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House of Representatives
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April 1, 2019

The Honorable Nita Lowey
Chairwoman
Committee on Appropriations
H-307, The Capitol
U.S. House of Representatives
Washington, DC 20515

Dear Chairwoman Lowey,

The Commerce, Justice, Science, and Related Agencies appropriations account provides funding for a wide range of agencies that fall under the oversight purview of the Science, Space, and Technology Committee. As the Chairwoman of the Science, Space, and Technology Committee I am writing to encourage your continued support of our nation's science and technology enterprise. The sections that follow address concerns we have with the President's Fiscal Year 2020 budget request and our proposals for addressing those concerns.

National Science Foundation

Funding for the National Science Foundation (NSF) has increased steadily in recent years, reaching $8.1 billion in FY 2019. The nearly $1 billion cut proposed by the Administration for NSF in FY 2020 would represent a damaging step backwards for the agency. We appreciate that you have worked hard to protect NSF's budget in recent years under significant budget constraints and repeated proposed cuts by this Administration. We urge you to do what you can to keep the agency on a sustainable path of growth as called for in one expert report after another. Our nation's leadership in science and technology is increasingly threatened across nearly all fields of science and engineering, including artificial intelligence and quantum science, and research funded by NSF constitutes the very foundation of our entire science and technology enterprise. In addition, our nation faces an increasing demand for workers with STEM skills, and NSF is a leader in advancing the quality and accessibility of STEM education at all levels.

In terms of specific proposals in the Administration's FY 2020 budget proposal for NSF, we applaud the agency for sustaining its commitment to take bold new steps to transcend disciplinary boundaries and drive new frontiers in science and engineering through the 10 Big Ideas and two Convergence Accelerator tracks. Our science agencies need to think big if they are to address society's most pressing scientific and technological challenges. We are concerned,

however, that these new initiatives come at the expense of, rather than as an addition to core research programs and the agency's support for broadening participation and education at all levels from K-12 through graduate student training.

We are also concerned by the Administration's proposal to reduce funding for the agency-wide Innovations at the Nexus of Food, Energy, and Water Systems (INFEWS) program by 55 percent. The recent National Academy of Sciences report entitled *Science Breakthroughs to Advance Food and Agricultural Research by 2030* highlighted the urgent need for transdisciplinary collaborative research to address significant challenges in U.S. agriculture innovation, calling out the NSF INFEWS program by name. While we understand that NSF initiatives are generally designed to phase out over time, now is not the time to be backing away from this important initiative. We urge sufficient funding of the INFEWS program to support the research on interconnected food, energy, and water systems that will inform critical decision-making.

There is increasing demand for the agency's National Center for Science and Engineering Statistics, including interest in collecting data on STEM workers without advanced degrees and the nature and prevalence of sexual harassment in STEM studies and careers. In light of this, we urge a commensurate increase in funding so NSF can meet this need.

With respect to facilities, we urge full funding for the Antarctic Infrastructure Modernization for Science (AIMS) project. As you well know, NSF's research infrastructure in Antarctica is a critical national asset supporting both essential science and U.S. national security interests. We also urge full funding for the Mid-scale Research Infrastructure program, called for in the American Innovation and Competitiveness Act of 2017. This program is in high demand, as demonstrated by the $10 billion in ideas for projects submitted in response to the agency's 2018 Request for Information.

National Institutes of Standards and Technology

The National Institute of Standards and Technology (NIST) is one of the most important yet underappreciated agencies in our Federal government. We have no doubt that you see the agency in a similarly favorable light and thank you for your support for NIST in the recent FY 2019 omnibus. Unfortunately, the Administration is proposing to cut funding for NIST by 30 percent in FY 2020, including a 15.6 percent cut to Scientific and Technical Research Services (STRS), which is NIST's core measurement research and standards account. Such a cut would result in the elimination of more than 420 employee positions. Much of this technical talent could be lost forever even if the budget rebounded in subsequent years. This substantial cut to STRS funds and staffing could result in irreversible harm to the competitiveness of U.S. companies across all sectors of our economy. NIST already lacks the resources it needs to lead on international standards setting across all technologies and sectors, and reducing those resources even further is effectively handing the baton to China and other competitors - allies and adversaries alike - to set the international standards that benefit their own companies and economies. In addition, these

cuts would set back progress on cybersecurity, privacy, advanced communications, materials, disaster resilience, engineering biology, environmental measurement, and the reliability of forensic evidence used quite literally to make life and death decisions in America's courtrooms. Finally, within STRS, the proposal to cease operations for two of the instruments at the Center for Neutron Research sits in stark contrast to the subscription rates for this important user facility.

Some of the specific cuts appear to be ideologically driven, while others are just arbitrary "penny wise and pound foolish" proposals. We urge you to reverse these cuts and provide at least an inflationary increase to the STRS account after two years of flat funding. We specifically request support for all of the centers of excellence and the important environmental measurement ("Urban Dome"), and forensics activities that the Administration proposes to eliminate.

The Administration is also proposing once again to eliminate the Manufacturing Extension Partnership (MEP) program. The MEP program has proven to be a successful model for federal-state partnerships with significant payoff in economic growth and job creation across our nation. According to NIST, for every dollar of Federal investment, the MEP National Network generates $29.5 in new sales growth for manufacturers and $31.0 in new client investment. This translates into $3.8 billion in new sales annually. NIST has completed a system-wide re-competition process for the MEP centers to ensure they are continuing to meet their goals. We urge you to fully fund the MEP program and to continue to invest in the Manufacturing USA program, including in NIST's role as an interagency coordinator and in the NIST-supported institute, NIIMBL.

We strongly support investing in NIST's construction account to modernize NIST's labs. The FY 2020 request includes only $41 million in new discretionary funds for building maintenance activities at the NIST Gaithersburg and Boulder campuses. This represents only one-third of the annual maintenance needs at NIST. To provide just one startling example, the Gaithersburg campus is losing 50,000-70,000 gallons of water per day due to leaky pipes in the steam system. In the meantime, the Boulder Building 1 renovation is underway. The estimated construction cost is now $337 million, with $43 million needed in FY 2020 to complete the work already started on Wing 5, but there is no money in the discretionary budget for it. Instead, the Administration is proposing to fund Building 1 construction out of a revolving fund that would require an Act of Congress. While there may be merit to the idea of a capital fund for major construction projects, at the moment any such fund is hypothetical. In the meantime, we urge you to find as much support as possible in the discretionary budget to help address NIST's long list of maintenance needs and to ensure that the Building 1 construction project remains on track.

NASA

The Trump Administration submitted its request of $21.019 billion for the National Aeronautics and Space Administration (NASA) for Fiscal Year (FY) 2020. The proposal is $481 million or about 2 percent lower than the FY 2019 enacted appropriation. While the Administration spared

NASA from receiving the severe cuts that it levied on other agencies funded in the discretionary account, we have a number of concerns with the FY 2020 budget proposal that are outlined below.

Most fundamentally, the Administration's FY 2020 request has been overtaken by the Vice President's directive last week to NASA to return astronauts to the Moon by 2024, and the Administration has provided no information to date on how the directive will impact the FY 2020 request. For example, the FY 2020 budget request assumed that the funding identified in that request would be required to meet a 2028 target date for the first crewed lunar landing, and questions have been raised as to how achievable the 2028 date would be. Attempting to accelerate the first landing by four years would seem to argue that additional funding will be needed, but the Administration has so far been silent on the estimated cost of the accelerated program. In addition, the Administration has just submitted a reprogramming request that would change NASA's organizational structure. The Science, Space, and Technology Committee has had no opportunity yet to review that reprogramming request, so we are not prepared to support it at this point. However, as will be discussed in a follow-on letter, we cannot support the transfer of "all technology development and demonstration activities currently with the Space Technology Mission Directorate [STMD]" into the proposed new Moon to Mars Mission Directorate. It is vitally important that STMD remain an independent technology mission directorate that can provide cross-cutting support to NASA's science and aeronautics programs, as well as to its human spaceflight programs.

Returning to discussion of the FY 2020 budget request, it proposes $5021 million for Deep Space Exploration, $30 million less than the FY19 enacted level. Exploration Systems, including the Space Launch System (SLS), Orion, and the Exploration Ground Systems (EGS) programs that Congress has consistently supported as the backbone of America's ability to explore deep space with humans once again would all be cut by $650 million relative to FY19 enacted levels--SLS by $375 million, Orion by $84 million, and EGS by $28 million relative to the FY19 appropriation. In addition, the proposal does not include funding for an Exploration Upper Stage which was directed in the FY19 appropriations law. Deferring work on an Exploration Upper Stage would affect decisions and costs associated with deep space architectures, including proposed cislunar activities. We urge you to fund SLS, including an Exploration Upper Stage, Orion, and EGS (including any funding needed for the completion of a second Mobile Launch Platform in FY 2020) at the FY19 enacted levels to ensure maximum progress toward the critical EM-1 and EM-2 flight demonstrations.

In considering the International Space Station (ISS), the FY 2020 request proposes to reduce ISS research by over $20 million from the FY 2018 actual spending, the most recent comparable funding level. The ISS is a perishable asset and full and productive research utilization is critical during this phase of ISS operations. In addition, ISS research and technology demonstrations enable deep space exploration through risk mitigation and reductions. Cutting ISS research is inconsistent with the future goals of NASA and the space program, and we request that you consider an increase to the account.

NASA's Science Program is a crown jewel of the nation and a source of innovation and discovery. The Trump Administration's FY20 request of $6304 million would cut NASA's science programs by about 9 percent, as compared to the FY19 enacted appropriation. In particular, the FY20 proposal would cut Earth Science by 7 percent, Planetary Science by 4.6 percent, Heliophysics by 2 percent, and Astrophysics by 29 percent. Funding for high priority science projects, including the astrophysics WFIRST mission and the Earth Science PACE and CLARREO Pathfinder missions, would be zeroed out. We urge you to sustain funding to ensure continuation of WFIRST, a mission that will explore the mysteries of dark energy and advance the rapid discoveries in exoplanet research. We also request that you sustain funding for the PACE and the CLARREO Pathfinder Earth science missions, which will advance our understanding of the Earth and climate. In addition, we encourage you to support the Planetary Science proposal for initiation of a Mars Sample Return mission.

With respect to Aeronautics, the Administration has requested a cut of 8 percent from the FY 2019 enacted level. The Administration's proposal for Aeronautics would shift funding for certain aeroscience capabilities in the Aeronautics Research and Development Mission Directorate into a single project within Safety, Security, and Mission Service's Shared Capability Asset Program. We encourage you to obtain further details on this approach before transferring the associated funding to a non-Aeronautics account. In considering the future of Aeronautics, we are concerned that this budget request will not enable the pace of advancement on experimental aircraft demonstrations that was envisioned in the FY 2018 budget request. The FY20 proposal has, like the FY19 request, limited experimental aircraft developments to the Low-Boom Flight Demonstration Project. Development and demonstration of experimental aircraft would reinvigorate NASA's aeronautics research and development activity, inspire a new generation of aeronautics research professionals, and help sustain U.S. leadership in aeronautics and aviation systems. We urge you to increase Aeronautics funding to support additional work on experimental aircraft.

Mrs. Chairwoman, we are troubled by the Administration's repeated efforts to zero-out STEM programs ($110 million relative to the FY19 enacted appropriation) including Space Grant, EPSCoR, and MUREP. NASA's inspirational missions provide scientific, engineering, and technology content that can engage youth in STEM education and careers. STEM capabilities are no longer an option for America, they are essential if the nation is to lead and remain competitive. NASA's next great steps in science, aeronautics, space technology and human spaceflight and exploration will depend on a world class workforce with 21st century STEM capabilities and skills. Cutting these programs at NASA is short sighted and we urge you to support NASA's STEM programs to ensure at least level funding with the FY19 enacted appropriation.

NOAA

It is unacceptable that the Department of Commerce and NOAA still have not released NOAA's budget, nor have provided sufficient answers to why the budget is not yet in Congress's hands. What we do know is that the President's FY 2020 Budget Request proposes cuts of over $1 billion from NOAA programs and a loss of 547 civilian jobs. This is an 18 percent reduction in the agency's funding. These excessive cuts signal a retreat from NOAA's operational mission to understand and predict changes in climate, weather, oceans and coasts; share that knowledge and information; and conserve and manage coastal and marine ecosystems and resources. We cannot support these kinds of draconian cuts which endanger not only the vitality of the Agency itself but puts at risk the lives of millions of Americans that rely on the critical research, observations, and information produced by NOAA.

Now more than ever, Americans around the country are reeling from more frequent and more severe weather events, such as the recent extreme flooding in Nebraska and the Midwest. NOAA's research contributes to such key global and national reports as the recently released Fourth National Climate Assessment and the IPCC's Special Report on Global Warming of 1.5□. and the proposed cuts to NOAA's funding for the National Climate Assessments and reduces NOAA's research and grants funding overall, will make it exceedingly difficult for the Agency to continue making strides in our understanding of climate change.

The President's Budget Request continues to propose reductions to earth surface and marine observations, the tsunami warning program, investments in numerical weather prediction models, funding for ocean exploration activities, and others along with eliminations or near eliminations of key programs like the National Sea Grant College Program, the Joint Technology Transfer Initiative, Regional Climate Centers, the Air Resources Laboratory, and the NOAA Office of Education. Climate competitive research, coastal zone management grants, arctic and Antarctic research programs, and many others are also proposed to be eliminated in the President's budget. Notably, there are new proposed reductions or eliminations to key NOAA programs, such as the National Centers for Coastal Ocean Science (NCCOS), which conducts research on coastal change, harmful algal blooms, and social science that supports coastal decision makers. Fortunately, Congress recognized the importance of these programs and saved them from elimination in the last fiscal year, and we encourage you to continue to provide sustained funding for these critical programs.

NOAA's satellite program, NESDIS, has made great progress in updating its geostationary and polar-orbiting weather satellites, with multiple successful satellite launches in 2017 and 2018. However, the President's Budget proposed a cut of almost 32 percent to NESDIS, from $1.768 billion FY 2019 enacted to $1.2 billion proposed in FY 2020. While many of the proposed cuts can be attributed to planned reductions, these cuts do not address the need for NESDIS to continue updating its current constellation of satellites.

The importance of maintaining a fully functioning NOAA cannot be understated. We urge you to consider the top-line funding levels of the FY 2018 enacted budget as a guide to ensuring NOAA has adequate resources to continue to meet its lifesaving mission.

EDA

For the third year in a row, The Administration proposes to eliminate the Regional Innovation Program (RIP) at the U.S. Economic Development Administration. This program, authorized in the *America Competes Act of 2010,* provides critical early-stage funding for proof-of-concept and commercialization assistance that increases a region's capacity to translate innovations into market-ready technologies and to create jobs. RIP was appropriated $23.5 million in FY 2019. We appreciate and urge your continued support of this important program.

Sincerely,

Eddie Bernice Johnson
Chairwoman
Committee on Science, Space, and Technology

Haley Stevens
Chairwoman
Subcommittee on Research and Technology
Committee on Science, Space, and Technology

cc: The Honorable Kay Granger
Ranking Member
Committee on Appropriations

The Honorable Frank Lucas
Ranking Member
Committee on Science, Space, and Technology

The Honorable José E. Serrano
Ranking Member
Subcommittee on Financial Services and General Government
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The Honorable Robert B. Aderholt
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