

FEDERAL FUNDING PRIORITIES

PREPARED FOR THE NEW MEXICO CONGRESSIONAL DELEGATION
FISCAL YEAR 2022



CULTURE & INNOVATION



THE UNIVERSITY OF
NEW MEXICO®

UNM Federal Funding Priorities

FISCAL YEAR 2022

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Center of Excellence in Directed Energy

Federal Department/Agency: Department of Defense (DoD)/Air Force
Program/Account: Air Force Research Laboratory (AFRL)/ Research, Development, Test & Eval (RDT&E)
Line/Program Element: Line 13, PE 0602605F, Title: “Directed Energy Technology”
Current Federal Funding Level: \$2.50 million for Center of Excellence in Directed Energy
President’s FY22 Budget Request: TBD
FY22 UNM Request: \$5 million for a Center of Excellence in Directed Energy
New or Continuing Request: Continuing—FY21 included \$2.5 million for a Directed Energy Center of Excellence and UNM requested language
UNM Contact: Arash Mafi, Director of CHTM, Professor of Physics & Astronomy, 505-485-5574, mafi@unm.edu

UNM REQUESTED REPORT LANGUAGE

“The Committee is pleased to see that the Department is increasingly focused on the threats and challenges of directed energy, including directed energy microwaves and lasers. Given the large, skilled workforce needed in this critical area in the future, the Committee allocates \$5 million to support greater collaboration between universities and defense labs and encourages the Secretary to establish one or more centers focused on directed energy research, education, testing, and technology transfer.”

JUSTIFICATION

This federal priority builds on last year’s request and FY21 line item by supporting the establishment of a Directed Energy Center of Excellence, aiming to enhance the research portfolio of UNM in high power lasers and microwaves. The funding provided for the Center of Excellence would allow UNM to boost its collaboration on directed energy with the Department of Defense, especially with the Directed Energy division of the Air Force Research Laboratory (AFRL) and the High Energy Laser Joint Technology Office (HEL-JTO), both of which reside in Albuquerque. There is a growing need for enhanced collaboration between universities and defense laboratories in this area to achieve higher power and more intelligent sources of directed energy, which is directly tied to the national security of the United States. There is also an increasing demand for technical workforce development in this area, especially at UNM, given its proximity to the Directed Energy division at AFRL.

DESCRIPTION AND RELEVANT BACKGROUND

Directed energy (DE) lasers and microwaves are a technology that offers the ability to deliver energy to a target at the speed of light with a very deep magazine. Advances in pulsed power technology, batteries, capacitors, and electronics have all contributed towards making directed energy a reality. The University of New Mexico (UNM) has the top University research program in DE microwaves in the country. It now seeks to ramp up an equally strong program in DE lasers. This Center of Excellence will be highly aligned with AFRL’s Directed Energy Directorate (RD). UNM intends to use this funding to support additional graduate students in the Applied Electromagnetics (DE Microwaves) program in Electrical and Computer Engineering (\$1.67 million) and also ramp up a research program at The Center for High Technology Materials (CHTM) to support DE lasers through funding for graduate students, research scientists, and the enhancement of laboratory infrastructure (\$3.33 million). UNM has had a 31-year program in DE microwave (high power microwaves—HPM) which was started by Prof. Edl Schamiloglu in 1988. More than 60 M.S. and Ph.D. students have graduated from this program, with many of them currently employed

at AFRL/RD. In fact, the two key technical leads of the successful THOR demonstrator at AFRL received their Ph.D. under Prof. Schamiloglu. CHTM was established by the State of New Mexico in 1983 and has performed research and graduated many students in photonics, optoelectronics, nanotechnology, and quantum dot and fiber laser technology. Prof. Mafi became the fourth Director of CHTM in 2016. UNM is thus in an excellent position to host a Center of Excellence in Directed Energy. This support will enable CHTM to rapidly pivot to become a leading academic research center within the DE laser research community.

IMPACT ON UNM / NEW MEXICO / U.S.

By establishing a DE laser research program alongside the ongoing highly successful DE microwaves program, UNM will emerge as the nation’s leading university in Directed Energy which will be highly aligned and synergistic with AFRL’s Directed Energy Directorate. UNM will be the Nation’s leader in educating M.S. and Ph.D. scientists and engineers to contribute to the workforce requirements of AFRL, Sandia National Laboratories, Los Alamos National Laboratory, and various large and small businesses in Albuquerque and New Mexico.

Peer Support Model to Address Substance Use Disorders Treatment Engagement in Rural Communities

Federal Department/Agency: Department of Health and Human Services/Health Resources & Services Administration (HRSA)
Program/Account: Office of Rural Health Policy
Current Federal Funding Level: \$334 million for the Office of Rural Health Policy
President’s FY22 Budget Request: TBD
FY22 UNM Request: \$10 million and report language
New or Continuing Request: New
UNM Contact: Brandi Fink, Associate Professor, Department of Psychiatry and Behavioral Sciences, School of Medicine, (505) 272-6045, bcfink@salud.unm.edu

UNM REQUESTED REPORT LANGUAGE

“The Committee remains concerned by the ongoing substandard treatment for substance use disorders in rural communities and provides \$10 million to form a program of 5 pilot centers housed at medical schools in states that are ranked in the top 5 for substance misuse, including alcohol misuse, dependence and harm, based on prevalence data from the Substance Abuse and Mental Health Services Administration (SAMHSA), to determine the optimal delivery of telemedicine substance use disorder treatment and training of staff. These pilots should determine the behavioral and medical efficacy, improvement in accessibility for patients in rural communities, and cost effectiveness.”

JUSTIFICATION

Fiscal Year 2020 data from Sandoval Regional Medical Center (SRMC) suggests that over 1,016 patients, representing over 3,811 visits, accessed the SRMC Emergency Department with a primary diagnosis of alcohol use disorders and a secondary diagnosis of substance use disorders. There is a large unmet need for outpatient substance use services to treat substance use disorders in our rural communities and to prevent unnecessary utilization of high-intensity services that are also a cost burden on the healthcare system. This project will provide critical interdisciplinary research and service delivery training opportunities to those specializing in behavioral health service delivery with an emphasis on evaluating how telehealth services might allow providers to better connect with rural and underserved populations.

DESCRIPTION AND RELEVANT BACKGROUND

Treatment for substance use disorders (SUD) in rural communities is substandard. Both structural and quality differences exist between rural and urban SUD treatment centers. Smaller populations and poverty in rural areas mean the SUD treatment centers are more likely to be nonprofit and publicly funded. Although very promising, it is unproven how effective tele-SUD may be. Multiple studies have shown tele-mental health (tele-MH) as utilized to treat mental illness is comparable or even superior to in-person care, but the efficacy for treating SUD, especially in rural communities, is less well documented. Prior to COVID-19 impacts, 19% (170,000) of New Mexicans were impacted by mental illness, substance use and suicide. This figure is expected to grow to 39% due to the effects of COVID-19. Also, New Mexico has a shortage of—and an aging of—behavioral health providers. Because of the low population density of New Mexico, researchers within the state are often not competitive for large federal funding opportunities that address substance use problems, despite New Mexico having some of the highest rates of adverse substance use consequences in the country.

This funding will allow research and service providers like UNM to reduce the consequences of SUD within rural populations in culturally relevant ways while developing effective, replicable models for service delivery. While interventions are being adapted to meet current conditions, it is critical that Health Resources & Services Administration (HRSA) funds projects that determine the efficacy of tele-SUD, provide an assessment of how tele-SUD will increase accessibility of high-quality SUD treatment in rural communities, and evaluate the cost-effectiveness of tele-SUD in serving rural communities.

IMPACT ON UNM / NEW MEXICO / U.S.

New Mexico has a disproportionately high rate of mental illness, substance use and suicide, while also being under-resourced with a shortage of behavioral health providers, particularly in rural areas. This project aims to address these disparities and reach previously underserved communities. The interdisciplinary research and service delivery training opportunities created by this additional funding would provide a potential opportunity for UNM Health Sciences Rio Rancho (HSRR) to become a State Approved Training site for certified peer support workers. This may create additional employment opportunities for peer support workers with cultural ties to the many rural and underserved Native communities in New Mexico that comprise HSRR’s and SRMC’s service population. This project furthermore supports UNM’s commitment to addressing some of New Mexico’s highest research priorities through the Grand Challenges initiative (see [page 22](#)). Leaders of this project are engaged with cross-disciplinary research to advance the state’s understanding of interventions related to substance use disorders.

The Preparation and Development of Aspiring Rural and Indigenous Teachers and School Leaders

Federal Department/Agency: Department of Education
Program/Account: Office of Postsecondary Education/Strengthening Native American-Serving Institutions
Current Federal Funding Level: \$4.70 million
President’s FY22 Budget Request: TBD
FY22 UNM Request: \$4.70 million and report language
New or Continuing Request: Continuing—FY21 included \$4.7 million for the Native American Serving Non-Tribal Institutions Account and UNM requested report language
UNM Contact: Glenabah Martinez, Associate Professor, Department of Language, Literacy, and Sociocultural Studies (LLSS) and Director of the Institute for American Indian Education, College of Education and Human Sciences, (505) 277-6047, glenie@unm.edu; Shawn Secatero, Associate Professor, Department of Teacher Education, Educational Leadership & Policy (TEELP), College of Education and Human Sciences, (505) 277-6018, ssecater@unm.edu

UNM REQUESTED REPORT LANGUAGE

“The Committee urges the Secretary, through the Office of Postsecondary Education’s Strengthening Native American-Serving Institutions Program, to continue supporting the preparation and development of aspiring rural and Indigenous teachers and leaders towards implementation of effective cultural and heritage language programs for Pre/K-12 students.”

JUSTIFICATION

A mere 3% of the K-12 teachers in the State of New Mexico are Indigenous. There is a great need for a program that will provide opportunities for Native faculty to design and implement courses, internships, and student-centered activities that better serve the 23 Native Nations of New Mexico. As a leading New Mexico institution charged with educating teachers and leaders for the entire population, UNM will use this program to increase the number of Indigenous K-12 teachers and educational leaders to meet the state’s diverse needs.

DESCRIPTION AND RELEVANT BACKGROUND

The College of Education and Human Sciences (COEHS) and its Indigenous faculty have identified the need to develop inclusive infrastructure of Indigenous faculty expertise, combined with tribal perspectives, to address high-quality education from early childhood to higher education. Community engagement with Native Nations in New Mexico is at the core of teaching, service, and scholarship for Native faculty. UNM will use the funds to work with leadership of the 23 Native Nations and each nation’s department of education and school board. We will work with New Mexico Public Education Department’s Indian Education Office, the New Mexico Indian Education Advisory Board, Indian Education officers and leadership from the 23 public school districts with significant populations of Indigenous students, the Bureau of Indian Education (BIE) Area Office, and tribal contract and charter schools to increase the presence of Indigenous educators and researchers in schools and create a pathway for educators to teach culturally diverse students in New Mexico.

IMPACT ON UNM / NEW MEXICO / U.S.

New Mexico’s geography includes 23 sovereign nations, and UNM is located in the midst of one of the largest concentrations of Native Nations in the United States. New Mexico has 35,000 Indigenous students in public schools and 6,000 in the 28 BIE-operated and tribally controlled schools.

Indigenous students have the lowest achievement scores and highest dropout rates among ethnic groups nationally and in New Mexico. The New Mexico Indigenous poverty rate is 31%. This funding request is to support the preparation and development of aspiring rural and Indigenous teachers, researchers, and leaders to implement effective cultural and heritage language programs to provide better support for the cognitive and social development of Pre/K-12 students in New Mexico and nationally. More information about this project and its impact on diverse workforce development may be found online by visiting the Institute for American Indian Education (iaie.unm.edu), and the UNM College of Education & Human Sciences Education Leadership Program POLLEN Cohort (goto.unm.edu/pollen-cohort) and Native American Leadership in Education (NALE) Cohort (goto.unm.edu/native-leadership).

Expansion of Medical Scientist Training to Minority-Serving Institutions

Federal Department/Agency: Department of Health and Human Services/National Institutes of Health
Program/Account: National Institute of General Medical Sciences (NIGMS)
Current Federal Funding Level: \$2.99 billion for NIGMS
President’s FY22 Budget Request: TBD
FY22 UNM Request: \$4 million and report language
New or Continuing Request: New
UNM Contact: Richard Larson, Executive Vice Chancellor for Health Sciences, 505-272-5102, rlarson@salud.unm.edu

UNM REQUESTED REPORT LANGUAGE

“Congress recognizes the importance of highly trained physician scientists to serve diverse communities, decrease health disparities, and enhance the biomedical research workforce. Congress provides \$4 million for the Secretary to support medical scientist training at Minority Serving Institutions as defined in U.S. law under Title III of the Higher Education Act. This program shall support dual degree programs that train students in medicine and biomedical research.”

JUSTIFICATION

Currently, the National Institute of General Medical Sciences supports development of the physician scientist workforce through a Medical Scientist Training Program (MSTP). While this program has been successful in training leaders in medical research, the vast majority of funding has been directed towards large programs. This leaves a gap in the medical research workforce in states without such programs, and specifically in communities served by health systems affiliated with minority-serving institutions (MSIs). There is therefore a need to have a similar program housed at minority-serving institutions.

DESCRIPTION AND RELEVANT BACKGROUND

Currently, many stellar students seek medical scientist training outside of New Mexico because the state lacks a robust MD/PhD program. Funding for this request could support an expansion of UNM’s MD/PhD program and grow the community of medical scientists in the state. A strong MD/PhD program is important to retaining faculty, advancing medical science, decreasing health disparities, and serving the broader region and community. More information about UNM HSC’s MD/PhD program may be found at goto.unm.edu/rep-graduate, and student profiles reflective of the broad sociocultural diversity within this programs’ current student body may be found at goto.unm.edu/reo-profiles.

IMPACT ON UNM / NEW MEXICO / U.S.

The program would support the growth of the only MD/PhD program in the state and would increase the pool of medical scientists who are interested in building their careers in New Mexico. Graduates of such programs work in a variety of fields including academic health centers, community hospitals, biotech start-ups and national laboratories. Similar MSIs throughout the country have small programs and are unable to reach the critical mass of trainees needed to compete for traditional MSTP funding. By targeting MSIs, the program would engage diverse trainees who reflect the communities they serve. Diversity in medicine and health care occupations would help decrease health disparities nationally by investing in trainees who are connected to otherwise underrepresented populations. To that end, a robust MD/PhD program at UNM will build upon current pipeline programs to provide

a cohesive pathway for underrepresented students to train as physician scientists. Pipeline programs at UNM that currently support such students include the Undergraduate Pipeline Network (goto.unm.edu/reo-upn) and BA/MD program (goto.unm.edu/som-bamd). Furthermore, medical scientists often attract grant funding and build research programs that employ New Mexicans and use the services of local companies.

Nursing Workforce Funding to Increase the Number of Students Serving the Eldercare Population

Federal Department/Agency: Department of Health and Human Services/Health Resources Services Administration (HRSA)
Program/Account: Nursing Workforce Diversity/Eldercare Enhancement Program
Current Federal Funding Level: \$20.34 million for Nursing Workforce Diversity Program
President’s FY22 Budget Request: TBD
FY22 UNM Request: \$2 million and report language
New or Continuing Request: New
UNM Contact: Mary Pat Couig, Associate Professor, College of Nursing, mcouig@salud.unm.edu, 505-272-2316

UNM REQUESTED REPORT LANGUAGE

“The Committee is pleased to see that the Nursing Workforce Diversity program is working to strengthen the eldercare workforce in rural counties where there are significant health disparities. Given the unique needs of the population of majority-minority states, the committee provides \$2 million for the program to cover two additional awards targeting majority-minority states.”

JUSTIFICATION

The overall purpose of the Nursing Workforce Diversity program is to increase and strengthen the eldercare workforce in rural counties where there are health care disparities related to access and delivery of care through the expansion of educational opportunities for individuals from disadvantaged backgrounds (including racial and ethnic minorities underrepresented among registered nurses). By providing additional funding to majority-minority states, the program could help fill a needed gap in care for our own disparate populations here in New Mexico. The ability to educate, hire, train and retain nurses from New Mexico will help provide a diverse workforce and culturally-competent care for those populations within the state. By contrast, a lack of cultural competence and diversity within the healthcare workforce can adversely affect patient safety and health outcomes.

DESCRIPTION AND RELEVANT BACKGROUND

The program provides enhanced eldercare education and training opportunities to nursing students from disadvantaged backgrounds, including underrepresented racial and ethnic minorities among registered nurses. This program aims to achieve a sustainable eldercare nursing workforce equipped with the competencies necessary to address healthcare disparities related to access and delivery of care of elderly populations in rural and underserved areas. National workforce projections suggest a shortage of RNs nationally of over 500,000 individuals by the year 2030, with New Mexico predicted to be one of the top three states with the largest shortage within the RN workforce, alongside Arizona and California.

IMPACT ON UNM / NEW MEXICO / U.S.

As the aged population of New Mexico grows, more nurses experienced in eldercare are needed. This program would have the positive benefit of having more nurses in the state trained to provide care and trained for the unique needs of the New Mexico population. If funded, this proposal would help stem the tide of resources being currently allocated to the hiring of “travel nurses” who fill current nursing workforce gaps. The UNM College of Nursing faculty and staff are committed to ensuring that diversity and inclusion are reflected in all of the nursing programs including: curriculum, practice (clinical experiences), research and policy. Specific programs include the following:

a holistic admissions process for the nursing pre-licensure program and graduate programs; targeting high schools with significant under-represented minority student populations; expanding opportunities for holistic learning experiences in rural areas; and providing support and mentorship for students. For more information about these programs, please visit goto.unm.edu/hsc-nursing and goto.unm.edu/clinical-experience. Furthermore, the UNM College of Nursing, in partnership with the HSC Office for Diversity, Equity & Inclusion, is committed to growing New Mexico’s diverse health care workforce in partnership with communities across New Mexico to create sustainable K-20, STEM-H educational health careers opportunities in support of the diverse youth of New Mexico. For more information, please visit goto.unm.edu/communities-careers.

NOTES

Expanding Capacity for Health Outcomes through Technology-Enabled Collaborative Learning and Capacity Building

Federal Department/Agency: Department of Health and Human Services
Program/Account: TBD
Current Federal Funding Level: \$4.50 million for ECHO
President’s FY22 Budget Request: TBD
FY22 UNM Request: \$10 million and report language
New or Continuing Request: Continuing
UNM Contact: Sanjeev Arora, Director Project ECHO, UNM Health Sciences Center, 505-463-8148, sanjeev.arora@salud.unm.edu

UNM REQUESTED REPORT LANGUAGE

“The Committee notes the passage of the ECHO Act in the Consolidated Appropriations Act of 2021 (P.L. 116-159) and provides \$10 million to carry out the provisions of the act. To meet the goals outlined in Sec. 330N(c)(1)(B) of that act, Congress directs the Secretary to set aside 20% of the allocated funding for the creation of a data coordination center. The data coordination center must have existing collaborative relationships and a proven track record of supporting centers actively engaged in technology enabled collaborative learning, have an established history of at least 10 years supporting technology enabled collaborative learning training, have established tools and software to support data collection and collaboration across the programs funded by this grant mechanism, and be a leader in research and evaluation of technology enabled collaborative learning with no fewer than 15 peer-reviewed publications on the subject.”

JUSTIFICATION

As the recent COVID-19 pandemic illustrates, there remain large, unmet healthcare needs throughout the United States. Congress authorized the Expanding Capacity for Health Outcomes (ECHO) Act to provide support for telementoring networks across the nation to reach rural and underserved communities. Congress also recognized the need for coordinated data across the vast system, not only for evaluation measures, but also consistency of care. This request funds the program at the authorized amount for FY22 and also stands up the data coordination center envisioned and provided for in the existing authorization.

DESCRIPTION AND RELEVANT BACKGROUND

Technology enabled collaborative learning and capacity building is a powerful tool to help expand access to quality care, especially for rural communities and communities with known healthcare shortages. Project ECHO at the UNM Health Sciences Center is a recognized national leader in training academic medical centers to operate such collaborative networks across the United States. This funding would support a grant mechanism dedicated to funding technology enabled collaborative learning, while acknowledging this type of telementoring as important for increasing access to quality care. Recognizing the need to continuously learn from and evaluate such programs, this funding would also support a data coordination center. The data center will provide expertise related to software tools (such as networking, program tracking tools, and information tools) and assistance to project grantees to promote quality improvement and learning of the programs funded under this grant mechanism.

IMPACT ON UNM / NEW MEXICO / U.S.

Within New Mexico, this initiative would further establish and leverage UNM Project ECHO’s leadership in the technology enabled collaborative learning community and within the broader healthcare community, helping the nation respond to existing and emergent healthcare needs within underserved populations using the highly adaptable platform provided by telementoring. This program will also positively impact New Mexicans in that the work done by this program will provide new assessment tools and quality improvement methods that will be implemented throughout all ECHO programs serving the state of New Mexico and beyond.

NOTES

Modification to C06 Research Facilities Construction Grants to Include New Construction

Federal Department/Agency: Department of Health and Human Services/National Institutes of Health
Program/Account: National Cancer for Advancing Translational Sciences (NCATS) / Office of Research Infrastructure Programs (ORIP)
Current Federal Funding Level: \$50 million
President’s FY22 Budget Request: TBD
FY22 UNM Request: \$50 million and report language
New or Continuing Request: Continuing—FY21 included \$50 million for C06 grants and UNM requested language
UNM Contact: Richard Larson, Executive Vice Chancellor for Health Sciences, 505-272-5102, rlarson@salud.unm.edu

UNM REQUESTED REPORT LANGUAGE

\$50 million and the following language: “The Committee continues funding for the NIH/ORIP C06 mechanism and directs the agency to include flexibility in the grants to support construction of new research space. The Committee further continues to direct that at least 25% of the funding be awarded to Centers of Emerging Excellence.”

JUSTIFICATION

Funding mechanisms like the C06 grant are a critical component to advancing research in our nation’s medical centers. Because these grants fund facilities-related construction and modernization projects, they provide a much-needed complement to other research grants provided by NIH. With this funding and associated policy change, the UNM Health Sciences Center’s strengths in translational science and the work of faculty, students and staff toward new treatments would be expanded and the UNM Health Science Center (HSC) would be further established as a national leader in these fields. Given that all research buildings at the UNM HSC have been initiated with federal funding through programs like C06, this funding source is critical for further growth.

DESCRIPTION AND RELEVANT BACKGROUND

The NIH/ORIP C06 grant program provides federal funds for construction or major remodeling of biomedical research facilities. For UNM, such funds would enable construction for a state-of-the-art expansion of space supporting programmatic research relevant to some of the state’s most pressing problems. Recipient organizations will provide matching funds under this program. Continued funding under the program would provide avenues to extend local funding for much-needed, modernized facilities.

IMPACT ON UNM / NEW MEXICO / U.S.

The requested flexibility within the NIH/ORIP C06 program would provide helpful funding to expand and modernize facilities on The University of New Mexico Health Sciences Center campus. The additional space will support programmatic expansion in key research areas important to the health of our diverse populations. The new insights and treatments enabled through state-of-the-art facilities will improve lifespan and quality of life for individuals across the state. Under current law, 25% of the pool of funding is dedicated to states like New Mexico where there are high numbers of underrepresented minorities. These funds constitute an investment in both future biomedical research and in local economies through the construction process.

Sustainable Water Resources and River Management in Arid Regions

Federal Department/Agency: U.S. Army Corps of Engineers (USACE)
Program/Account: Engineering Research and Development Center (ERDC)/Flood and Coastal Storm Damage Reduction Program
Current Federal Funding Level: \$3 million for this project
President’s FY22 Budget Request: TBD
FY22 UNM Request: \$4 million for the Sustainable Water Resources and River Management in Arid Regions program
New or Continuing Request: Continuing
UNM Contact: Mark Stone, Associate Professor, Department of Civil, Construction, and Environmental Engineering, School of Engineering, 505-277-0115, stone@unm.edu

UNM REQUESTED REPORT LANGUAGE

“The Committee recommends \$4 million for the Corps’ research and development program to continue its focus on the management of water resources projects that promote public safety, reduce risk, improve operational efficiencies, reduce flood damage in arid and semi-arid regions, sustain the environment, and position our water resources systems to be managed as systems that are adaptable to the implications of a changing climate. The research and development program should also continue its focus on science and technology efforts to address needs for resilient water resources infrastructure.”

JUSTIFICATION

This project will benefit New Mexico and the region by building capacity to deal with the pressing environmental issues of wildfire recovery, endangered species recovery, and sustainable water resources management. Given changing climate patterns in this region, urban and rural flooding has increased and become a persistent challenge. This project will help mitigate the negative effects brought on by these climate conditions and help the region sustain a healthy and resilient water resources infrastructure. Additional funding would build capacity for additional cooperative agreements and other collaborations to engage a wide range of researchers across public and private sectors and catalyze a robust research program with the U.S. Army Corps of Engineers (USACE) that can persist beyond this particular federal initiative.

DESCRIPTION AND RELEVANT BACKGROUND

This request involves an ongoing project. The Engineering Research and Development Center (ERDC) is one of the key research facilities for the U.S. Army Corps of Engineers (USACE) and it operates in pursuit of a mission to “provide science, technology, and expertise in engineering and environmental sciences in support of our Armed Forces and the Nation to make the world safer and better.” One area of expertise at ERDC is water resources management and river operations. Since 2003, ERDC has managed an urban flood demonstration project, which focuses on hydrologic research with an emphasis on arid and semi-arid regions, including post-wildfire flood impacts and watershed recovery; flexible reservoir operations to address competing demands and climate change; and balancing flood risk reduction projects with environmental needs. This project is in conjunction with the Desert Research Institute (DRI) in Nevada, serving as a model for sustainable river basin management in arid climates.

IMPACT ON UNM / NEW MEXICO / U.S.

The economic vitality of New Mexico is tied to the sustainable management of the Rio Grande. This program will have far-reaching impacts on the people of New Mexico including urban and rural water agencies, irrigation districts, and flood control districts. It will be of particular benefit to all New Mexicans who depend on these agencies’ associated services. It would furthermore expand capacity for additional workforce development, internships, and employment opportunities while engaging multiple engineering consulting firms in the region, boosting interdisciplinary training for diverse UNM undergraduate and graduate students in high-demand workforce skills. The program connects with and leverages UNM’s CREST program which is focused on increasing the participation of underrepresented minorities in water-related STEM research and engineering (goto.unm.edu/cwe-crest). This project furthermore supports UNM’s commitment to addressing some of New Mexico’s highest research priorities through the Grand Challenges initiative (see [page 22](#)). Leaders of this project are engaged with cross-disciplinary research to advance the state’s understanding of improving sustainable water resources.

NOTES

Middle Rio Grande Endangered Species Act Collaborative Program

Federal Department/Agency: U.S. Army Corps of Engineers
Program/Account: Flood Risk Management Program
Current Federal Funding Level: This program is not currently funded
President’s FY22 Budget Request: TBD
FY22 UNM Request: \$3 million for the U.S. Army Corps of Engineers Middle Rio Grande Endangered Species Collaborative Program
New or Continuing Request: New
UNM Contact: Kim Eichhorst, Research Lecturer III, Department of Biology, College of Arts and Sciences, 505-277-3411, kimde@unm.edu

UNM PROGRAMMATIC REQUEST
\$3 million for the U.S. Army Corps of Engineers Middle Rio Grande Endangered Species Collaborative Program.

JUSTIFICATION
Much of the southwestern U.S. is experiencing prolonged drought that heightens the need to work proactively to adaptively manage water resources and biodiversity. The U.S. Army Corps of Engineers Middle Rio Grande Endangered Species Collaborative Program (MRGESCP) provides a critical mechanism to bring together various stakeholders who can address persistent ecological challenges. While the program was not funded last year, there is a considerable need for resources in FY22 to recover endangered species in the region. The Collaborative Program requires funding to sustain existing research and education activities, and to implement a new Science and Adaptive Management Plan that will benefit stakeholders while maintaining adequate resources to sustain biodiversity and ecosystem services.

DESCRIPTION AND RELEVANT BACKGROUND
The University of New Mexico and the affiliated Bosque Ecosystem Monitoring Program (BEMP) are signatories to the Middle Rio Grande Endangered Species Collaborative Program (Collaborative Program) that aims to balance water use, preservation of biodiversity, ecosystem integrity, and socioeconomic impact within the Rio Grande Valley where most New Mexicans live and work. The program is a partnership of 17 federal, state, tribal, local, and non-profit signatory agencies and organizations working together to support the recovery of endangered species in the Middle Rio Grande while also preserving the area’s existing and future water uses. The Collaborative Program has changed gradually over the years, but was first formed in response to several events: the federal listing of the endangered Rio Grande silvery minnow (*Hybognathus amarus*; RGSM) under the Endangered Species Act (ESA) in 1994, the listing of the endangered southwestern willow flycatcher (*Empidonax traillii extimus*; SWFL) in 1995, drought in 1996, and litigation related to these events in 1999.

In 2000, stakeholder organizations that were interested in species recovery and protection of water uses in the MRG formed the ESA Working Group. This group led to the development of the MRGESCP, which was officially established in 2002 with the signing of the Memorandum of Understanding. In 2008, Collaborative Program signatories reaffirmed their commitment by signing the Memorandum of Agreement (MOA). From north to south, the five reaches delineated within the MRG are as follows:

- Northern Reach (from the Colorado-New Mexico border to Cochiti Dam)
- Cochiti Reach (from Cochiti Dam to Angostura Diversion Dam)
- Angostura (or Albuquerque) Reach (from Angostura Diversion Dam to Isleta Diversion Dam)
- Isleta Reach (from Isleta Diversion Dam to San Acacia Diversion Dam)
- San Acacia Reach (from San Acacia Diversion Dam to the elevation of the spillway crest of Elephant Butte Reservoir)

IMPACT ON UNM / NEW MEXICO / U.S.
New Mexicans rely on sustainable and clean water supplies. The ecosystems supported by major rivers in the State are critical for sustainable agriculture, living spaces, and recreation and tourism, and they play an outsized role in developing a diversified economy for the State. The program leverages the expertise housed at UNM for research and educational outreach around the state. Over the past ten years, BEMP has provided equitable and inclusive hands-on student research for approximately 6,500 diverse K-12 students (bemp.org). Without this funding, BEMP outreach will drop to fewer than 2,500 participants and fewer than 300 K-12 students will be able to participate in hands-on research. BEMP would be reduced from working with 50 schools, primarily Title I schools, to, at most, 15 schools. In addition, the long-term data collection at 34 sites along 350 miles of the Rio Grande will be halted for 20 sites. The loss of continuous monitoring of these sites will negatively impact our understanding of how the ecosystem responds to land management strategies and climate variability, as well as hamper our ability to effectively use adaptive management and best practices strategies. This project furthermore supports UNM’s commitment to addressing some of New Mexico’s highest research priorities through the Grand Challenges initiative (see [page 22](#)). Leaders of this project are engaged with cross-disciplinary research to advance the state’s understanding of improving sustainable water resources.

San Juan River Basin Recovery Implementation Program

Federal Department/Agency: Department of Interior/Bureau of Reclamation
Program/Account: Recovery Implementation Programs
Current Authorized Level: \$10 million
President’s FY22 Budget Request: TBD
FY22 UNM Request: Preparation for Reauthorization. The program was originally authorized in 2000 (P.L. 106-392) and since reauthorized in 2019 (P.L. 116-9, Sec. 8101). The program’s authorization will expire in FY23.
New or Continuing Request: New
UNM Contact: Thomas Turner, Associate Dean for Research, College of Arts and Sciences, 505-277-7541, turnert@unm.edu

JUSTIFICATION

River Recovery Implementation Programs provide annual base funding for the Upper Colorado and San Juan fish recovery programs through FY 2023. The San Juan River Basin Recovery Implementation Program (San Juan Program) depends on this requested reauthorization to sustain existing research and education activities, and to implement science-based adaptive management plans that benefit stakeholders while maintaining adequate resources to sustain biodiversity and ecosystem services. Changing conditions in western rivers require informed research and collaborative planning to effectively manage limited resources. In 2019, Congress changed the funding mechanism in the authorization to move to an annual appropriation. Historically, power revenues from the Colorado River Storage Project were used for base funds, but over the past few years, those revenues have fallen short. As Congress begins to work towards reauthorizing the program, we look forward to exploring potential sustainable funding models with Congress and the partners in the Upper Colorado River Basin project.

DESCRIPTION AND RELEVANT BACKGROUND

The San Juan River sub-basin is the second largest of the three sub-basins that comprise the Upper Colorado River Basin. It drains about 38,000 square miles of southwestern Colorado, northeastern Arizona, northwestern New Mexico, and southeastern Utah. The San Juan Program was originally established in 1992 to aid in riparian species recovery efforts. For the last 28 years, the University of New Mexico has participated in the San Juan Program, providing scientific expertise, research capacity, and curation of specimens and data from field activities. Much of the southwestern U.S. is experiencing prolonged drought that heightens the need to work proactively to adaptively manage water resources and biodiversity.

IMPACT ON UNM / NEW MEXICO / U.S.

New Mexicans rely on sustainable and clean water supplies that are currently threatened by climate change. The ecosystems supported by major rivers in the state are critical for sustainable agriculture, living spaces, and recreation and tourism, and they play an outsized role in developing a diversified economy for the state. The program leverages the expertise housed at UNM for research and educational outreach around the state. The San Juan Program directly engages the oldest and most diverse communities in the state, including sovereign Tribal governments, land grants and others. Furthermore, this program will provide additional research and educational opportunities for students and faculty. Over the years, UNM has trained many of the scientific personnel involved with the Program, including a large representation of students who are under-represented in STEM. This

project furthermore supports UNM’s commitment to addressing some of New Mexico’s highest research priorities through the Grand Challenges initiative (see [page 22](#)). Leaders of this project are engaged with cross-disciplinary research to advance the state’s understanding of improving sustainable water resources.

NOTES

UNM Grand Challenges Initiative

Grand Challenges are problems of state and national significance that require researchers to work together across disciplinary boundaries to develop and implement solutions that have a significant positive impact on people and society. In the spring of 2019, The University of New Mexico (UNM) launched the following three Grand Challenges: Sustainable Water Resources, Substance Use Disorders, and Successful Aging. Through the Grand Challenges initiative, UNM will achieve numerous important institutional goals. First and foremost, it will help UNM better focus research expertise to improve the quality of life for all New Mexicans. It will also empower UNM researchers to bring more federal and private research money into the state and will strengthen cross-departmental research collaborations. And by engaging stakeholders throughout New Mexico, the initiative will foster new connections to New Mexico's rural and underserved communities.

The ***Sustainable Water Resources*** team is leveraging the size and strength of its interdisciplinary programs in law, policy, natural sciences, social sciences, and engineering to conduct research necessary to help decision makers, communities, and individuals make better choices about how they manage water. The team is committed to the development of a next generation decision platform that will provide policymakers with superior information with which to make decisions. This team has already received more than \$6.5 million in related National Science Foundation funding, including the Long-Term Ecological Research project and the second phase of the CREST Center for Water and the Environment.

The ***Successful Aging*** team is focused on researching ways to compress the 'period of disability' for our aging New Mexico population, shifting the threshold of functional status so a person can remain independent longer. As New Mexico's population rapidly ages over the next twenty years, this team is working to expand programs and services for vulnerable populations, support independent living, and create innovative technology to support senior autonomy.

The ***Substance Use Disorders*** Grand Challenge leverages a large interdisciplinary research team to focus on substance use in New Mexico, including the state's opioid crisis. This team's work is focused on working with communities to prevent the development of substance use disorders, increase access to treatment for those who need it, developing treatment innovations, and improving policies related to substance use to facilitate these goals. Since the inception of the Grand Challenges, this team has been successful in competing for federal funding totally nearly \$50 million. This includes an award from the National Institutes of Health to build a state-of-the-art biomedical research facility that will house specialized experimental and observational substance use and brain injury research suites and will cement UNM as a leader in substance use and brain injury research.

Modern and new facilities are critical for continued growth of the Grand Challenges and our research enterprise. Making federal funds available for states like New Mexico to construct new, state-of-the-art research facilities is, therefore, one of our priorities again this year. It is also important that publicly funded research lead to discovery that improves our lives, grows the economy, and creates jobs. UNM leads a regional network (ASCEND) of university research hubs tasked with facilitating faculty interaction with commercial businesses. Stay up to date with Grand Challenges research at grandchallenges.unm.edu.

