctoral scholars, graduate students, and undergraduate students who are prepared for roles in industry and the local economy. Through strategic faculty hires, robust research programs, and strong industry partnerships, the university can cultivate a pipeline of talent that stays in Arizona, driving innovation, economic growth, and leadership in critical STEM fields.		
Program Description		
The U of A addresses Arizona's STEM workforce shortage by training highly skilled researchers, postdoctoral scholars, graduate students and undergraduates prepared for roles across Arizona. The investment supports students and faculty through strategic hires, robust research experiences and strong industry collaborations. Key activities include research training, industry exchanges and faculty development. Intended outcomes are a robust pipeline of skilled professionals, increased research participation and a stronger faculty base, driving innovation, economic growth and leadership in critical STEM fields.		
Institution Advantage		
The initiative is supported by substantial institutional resources, federal training grants and industry partnerships, which enable robust research training programs and strategic faculty hires. The university also leverages federal grants to support students and expand workforce pipelines. By recruiting top faculty, the U of A strengthens its research capacity and mentorship, directly enhancing the quality and readiness of the STEM workforce for Arizona's evolving economy.		
Arizona Specific Benefit		
The initiative is supported by substantial institutional resources, federal training grants and industry partnerships, which enable robust research training programs and strategic faculty hires. The university also leverages federal grants to support students and expand workforce pipelines. By recruiting top faculty, the U of A strengthens its research capacity and mentorship, directly enhancing the quality and readiness of the STEM workforce for Arizona's evolving economy.		
Substantive changes to the original proposal		
None		
Project Continuation	Completed	
Project Status	On Schedule	

Progress Report	
1. Work Completed: In 2021, the U of A established the TRIF Higher Education Access and Workforce Development (AWD) initiative to strengthen pathways into and through degrees that lead to research and technical careers. Managed by the Office of Societal Impact under the Office of Research & Partnerships, AWD was funded at \$250,000 in FY21 and \$500,000 per year for FY22–26. Projects served pre-college, community college, undergraduate and graduate populations, many prioritizing opportunity and access for students from low-income households, rural areas and first-generation college families. Most investment built centralized resources (ur.arizona.edu), programs and infrastructure to increase the number of undergraduates aware of, interested in and participating in research. Funded projects included high school research programs reaching rural audiences; a digital archiving project with the Pascua Yaqui Tribe that brought technical skills to community youth and consulted tribal elders; a community college STEM bridge program with Pima Community College; inclusive faculty mentor training and onboarding resources for undergraduate researchers; a graduate peer and faculty mentoring program that went on to secure a \$1 million NSF grant; and the undergraduate research programs described below. In FY26, the decision was made to end the initiative in its current form and transfer selected programs to the Provost's Office of Undergraduate Research & Scholar Development to sustain through institutional commitments. FY26 was therefore dedicated to sunseting some programs and positioning those with demonstrated impact for successful transfer. 2. Milestones Achieved: Several TRIF-funded undergraduate research projects produced conclusive, significant increases in student research participation, researcher identity and sense of belonging, and STEM retention and graduation — particularly among students who entered with average GPAs from high schools without the resources to prepare them for rigorous college courses. Course-Based Undergraduate Research Experiences (CUREs) scaled authentic research through required courses, including foundational STEM labs, reaching far more students than the traditional one-on-one apprenticeship model. The CURE Training Institute, developed with the Provost's office and offered FY22–25, supported development of 34 CUREs at the U of A plus two at Pima Community College (Biology I and II labs), producing 77 course offerings that served 4,303 students — including 1,099 first-year and 1,262 second-year students — from spring 2021 through 2025. Students in Curriculum Development Institute (CDI) courses (2,579 students) or CURE Training Institute courses (232 students) were significantly more likely to be retained in college and in STEM after their second year, with significantly higher cumulative GPAs: CDI students were twice as likely, and CURE	

students three times as likely, to be retained in STEM. A post-course survey of 1,232 CURE students in fall 2023 and spring 2024 found significant increases in research confidence, sense of belonging and identity as a scholar/scientist. The Arizona Science, Engineering and Math Scholars (ASEMS) program serves approximately 400 STEM students annually, providing four years of holistic support — success courses, peer and professional mentors, learning cohorts, tutoring, lab shadowing and research placements — to students from low-income households, first-generation students and students with disabilities. Participants show one-year STEM retention 16% higher for first-generation female students, two-year STEM retention 10% higher, and six-year STEM graduation 17% higher than the general U of A STEM population; about 30% go on to graduate studies in STEM. The TIMESTEP program supports physical sciences majors with mentoring and summer industry internships. TRIF funding for a full-time coordinator and student stipends allowed TIMESTEP to expand its students, industry partners and majors served, add an academic-year research experience mentored by faculty and graduate students, and add an aerospace software engineering specialty. Faculty also leverage the program as a ready-made workforce development component in external research proposals, rather than creating new programs that last only the length of a grant.

3. Arizona Benefit: AWD delivered direct, measurable benefits to Arizona residents, institutions and workforce development over six years. Projects increased high school students' interest in STEM and research careers; ASEMS gave community college transfer students the support to enter and persist in U of A STEM programs — a monumental transition; undergraduates gained the technical and professional skills to apply for graduate programs; and graduate students received inclusive mentoring to persist through highly competitive programs. The institution benefits from improved student outcomes and a research-trained student body ready to tackle global challenges; the state gains more Arizonans with the skills to succeed in its research workforce — and research shows students from underserved backgrounds want to stay and solve the challenges that matter to their communities.

4. What Worked Well: The most impactful strategy was intentional partnership between the Office of Societal Impact (Research) and, first, the Provost's Office of Student Engagement and Career Development, then the new Office of Undergraduate Research & Scholar Development. Universities commonly operate in silos, especially across central Provost and Research offices; this initiative required authentic collaboration and created a lasting partnership. The two offices co-lead the Undergraduate Research Alliance, which convenes campus staff and faculty involved in undergraduate research through quarterly meetings and biweekly working groups on marketing and communications, funding, data collection and evaluation, and curricular integration. The offices are also developing resources to help faculty embed evidence-based undergraduate research practices in external funding proposals.

5. Challenges and Lessons Learned: FY26 challenges came largely from leadership changes in the federal administration and at the U of A. At the federal level: grant terminations, major shifts in funding priorities, loss of experienced agency personnel, restrictions on language, and challenges to equitable-access work — all of which affected higher education, and this portfolio, negatively. With new university leadership simultaneously in the president, provost and vice president for research roles — and under pressure from those federal changes — reorganization and reassignment decisions are not always informed by those who worked directly with the affected programs, risking the loss of hard-earned progress, institutional knowledge and programs with demonstrated impact. One example: the Undergraduate Research Ambassadors program, which for roughly \$25,000 per year in student wages reached nearly 10,000 undergraduates with information about research resources and opportunities between FY22 and FY26, may not continue despite evidence of impact.

Overall Project Assessment

The programs in this portfolio succeeded largely because they were highly integrated and coordinated across centrally situated offices and programs housed in colleges and departments. A community of interest holders further facilitated identifying and developing resources for creating, scaling and sustaining pathways into research and technical careers. The approach demonstrates the value of collaboration and of building centralized infrastructure and resources that endure beyond the funding period.

Investment Detail

	2026	2027	2028	Total
Infrastructure	\$ 1,128,766	\$ 0	\$ 0	\$ 1,128,766
Basic Research	\$ 0	\$ 0	\$ 0	\$ 0
Applied Research	\$ 0	\$ 0	\$ 0	\$ 0
Development	\$ 0	\$ 0	\$ 0	\$ 0
Total	\$ 1,128,766	\$ 0	\$ 0	\$ 1,128,766

Investment Narrative

FY26 TRIF investment in Access & Workforce Development totaled \$1.13 million, classified entirely as Infrastructure, reflecting investment in the people, programs, and institutional capacity that expand access to research training. These funds sustained career-pathway and mentored research programs — including TIMESTEP, PRISM, ASEMS STARS, VIP, and course-based undergraduate research experiences — that engaged more than 5,600 undergraduate and 173 graduate students, an increase of roughly 1,600 undergraduate participants over FY25. TRIF-supported work contributed to 18 peer-reviewed publications and leveraged external funding, including a \$1.2 million U.S. Department of Education TRIO Student Support Services award.

Budget Detail					
	2026	2027	2028	Total	
Salaries	\$ 634,566	\$ 0	\$ 0	\$	634,566
ERE	\$ 196,541	\$ 0	\$ 0	\$	196,541
Travel	\$ 11,048	\$ 0	\$ 0	\$	11,048
Equipment	\$ 57,583	\$ 0	\$ 0	\$	57,583
Supplies & Materials	\$ 100,813	\$ 0	\$ 0	\$	100,813
Contracts & Consultants	\$ 119,390	\$ 0	\$ 0	\$	119,390
Meetings & Conferences	\$ 8,825	\$ 0	\$ 0	\$	8,825
Sub Awards	\$ 0	\$ 0	\$ 0	\$	0
Total	\$ 1,128,766	\$ 0	\$ 0	\$	1,128,766

Budget Narrative

FY26 AWD expenditures totaled \$1.13 million. Combined spending was personnel-driven, with salaries and ERE at approximately 74% (\$831K), reflecting the staff- and mentor-intensive delivery of workforce development programming. Contracts and consultants (11%) and supplies and materials (9%) supported program partnerships and hands-on research training, with allocated overhead also contributing a modest capital equipment share (5%) reflecting the composition of central research infrastructure costs.

Metric					
Sponsored Projects Funding					
2026		2027		2028	
Projected	\$3,584,486	Projected	\$5,227,129	Projected	\$5,331,672
Actual	\$3,584,486	Actual		Actual	

Metric					
Total Enabled Workforce (Undergraduates, Graduates, Postdocs)					
2026		2027		2028	
Projected	5,954	Projected	4,243	Projected	4,328
Actual	5,954	Actual		Actual	

Metric					
Publications					
2026		2027		2028	
Projected	18	Projected	14	Projected	15
Actual	18	Actual		Actual	

Institution	University of Arizona	
Grant Type	University Research, Attainment, and Workforce	
TRIF Investment Area	Improving Health	
Program Name	Improving Health	
Project Lead	Vignesh Subbian, PhD, Interim Director, BIO5 Institute, (520) 621-6559, vsubbian@arizona.edu; Office of Research & Partnerships (ORP) POC: Kim Patten, Sr. Associate Vice President for Research & Partnerships, (520) 621-5429, kjpatten@arizona.edu	

Proposal		
Problem Statement		
Arizona's rapidly growing population presents unique healthcare challenges, especially in rural areas. The U of A unites researchers across disciplines to drive innovation in cancer, cardiovascular, neuroscience, infectious disease, and precision medicine. By leveraging collaborative infrastructure, the university translates discoveries into advanced devices, sensors, therapies, and care models, improving health outcomes and economic growth for all Arizonans.		
Program Description		
Arizona's rapidly growing population presents unique healthcare challenges, especially in rural areas. The U of A unites researchers across disciplines to drive innovation in cancer, cardiovascular, neuroscience, infectious disease, and precision medicine. By leveraging collaborative infrastructure, the university translates discoveries into advanced devices, sensors, therapies, and care models, improving health outcomes and economic growth for all Arizonans.		
Institution Advantage		
The BIO5 Institute is supported by substantial institutional resources, including TRIF investments, state and federal grants, and philanthropic contributions. These funding mechanisms enable catalytic discovery, interdisciplinary research, and translational projects. BIO5 also offers seed, pilot, and equipment grants, as well as postdoctoral fellowships, to accelerate innovation and support faculty, students, and industry partners. Further U of A supports these innovations through critical core facilities offering world-class facilities for research and training.		
Arizona Specific Benefit		
The BIO5 Institute is supported by substantial institutional resources, including TRIF investments, state and federal grants, and philanthropic contributions. These funding mechanisms enable catalytic discovery, interdisciplinary research, and translational projects. BIO5 also offers seed, pilot, and equipment grants, as well as postdoctoral fellowships, to accelerate innovation and support faculty, students, and industry partners. Further U of A supports these innovations through critical core facilities offering world-class facilities for research and training.		
Substantive changes to the original proposal		
none		
Project Continuation	In progress	
Project Status	On Schedule	

Progress Report		
1. Work Completed: FY 2026 included large-scale collaborations both completed and launched. The Translational Bioimaging Resource received two of the most advanced, AI driven, MRI systems available, opening the door to broader access to state-of-the-art imaging. Building on that momentum, 30 researchers came together to advance the BIO5 Brain & Body Imaging Center, supporting the development and application of multi-modal imaging techniques for complex neurological and systemic conditions. BIO5 launched Scientific Interest Groups to accelerate transdisciplinary research in critical areas to the State of Arizona such as resilient aging and neurodegenerative diseases. They are working to convene researchers across disciplines and develop shared translational research strategy.		
2. Milestones Achieved: TRIF funding continues to be a pathway to successful extramural grants that accelerate ground-breaking research in health. TRIF supported the successful renewal of the University of Arizona Superfund Research Center through the NIH, addressing the human health risks arising from exposure to dusts containing toxic metalloids and fungal spores in Arizona and the Southwest, areas with a rich history and future of mining. The 14M grant will support interdisciplinary research, training, and community engagement at the intersection of human health and arid environments. Funding from the NIH helped develop advanced imaging modalities for assessing fallopian tube health. The interdisciplinary research team performed the first live imaging study of the fallopian tubes with the miniature endoscope, a potential early detection device for ovarian cancer. NIH funding seeded by TRIF also supported work on Central Nervous System toxoplasmosis, with a focus on understanding how this parasite persists in the brain and retina of the 10-25% of the US population. The data will have implications for any neurological disease where a neuroinflammatory response occurs. Findings from a TRIF investment in copper-dependent ionophores as a new antimicrobial platform has an NIH grant to advance therapeutic approaches for antimicrobial-resistant infections.		

3. Arizona Benefit or Impact: Researchers made advances on areas that have strong impact for Arizona including work across water and arid lands, high burden diseases, and training. TRIF supported work to evaluate gaps in collaboration for addressing water scarcity including outreach, an interactive map, and bilingual AI agent. A foundational challenge in understanding how dryland ecosystems remain productive under extreme drought conditions was addressed through research that identified the specific metabolic pathways enabling microbial communities to survive in arid desert soils and was shared in multiple publications. The research group also secured NSF and Allen Institute funding to investigate how microbial communities tolerate and recover from environmental stress. New insights were generated into how RGS5 regulates mitochondrial function and endothelial dysfunction, key early mechanisms contributing to coronary artery disease, a leading cause of death globally, including the US and Arizona. Training programs at the high school, undergraduate, graduate, and post-doctoral level offered in-depth research experience contributing to the development of the next generation of Arizona researchers.

4. What Worked Well: Researchers found value in collaboration across disciplines and in purchasing shared instrumentation. TRIF dollars supported this, including work into neurodevelopmental disorders, and the purchase of a confocal microscope system and specialized atomic force microscope, and the establishment of one of the first zebrafish facilities in Arizona.

5. Challenges and Lessons Learned: The majority of challenges revolved around funding uncertainties. Delayed and reduced funding caused disruptions in research progress and resulted in hiring difficulties.

Overall Project Assessment

The Improving Health Initiative supported the enhancement of research capacity through state-of-the-art shared resources including the Translational Bioimaging Resource and shared instrumentation purchases including a confocal microscope system and specialized atomic force microscope, along with new strategic organizational framework to foster transdisciplinary health research. The initiative is a strong catalyst for high-impact scientific inquiry and significant external funding including multi-million dollar NIH and NSF grants, and research talent development including the 20th anniversary of the Keep Engaging Youth in Science Research Internship and the Postdoctoral Fellows program.

Investment Detail

	2026	2027	2028	Total
Infrastructure	\$ 10,929,766	\$ 0	\$ 0	\$ 10,929,766
Basic Research	\$ 278,484	\$ 0	\$ 0	\$ 278,484
Applied Research	\$ 137,925	\$ 0	\$ 0	\$ 137,925
Development	\$ 234,541	\$ 0	\$ 0	\$ 234,541
Total	\$ 11,580,715	\$ 0	\$ 0	\$ 11,580,715

Investment Narrative

FY26 TRIF investment in Improving Health totaled \$11.58 million, spread across research categories following the initiative's program mix — the majority supporting Infrastructure and Research, including major core facilities and instrumentation that serve investigators across the health sciences. TRIF-supported work engaged 429 undergraduate students, 298 graduate students, and 41 postdocs and produced 211 peer-reviewed publications, while generating substantial external follow-on funding — including a \$3.2M NIH grant for fallopian-tube imaging, a \$2M NIH High-End Instrumentation award for a 3T MRI scanner, a \$1.8M ARPA-H lymphatic imaging project, and numerous R01, R35, and MIRA awards seeded by TRIF pilot data. Investments advanced Arizona-specific health priorities from Valley Fever diagnostics and drug screening to Alzheimer's, cardiovascular disease, and cancer research.

Budget Detail

	2026	2027	2028	Total
Salaries	\$ 6,142,609	\$ 0	\$ 0	\$ 6,142,609
ERE	\$ 1,913,951	\$ 0	\$ 0	\$ 1,913,951
Travel	\$ 58,997	\$ 0	\$ 0	\$ 58,997
Equipment	\$ 1,490,603	\$ 0	\$ 0	\$ 1,490,603
Supplies & Materials	\$ 1,031,428	\$ 0	\$ 0	\$ 1,031,428
Contracts & Consultants	\$ 879,158	\$ 0	\$ 0	\$ 879,158
Meetings & Conferences	\$ 63,971	\$ 0	\$ 0	\$ 63,971
Sub Awards	\$ 0	\$ 0	\$ 0	\$ 0
Total	\$ 11,580,715	\$ 0	\$ 0	\$ 11,580,715

Budget Narrative

FY26 Improving Health expenditures totaled \$11.58 million. Combined spending was personnel-driven, with salaries and ERE at approximately 65% (\$8.0M), reflecting the faculty- and trainee-intensive nature of health research. Capital equipment (\$1.49M) and supplies and materials (\$1.03M) each represented roughly 9%, reflecting substantial investment in laboratory instrumentation and research consumables, with contracts and consultants comprising most of the remainder.

Metric					
Sponsored Projects Funding					
2026		2027		2028	
Projected	\$181,951,004	Projected	\$155,547,789	Projected	\$158,658,745
Actual	\$181,951,004	Actual		Actual	

Metric					
Faculty Startup Expenses					
2026		2027		2028	
Projected	\$2,912,889	Projected	\$1,742,718	Projected	\$1,777,572
Actual	\$2,912,889	Actual		Actual	

Metric					
Graduate Students Supported					
2026		2027		2028	
Projected	315	Projected	536	Projected	547
Actual	315	Actual		Actual	

Metric					
Postdoctoral Students Supported					
2026		2027		2028	
Projected	44	Projected	97	Projected	99
Actual	44	Actual		Actual	

Metric					
Tech Startups					
2026		2027		2028	
Projected	2	Projected	2	Projected	2
Actual	2	Actual		Actual	

Institution	University of Arizona	
Grant Type	University Research, Attainment, and Workforce	
TRIF Investment Area	National Security Systems	
Program Name	National Security Systems	
Project Lead	General (RET) Robin Rand, Sr. National Security Advisor & Partnerships (ORP)	

Proposal

Problem Statement

Arizona is uniquely positioned to lead in national security innovation through its strengths in directed energy and counter-unmanned aerial systems (counter-UAS), integrated deterrence, spectrum dominance, hypersonics and national security in space. By uniting advanced research, strategic partnerships and cutting-edge infrastructure, the state can pioneer solutions that enhance defense readiness, drive technological breakthroughs and secure Arizona's role as a national leader in next-generation security capabilities.

Program Description

NSS integrates research, education and policy to address national security challenges across domains. The program serves researchers, students, government partners and industry partners — including Southern Arizona's large defense industrial base — focusing on advanced defense technologies and workforce development. Expected outcomes include support for the nation's security, Arizona's military installations, and community and industry partners.

Institution Advantage

The U of A's national security advantage is rooted in growing federal defense funding, strategic partnerships with the Department of War, and deep collaboration with defense installations in Southern Arizona. These relationships enable real-world testing, joint research and technology transfer, positioning the university to lead in security innovation, secure critical funding and drive economic growth. The U of A also operates a 4,000-square-foot secure research environment.

Arizona Specific Benefit

NSS investments have strengthened Arizona's defense infrastructure, created high-tech jobs and supported national security by securing federal investment, advancing relationships with military installations and fostering partnerships with defense agencies. These efforts have driven innovation in hypersonics, directed energy and cybersecurity, positioning the U of A as a national leader in defense research and economic growth while ensuring the state's critical role in U.S. security priorities.

Substantive changes to the original proposal

None

Project Continuation	In progress
Project Status	On Schedule

Progress Report

1. Work Completed: During FY26, Opportunity-supported and cross-cutting TRIF projects advanced research, infrastructure and translational activity across national security systems, including workforce development. Teams stood up or commissioned major shared facilities: a \$4 million rapid space-optics fabrication laboratory (the Oculus facility), with site-selection and engineering studies complete; the University of Arizona Space Institute's environmental testing complex (large thermal-vacuum chamber, dynamics lab and anechoic chamber, commissioned in 2025); the FASTLab semiconductor training and research cleanroom, largely built out and on track to open in fall 2026; and instrumentation upgrades including a fast-opening valve that increased hypersonic wind-tunnel throughput tenfold, a surface-analysis ion gun and detector-testing setups for next-generation UV/visible sensors. Investigators delivered new technologies — AI frameworks for battery safety, advances in quantum error correction and quantum sensing, sulfur-based optical glasses for infrared imaging and cooperative-perception systems for connected vehicles — and TRIF-supported work contributed to numerous peer-reviewed publications and multiple issued and pending patents.

2. Milestones Achieved: The clearest milestone across the portfolio was the conversion of modest TRIF seed investments into substantial external funding and recognition. TRIF-enabled results and infrastructure underpinned a \$30 million Schmidt Sciences award to build instruments for the Lazuli space telescope; a \$1.3 million Moore Foundation award in quantum materials; NSF CAREER awards (approximately \$826,000 for scalable quantum architectures and \$600,000 in emerging quantum devices); a DARPA quantum-architectures award; and new Department of Energy and NSF grants in critical minerals and connected-vehicle research. Investigators earned a Galileo Circle Curie Award, IEEE Top 30 Early Career Professional recognition, tenure and promotion cases, and an invitation to support the U.S. delegation to the United Nations Committee on the Peaceful Uses of Outer Space. Several projects passed key decision points, pivoting from mixed-reality to fully virtual surgical training and from lab-scale synthesis to scalable manufacturing of optical materials.

3. Arizona Benefit or Impact: The most direct benefit to Arizona is workforce development at scale: hands-on training for approximately 6,350 undergraduates, more than 315 graduate students and more than 40 postdoctoral researchers in fields central to the state's economy — semiconductor fabrication, optics and photonics, quantum information science, cybersecurity, aerospace and health technology. The CAST Cyber Operations degree has grown to more than 1,600 majors, the College of Engineering's

Design Center makerspace serves thousands of students, and FASTLab is designed to prepare students for Arizona's expanding chip-manufacturing sector. Economically, the portfolio is attracting external capital and industry engagement, including major aerospace and semiconductor partners (Raytheon, Northrop Grumman, Intel, Tokyo Electron, L3Harris and Quantinuum), new Arizona spin-outs such as astrOptica and Senphonix, and partnerships with firms like FreeFall Aerospace. Projects also deliver clear public good: air-quality monitoring shared with school districts and local governments, wildfire-risk prediction that helps firefighting agencies pre-stage resources, and mining-safety, K-12 and outreach programming hosting roughly 1,000 students annually at the San Xavier Mine.

4. What Worked Well: The most effective mechanism, cited repeatedly, was flexible seed funding that de-risks high-risk, high-reward ideas and generates the preliminary data needed to win far larger federal, philanthropic and industry awards. Investigators described TRIF as the catalyst without which competitive proposals would not have been possible — in several cases a lifeline that kept unique facilities and skilled personnel intact through federal funding disruptions. Shared core infrastructure — high-performance computing, environmental test chambers, electron microscopy and surface-analysis facilities and other specialized labs — allowed projects to accomplish work too expensive to replicate independently. Transdisciplinary collaboration across engineering, optical sciences, medicine, chemistry and public health enabled integrated solutions, and commercialization and proposal-development support through Tech Launch Arizona and research development services moved discoveries toward patents, licenses and spin-outs. Industry and community partnerships, from aerospace primes to local firefighting agencies, amplified impact and grounded the research in real-world needs.

5. Challenges and Lessons Learned: The most significant challenge was federal funding volatility, which paused, canceled or rescinded support for several projects and complicated staffing and graduate student planning; a related concern is sustaining momentum when TRIF seed support ends before follow-on funding is secured. Long procurement lead times, complex commissioning (notably the large thermal-vacuum chamber and the FASTLab cleanroom) and equipment breakdowns slowed progress, prompting a shared lesson to front-load procurement and build in schedule buffer. Administrative and regulatory friction included delays in animal-research (IACUC) approvals, difficulty navigating technology transfer and export-control constraints. Data quality in real-world settings and the tension between AI model performance and interpretability challenged several health and engineering projects; investigators would invest earlier in standardized data protocols and stakeholder engagement. Finally, some strong proposals exceeding \$20 million could not advance without the right institutional contacts and government-client sponsorship, highlighting a gap in support for the largest federal opportunities. These lessons point toward earlier end-user engagement, more robust planning buffers and continued flexible bridge funding.

Overall Project Assessment

The National Security Systems initiative is best understood not as a single project but as a coordinated portfolio advancing in parallel across the five thrusts named in its proposal — directed energy and counter-UAS, integrated deterrence, spectrum dominance, hypersonics and national security in space — supported by secure research infrastructure and defense-relevant workforce development. Judged against the proposal's central premise, that Arizona can convert its research strengths, defense industrial base and installation relationships into national leadership, progress is substantial and in several thrusts ahead of expectations for seed-stage investment.

The space and hypersonics thrusts are the most mature. TRIF-seeded work has produced hardened optical and sensing capability with direct defense relevance: a \$4 million award to build the Oculus rapid space-optics fabrication facility, with Department of War-funded thermal-vacuum and vibration testing raising technology readiness and discussions underway on a contract exceeding \$100 million; the Space4 center's AI-enabled space domain awareness work with the U.S. Space Force and a resulting missile-guidance patent; and the Space Institute's newly commissioned environmental-test complex, now serving defense and aerospace customers. In hypersonics, TRIF sustained the Mach 5 wind-tunnel capability through a mid-contract funding disruption and enabled Mach 24 radio-frequency blackout modeling since licensed to a U.S. Navy SBIR partner. These outcomes demonstrate the proposal's real-world testing, joint research and technology transfer thesis operating as intended.

The directed-energy, spectrum and integrated-deterrence thrusts are earlier-stage but strategically well placed. Directed-energy work on large, lightweight, controllable gossamer mirrors — developed with an Arizona small business and briefed to Pentagon, Army, Air Force and Navy directed-energy leadership — targets precisely the counter-hypersonic and counter-UAS gap the proposal identifies, where kinetic solutions do not close. Spectrum dominance and integrated deterrence are underwritten by a deep quantum bench (quantum sensing and error correction backed by DARPA and NSF CAREER awards) and by a secure-computing backbone — NIST 800-171, Controlled Unclassified Information (CUI) and ITAR environments and export-control systems covering roughly 340 controlled projects — that makes controlled and classified-adjacent research possible. This infrastructure is the connective tissue that turns individual efforts into an initiative, and it aligns directly with the 4,000-square-foot secure environment cited as an institutional advantage.

Across every thrust, the initiative is delivering on workforce and economic development: hands-on training of undergraduates, graduate students and postdocs in defense-relevant skills; placements into Arizona's defense industrial base, including Raytheon and Northrop Grumman, and into faculty positions nationally; and spin-out and partnership activity — astrOptica, FreeFall Aerospace and others — that anchors capability and capital in Southern Arizona. The recurring pattern is TRIF as catalytic, gap-filling capital: small, flexible investments that de-risk high-consequence ideas and unlock far larger federal, defense and philanthropic awards, with a reported order-of-magnitude return on seed dollars.

The principal risks are integrated rather than project-specific: federal funding volatility threatens continuity wherever TRIF seed support ends before follow-on awards land, and facility commissioning and equipment lead times have slipped on the most ambitious infrastructure. On balance, the initiative is healthy and on trajectory — its strongest thrusts are producing hardware, patents and defense contracts; its earlier thrusts are positioned against stated national priorities; and its vulnerabilities are addressable through sustained bridge funding and stronger institutional support for pursuing the largest defense awards. Taken as a whole, the NSS portfolio is substantiating the proposal's claim that Arizona can lead in next-generation national security capability.

Investment Detail					
	2026	2027	2028	Total	
Infrastructure	\$ 7,127,748	\$ 0	\$ 0	\$	7,127,748
Basic Research	\$ 763	\$ 0	\$ 0	\$	763
Applied Research	\$ 815,551	\$ 0	\$ 0	\$	815,551
Development	\$ 6,241,813	\$ 0	\$ 0	\$	6,241,813
Total	\$ 14,185,875	\$ 0	\$ 0	\$	14,185,875
Investment Narrative					
TRIF NSS initiative invested \$2.8M in Development during FY26, notably supporting Space 4 - Space Safety, Security, and Sustainability Center. Space 4 continued advancing technologies for cislunar and deep-space awareness, including autonomous sensor tasking, orbit determination, optical sensing, and intelligent decision-support systems. These capabilities support national security priorities while creating opportunities for future technology transition, commercialization, and industry partnerships.					
Budget Detail					
	2026	2027	2028	Total	
Salaries	\$ 5,780,129	\$ 0	\$ 0	\$	5,780,129
ERE	\$ 1,933,355	\$ 0	\$ 0	\$	1,933,355
Travel	\$ 106,588	\$ 0	\$ 0	\$	106,588
Equipment	\$ 2,641,175	\$ 0	\$ 0	\$	2,641,175
Supplies & Materials	\$ 685,034	\$ 0	\$ 0	\$	685,034
Contracts & Consultants	\$ 2,869,569	\$ 0	\$ 0	\$	2,869,569
Meetings & Conferences	\$ 170,025	\$ 0	\$ 0	\$	170,025
Sub Awards	\$ 0	\$ 0	\$ 0	\$	0
Total	\$ 14,185,875	\$ 0	\$ 0	\$	14,185,875
Budget Narrative					
FY26 National Security Systems expenditures totaled \$14.19 million. NSS had the most diversified spending profile of the core initiatives: personnel (salaries and ERE) represented approximately 54% (\$7.7M) of combined expenditures, while contracts and consultants (20%, \$2.9M) and capital equipment (19%, \$2.6M) reflected substantial investment in specialized research infrastructure and external technical partnerships. Supplies and materials (5%), meetings, and travel supported ongoing research operations.					

Metric					
Total Enabled Workforce (Undergrad, Grad, Postdoc)					
	2026	2027	2028		
Projected	6,798	Projected 6,900	Projected 7,038		
Actual	6,798	Actual	Actual		

Metric					
Tech Startups					
	2026	2027	2028		
Projected	2	Projected 3	Projected 4		
Actual	2	Actual	Actual		

Metric					
Sponsored Projects Funding					
	2026	2027	2028		
Projected	\$73,261,781	Projected \$76,924,870	Projected \$80,771,114		
Actual	\$73,261,781	Actual	Actual		

Institution	University of Arizona	
Grant Type	University Research, Attainment, and Workforce	
TRIF Investment Area	Space Exploration and Optical Solutions	
Program Name	Space Engineering and Optical Sciences	
Project Lead	Erika Hamden, PhD, Director, University of Arizona Space Institute, (520) 621-9524, hamden@arizona.edu; Office of Research & Partnerships (ORP) POC: Kim Patten, Sr. Associate Vice President for Research & Partnerships, (520) 621-5429, kjpatten@arizona.edu	

Proposal

Problem Statement

The U of A is a national leader in space exploration and advanced optical sciences, with a legacy of pioneering NASA missions, world-class facilities and a strong record of innovation. Building on these strengths, the university is uniquely positioned to continue its impact by training the next generation of scientists and engineers, fostering industry partnerships and advancing cutting-edge technologies that drive Arizona's leadership — particularly as an economic driver for Southern Arizona.

Program Description

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Institution Advantage

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Arizona Specific Benefit

SEOS maintains Arizona's position as a leader in space and optical sciences, creating new industries and high-tech jobs. As reflected in a 2023 Rounds Consulting report, this sector contributes more than \$560 million to the regional economy annually.

Substantive changes to the original proposal

None.

Project Continuation	In progress
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Project Status	On Schedule
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Progress Report

1. Work Completed: The TRIF SEOS account supported a wide range of activities growing and supporting space exploration and optical sciences at the University of Arizona. Highlights include key infrastructure installed (thermal-vacuum chamber goniometer, BRDF facility, rock saw, multi-photon microscope, ultra-fast laser system and more), programs enabled (including TIMESTEP workforce development and summer workshops) and investments leveraged for additional external funding to expand and develop projects.

2. Milestones Achieved: The thermal-vacuum chamber at the Applied Research Building achieved full capability and completed its first NASA instrument test. The OASIS project opened its Meta-donated CAVE virtual reality visualization system, giving Arizona researchers, students and partners access to a nationally distinctive platform for optics, computing, engineering, astronomy, digital humanities, imaging and visualization. TRIF support sustained the Aspera mission team through FY26, in time for a \$1.7 million NASA infusion to launch (January 2027) and complete the mission.

3. Arizona Benefit or Impact: This funding helped secure significant new grants, including \$2.7 million for the Large Binocular Telescope Observatory and more than \$8 million from the U.S. Space Force. Recipients described the funding as "fundamental for my research" and said it "directly increased the competitiveness and efficiency" of their work. These grants are spent directly in the community, with many industrial partners located in Southern Arizona.

4. What worked well: collaborating closely with faculty to understand the current limits on their research and responding directly to those limits without increasing their burden; selecting recipients focused on bringing in external funding, with proven track records; and prioritizing infrastructure that enables many research areas, so each investment pays off over multiple years.

5. Challenges and Lessons Learned: Challenges were largely external to the university and its faculty: hardware procurement delays, site permitting delays and limited proposal opportunities, including delayed federal calls such as NASA New Frontiers 5. For

future years, flexibility in extending funding and adjusting budgets across years will ensure opportunities are not missed.

Overall Project Assessment

The TRIF SEOS project has been highly successful, with a raw return on investment of 1:171 for the TRIF-funded seed grant program and better than 1:10 for the overall SEOS account. The program has supported multiple key pillars of the university and is viewed by faculty as a helping partner in their complex research projects. The team continually looks for ways to leverage dollars further and to implement practices that let faculty focus fully on their research.

Investment Detail

	2026	2027	2028	Total
Infrastructure	\$ 6,368,628	\$ 0	\$ 0	\$ 6,368,628
Basic Research	\$ 0	\$ 0	\$ 0	\$ 0
Applied Research	\$ 1,091,081	\$ 0	\$ 0	\$ 1,091,081
Development	\$ 3,019,121	\$ 0	\$ 0	\$ 3,019,121
Total	\$ 10,478,831	\$ 0	\$ 0	\$ 10,478,831

Investment Narrative

FY26 TRIF investment in Space Exploration and Optical Sciences totaled \$10.48 million, distributed across research categories per the initiative's program mix, with major support for research infrastructure sustaining Arizona's NASA missions, telescopes, and optical fabrication capabilities. TRIF-supported work engaged 268 undergraduate students, 167 graduate students, and 55 postdocs and produced 310 peer-reviewed publications, while leveraging significant external investment — including a \$1.6M NASA augmentation for the Aspera mission, a \$2.7M philanthropic grant for a new Large Binocular Telescope instrument, and \$9M+ annually in outside research operations funding supporting dozens of Tucson- and Safford-region positions. Programs such as the TIMESTEP internship (20 undergraduates placed with Tucson space-sector employers) and the Arizona Space Rock Summer Camp extended research training to students across Arizona, including community colleges.

Budget Detail

	2026	2027	2028	Total
Salaries	\$ 5,500,641	\$ 0	\$ 0	\$ 5,500,641
ERE	\$ 1,763,294	\$ 0	\$ 0	\$ 1,763,294
Travel	\$ 87,719	\$ 0	\$ 0	\$ 87,719
Equipment	\$ 990,142	\$ 0	\$ 0	\$ 990,142
Supplies & Materials	\$ 623,041	\$ 0	\$ 0	\$ 623,041
Contracts & Consultants	\$ 1,444,152	\$ 0	\$ 0	\$ 1,444,152
Meetings & Conferences	\$ 69,843	\$ 0	\$ 0	\$ 69,843
Sub Awards	\$ 0	\$ 0	\$ 0	\$ 0
Total	\$ 10,478,831	\$ 0	\$ 0	\$ 10,478,831

Budget Narrative

FY26 SEOS expenditures totaled \$10.48 million. Combined spending was personnel-driven, with salaries and ERE at approximately 69% (\$7.3M), reflecting the initiative's research- and instrumentation-staff-intensive model. Contracts and consultants (\$1.44M, 14%) and capital equipment (\$1.0M, 10%) supported instrumentation development, telescope operations, and mission-related research.

Metric

Sponsored Projects Funding

2026		2027		2028	
Projected	\$96,328,250	Projected	\$75,453,854	Projected	\$76,962,931
Actual	\$96,328,250	Actual		Actual	

Metric

Faculty Startup Expenses

2026		2027		2028	
Projected	\$799,014	Projected	\$814,995	Projected	\$831,294
Actual	\$799,014	Actual		Actual	

Metric									
Publications									
2026				2027				2028	
Projected	310			Projected	316			Projected	322
Actual	310			Actual				Actual	

Metric									
Enabled Workforce (Undergraduates, Graduates, Postdocs)									
2026				2027				2028	
Projected	562			Projected	573			Projected	584
Actual	562			Actual				Actual	

Institution	University of Arizona	
Grant Type	University Research, Attainment, and Workforce	
TRIF Investment Area	Water, Environment and Energy Solutions	
Program Name	Water, Environmental and Energy Solutions (WEES) specifically through the Arizona Institute for Resilience (AIR)	
Project Lead	Sharon Collinge, PhD, Director, Arizona Institute for Resilience	

Proposal		
Problem Statement Arizona faces growing water scarcity, environmental degradation and energy insecurity driven by extreme weather and rapid population growth. Persistent drought, declining Colorado River and reservoir levels, and rising urban and agricultural demand strain water supplies and threaten economic stability. Innovative, integrated approaches are urgently needed to ensure long-term resilience for the state's communities and environment.		
Program Description WEES integrates interdisciplinary research, education and community engagement to develop solutions for water, environmental and energy challenges. Serving researchers, students and community partners, the program focuses on adaptation, water reuse and renewable energy integration, and supports collaborative research, practical resource management and leadership development. Expected outcomes include new technologies, sustainable practices and a skilled workforce prepared for future challenges. The initiative emphasizes partnerships with sovereign Native Nations and Indigenous communities, ensuring inclusive and equitable solutions, and delivers a strong return on investment while advancing Arizona's leadership in resilience stewardship.		
Institution Advantage WEES leverages the U of A's deep expertise in environmental sciences, engineering and policy, along with partnerships with government agencies, industry and Native Nations that provide additional resources, collaborative opportunities and access to applied research networks. These strengths and diverse funding streams enable innovation, support faculty hires and sustain research and workforce development across Arizona. The university is launching multi-year strategic forecasts for water and bridging environmental and health sciences.		
Arizona Specific Benefit The initiative enhances water security, improves energy efficiency and protects Arizona's environment, supporting economic growth and community resilience. The U of A is frequently ranked the top university in water research, a standing WEES sustains. And as the number of days over 100 degrees increases, research on heat and human health supports Arizonans today and in the future.		
Substantive changes to the original proposal None		
Project Continuation	In progress	
Project Status	On Schedule	

Progress Report		
1. Work Completed: Inter- and transdisciplinary research within the Arizona Institute for Resilience and across campus addressed resilience challenges in water quality and availability, agricultural production and soil health, energy, economics, extreme heat, and community health and wellbeing in Arizona. More than 40 projects delivered lab and field research, community partnerships — including with Native Nations — public engagement and workforce development, and many leveraged WEES funding to secure new or continued external support for ongoing research.		
2. Milestones Achieved: Continued support for the recently launched Heat Resilience Initiative integrates expertise from across campus to help communities respond to extreme heat through planning, public health and climate forecasting, building resilience across Arizona and the Southwest. Other teams are advancing intellectual property, including a patent, for industry partnerships.		
3. Arizona Benefit or Impact: WEES-funded research delivered timely, relevant benefits to Arizonans statewide: community-engaged and collaborative research, workforce development for students and early-career professionals, solutions for soil health, more energy- and water-efficient agricultural production with better nutritional value, public information that improves understanding of water, heat and infectious disease, identification of air quality issues and emerging groundwater contaminants to facilitate their removal, and industry partnerships.		
4. What Worked Well: Inter- and transdisciplinary research among campus collaborators, communities and community organizations proved effective for developing resilience solutions that advance scientific understanding, meet community needs and lay the groundwork for continued progress. Industry partnerships advanced research that benefits Arizona's economy, workforce and communities.		
5. Challenges and Lessons Learned: Changes in the federal funding landscape required teams to stay flexible on project timelines, deliverables and continuation strategies. Time demands on researchers, postdocs and graduate students required schedule		

adjustments. Multidisciplinary projects that do not fit neatly into research silos pursued broader funding strategies, and coordination with community partners required adaptable timelines and expectations.

Overall Project Assessment

WEES continues to deliver solutions for water scarcity and quality, environmental degradation, ecosystem conservation, rangeland restoration, energy insecurity driven by extreme weather, and heat-related impacts on human health in Arizona. Multidisciplinary research that engages directly with community needs keeps the initiative focused on state priorities and delivering solutions and benefits to communities throughout Arizona.

Investment Detail

	2026		2027		2028		Total
Infrastructure	\$	5,771,496	\$	0	\$	0	\$ 5,771,496
Basic Research	\$	0	\$	0	\$	0	\$ 0
Applied Research	\$	3,220,799	\$	0	\$	0	\$ 3,220,799
Development	\$	2,312,221	\$	0	\$	0	\$ 2,312,221
Total	\$	11,304,516	\$	0	\$	0	\$ 11,304,516

Investment Narrative

WEES investments support research activities from initiation through completion. Infrastructure investments provide support for resilience research, technology transfer, and operations of centers and institutes that receive this funding. WEES-funded projects result in deliverables within 2–5 years, as reflected in the Applied Research and Development categories.

Budget Detail

	2026		2027		2028		Total
Salaries	\$	6,599,462	\$	0	\$	0	\$ 6,599,462
ERE	\$	2,026,770	\$	0	\$	0	\$ 2,026,770
Travel	\$	119,406	\$	0	\$	0	\$ 119,406
Equipment	\$	909,598	\$	0	\$	0	\$ 909,598
Supplies & Materials	\$	585,349	\$	0	\$	0	\$ 585,349
Contracts & Consultants	\$	989,507	\$	0	\$	0	\$ 989,507
Meetings & Conferences	\$	74,424	\$	0	\$	0	\$ 74,424
Sub Awards	\$	0	\$	0	\$	0	\$ 0
Total	\$	11,304,516	\$	0	\$	0	\$ 11,304,516

Budget Narrative

Salary support for researchers and staff, including ERE, enables diverse resilience research projects and enterprises, including the Arizona Institute for Resilience. Researchers engage contractors and consultants when their expertise is required. Researchers travel to field sites to collect data and to conferences to strengthen collaborations and disseminate research. Meeting and conference expenses, including bringing research partners to campus, promote collaboration and strengthen research partnerships with the university. Supplies, materials, and equipment enable ongoing research and engagement. Specialized capital equipment also adds competitive advantage to the university.

Metric

Sponsored Projects Funding

2026		2027		2028	
Projected	\$44,888,821	Projected	\$53,101,345	Projected	\$53,101,345
Actual	\$44,888,821	Actual		Actual	

Metric

Publications

2026		2027		2028	
Projected	210	Projected	182	Projected	182
Actual	210	Actual		Actual	



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