ND EPSCoR

Established Program to Stimulate Competitive Research

ND EPSCoR State Office

FY20 Annual Report

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ND EPSCoR State Office FY20 Budget Overview and Summary

Introduction

The operations of the ND EPSCoR State Office (SO) are funded by state appropriated dollars (via the North Dakota University System; NDUS). In addition, under a memorandum of understanding (MOU) between the NDUS and North Dakota State University (NDSU), the SO administers programs and activities, which are funded by a combination of NDUS state appropriated dollars and competitive external awards granted to NDSU for restricted and specific activities. During FY20, the SO managed and administered the NDUS state dollars, a ND NASA EPSCoR subaward from the University of North Dakota (UND), and one $20M NSF EPSCoR RII Track-1 cooperative agreement (ND-INSPIRE). Two additional NSF EPSCoR collaborative proposals were submitted in FY20: 1) a $20M Research Infrastructure Improvement (RII) Track-1 cooperative agreement (ND-ACES), submitted in July 2019 and 2) a $205,330 collaborative planning proposal (CIRCLES Alliance, part of a $875,662 total submission with five other EPSCoR states), submitted in June 2020. Detailed background information on EPSCoR and ND EPSCoR is provided in *Appendix A*. This includes a description of the various programs and activities funded and supported by the SO.

ND EPSCoR State Office FY20 Budget and Expenditure Overview

The ND EPSCoR SO dispersed the $2,842,875 received from NDUS through 19 projects (Tables 1 and 2 and Figure 1). A summary of the budget, expenditures, current encumbrances, and savings is included below, while budget details are contained in *Appendix B.*

Budget – 07/01/19	Established Projects	Expenditures – 06/31/20	Encumbrances – 06/30/20	Rollover – 06/30/20
\$2,842,875	\$2,842,875	\$1,722,598	\$375,423	\$744,854
Number of Projects Established (E)/Still Active (A)				
Parent Projects	19 (E)	19 (E)	16 (A)	
Sub-Projects	31 (E)	31 (E)	25 (A)	
Total Projects	50	50	41	

Table 1. FY20 funds budgeted, allocated to projects, expended, encumbered, and remaining at year-end (primarily due to salary savings/buyouts throughout the year).

The activities of these projects fall into one of three activity pools:

1. fund programs (**programmatic**) in the areas of research; education, outreach, and broadening participation; communicating science to the public; workforce development; etc.; and in other EPSCoR activities, including the purchase of equipment to jump start the new NSF EPSCoR RII Track-1 (ND-ACES);
2. provide **leveraged** funds (a subset of programmatic dollars) for EPSCoR-related investments at the two research universities [RUs – NDSU and the University of North Dakota (UND)]; and,
3. cover **administrative** costs associated with operating the SO and providing oversight of the programs, activities, and expenditures.

Table 2. FY20 budget allocated into programmatic and administrative pools. The programmatic pool is further delineated into programming and leveraged pools in the remainder of the report.

Category	Budget	Programmatic	Administrative
Salaries	$900,290	$643,270	$257,020
Operating Services	$215,000	$129,000	$86,000
Programming			
NATURE	$200,000	$200,000	
STTAR	$45,000	$45,000	
Annual Conference	$28,000	$28,000	
Graduate Student Professional Development	$26,360	$26,360	
Undergraduate research, innovation and entrepreneurism	$75,000	$75,000	
K12 outreach	$70,000	$70,000	
Track-1 Match Category- Equip. to jump start next Track-1 effort	$683,225	$683,225	
NDSU/UND Leveraged funds	$600,000	$600,000	
Total	**$2,842,875**	**$2,499,855**	**$343,020**
Percentage of total	**100.00%**	**87.93%**	**12.07%**

Programmatic funds. 15 projects: **five** ND-ACES startup equipment projects [1 parent project, 2 projects at NDSU, 1 subaward at UND (with 1 sub-project), and 1 subaward at Valley City State University (VCSU)]; **two** Nurturing American Tribal Undergraduate Research and Education (NATURE) University Summer Camp projects [there are also 3 sub-projects at UND under the same subaward already counted above]; **three** K-12 outreach [1 SO project and 2 subawards (1 to Gateway to Science and 1 to Dickinson State University (DSU))]; **two** undergraduate students, innovation, and professional development (1 SO project and 1 subaward to Minot State University (MiSU)); **one** Students in Technology Transfer And Research (STTAR) project; **one** graduate student professional development project; and **one** annual conference project.

Leveraged programmatic funds. 2 projects: **one** parent project [from which NDSU established 25 sub-projects] and **one** sub-award to UND [from which UND established 2 sub-projects]. *Details of the NDSU and UND leveraged funds / projects are provided in **Appendices C and D**.*

Administrative funds. 2 projects: **one** ND EPSCoR SO parent project and **one** ND EPSCoR administration project

The majority of budget (87.93%) was comprised of **programmatic** activities (**Table 2**) that were invested in specific programs at participating ND EPSCoR institutions across the state and in the development and implementation of programming by the ND EPSCoR office staff. The programmatic dollars were further divided into **overall programmatic** (used throughout the state) and **leveraged programmatic funds** (used for EPSCoR-related activities at NDSU and UND). The color scheme in **Figure 1** (orange/blue hatch = programmatic; gray = leveraged; and

FY20 Budget
$2,842,875

Leveraged 21%

Administrative 12%

Programming 67%

FY20 Expenditures
$1,722,598

Leveraged 25%

Administrative 15%

Programming 60%

FY20 Encumbered
$375,423

Leveraged 43%

Programming 57%

FY20 Rollover
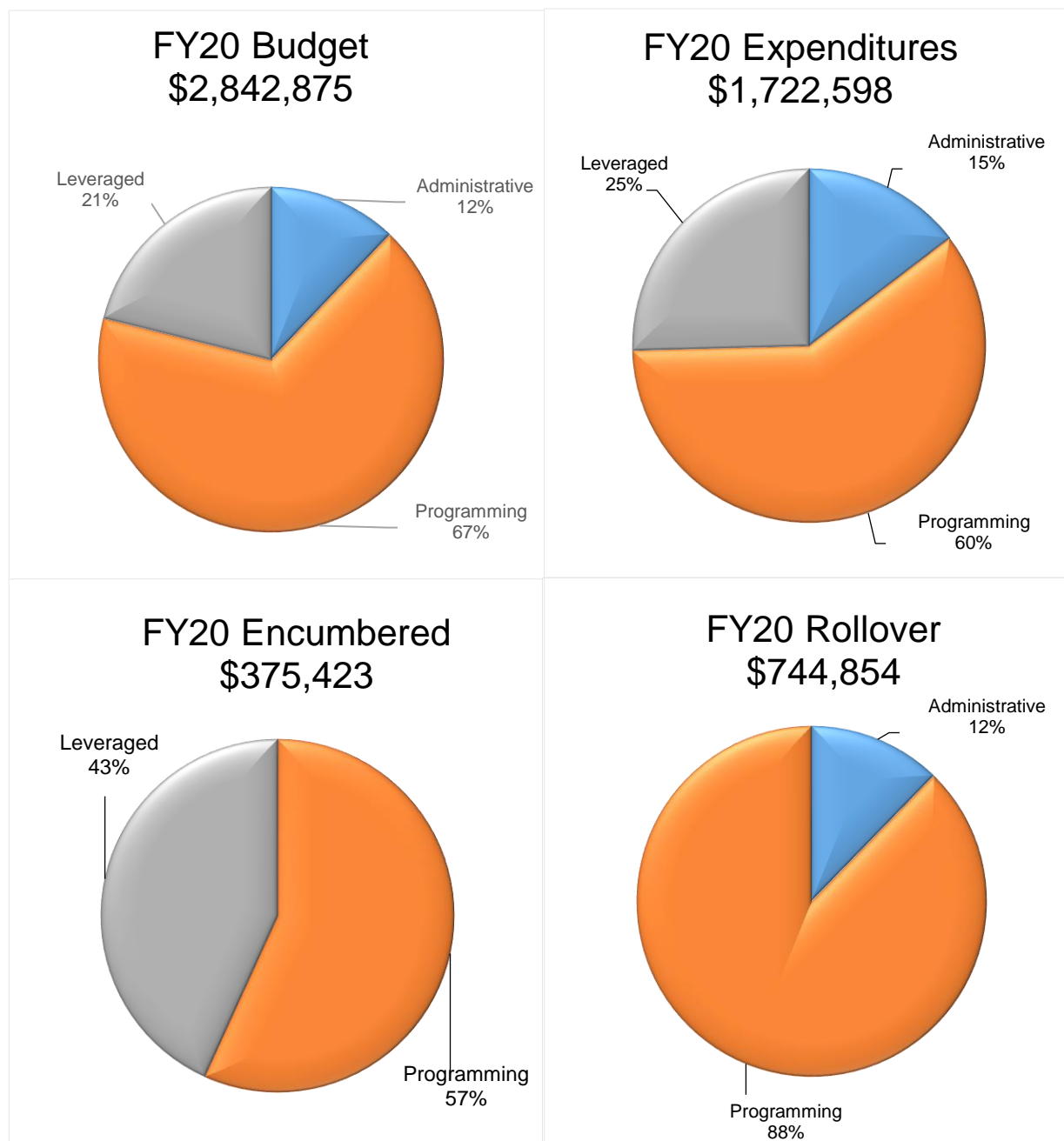### $744,854

Administrative 12%

Programming 88%

Figure 1. The revenue and expenditure budgets were allocated to three pools: administrative, programming, and leveraged. Throughout the report, green is used for administrative, gray for leveraged, and orange/blue for programming. The orange refers to the NSF Track-1 match component of programmatic funds, while the blue refers to all other programmatic activities.

green = administrative) is used throughout the report for ease of reading and understanding. The orange/blue hatch pattern delineates the two main components of this category: ND-ACES startup equipment (orange) and other programmatic activities (blue; NATURE, STTAR, etc.).

The **administrative** budget comprised just over 12.07% of the total budget and was allocated to administrative purposes (funds to cover salaries, office supplies, minor equipment, and travel to

operate and manage the state office). From a salary perspective, the Business Manager and Administrative Coordinator were mainly administrative, while the Project Administrator, Tribal College Liaison Manager, Communications Manager, STEM Manager, and Senior Administrative Assistant, were mainly programmatic. The Executive Director, 5-months [3 summer months and 2 academic year months (there was no additional salary beyond the standard 9-month academic contract)], was approximately 67% programmatic and 33% administrative.

At fiscal year's end, $1,722,598 was expended and $375,423 remained encumbered in 41 active or committed projects. Thirty-nine projects were extended and two additional commitments were made against NDSU EPSCoR's leveraged dollars (i.e., faculty start-up funds and support for the NDSU Core Biology Lab). Many projects have been extended into FY21 due to COVID-19 to allow investigators to finish the activities for which the projects were established.

The $744,854 in rollover funds (87.7% originated from programmatic funds) is a combination of salary savings, unexpended funds from projects that were completed but had funds remaining ($627,915), and unused operating funds (both programmatic and administrative - $116,939). Salary savings ($318,149) were generated through two means: 1) vacant SO staff lines and 2) charging SO staff time to funded grants/awards (i.e., NSF Track-1) while work was being performed on those projects.

The rollover funds will be used to invest in EPSCoR participating institutions in FY21. Similar to the initial ND EPSCoR RFP released in FY20, these funds will be used to issue a ND EPSCoR STEM request for proposals (RFP) in early August 2020. The distribution of these funds will continue to build STEM research, education, and outreach capacity and competitiveness across ND for years to come. For FY21, the RFP will be expanded to include an additional focus on the development of online/virtual activities. The COVID-19 pandemic has made us all aware of the opportunities to further develop the state's capabilities and capacities around virtual activities and products.

APPENDIX A

EPSCoR and ND EPSCoR

BACKGROUND INFORMATION and

DESCRIPTION OF ND EPSCoR STATE OFFICE PROGRAMS FOR FY20

Background

Origin of EPSCoR

The National Science Foundation (NSF) Act of 1950 recognized the value of a broad science and engineering ecosystem across all jurisdictions (states and other U.S. entities). Over time, the distribution of research funds started to become concentrated in relatively few geographical areas. In FY79, the National Science Board approved a resolution that created the Experimental Program to Stimulate Competitive Research (EPSCoR) to ensure NSF was meeting the spirit of the National Science Foundation Act of 1950. The success of NSF EPSCoR led to the creation of EPSCoR programs at other federal agencies; EPA (1991 and discontinued in FY06), NASA (1992), DOE (1992), DOD (1991 and discontinued in FY10; reauthorized in FY18 and appropriated beginning in FY19), USDA (2007), and NIH (IDeA; 1993).

The first sets of NSF EPSCoR awards were made in 1979, and the name was updated in 2017 to the Established Program to Stimulate Competitive Research (AICP, P.L. 114-329). The RII Track-1 program is a federal-state partnership, which requires a state financial commitment or match to compete for the federal dollars. The Track-1 is a jurisdictional award meant to build research capacity and competitiveness across the entire state.

NSF EPSCoR has evolved since its inception. Today, the expectation and requirement for a RII Track-1 cooperative agreement is that a state jurisdiction provide a proposal and a plan whereby the research (intellectual merit) component is fully integrated with a host of broader programmatic impacts, including: education outreach, workforce development, broadening participation, partnerships and collaborations, and communication dissemination to the public.

The motivation for increased integration between research activities and the programmatic elements is to develop a fully trained and diversified STEM workforce to position the state's national competitiveness and to broaden and sustain economic growth at the state level beyond the funding provided by NSF. As such, NSF requires each state to create and sustain an active EPSCoR State Steering Committee[1] (with current by-laws), and an active jurisdictional Science and Technology (S&T) Plan[2]. The NSF-required State Steering Committee works closely with academia, industry, government, and other state leaders in identifying research and development (R&D) improvement strategies that advance the development of nationally competitiveness capabilities in jurisdictional S&T priority areas. In June 2019, the State Steering Committee reaffirmed the S&T Plan and articulated their top four priorities[3]

ND EPSCoR

North Dakota received its first NSF EPSCoR award in 1986, and since that time has been continually funded by NSF and continuously funded by the state. Eligibility criteria have changed over the past several decades. Today's criterion to be considered an EPSCoR-eligible state sets the funding cutoff at 0.75% of the annual research funding provided by NSF (on a five-year running average). Currently, North Dakota is at 0.19%, largely because of the low number of researchers working in the state. EPSCoR has always been a federal-state partnership, and the North Dakota Legislature has been very supportive for the past three decades in providing the cash match for the RII Track-1 cooperative agreement. NSF's FY20 EPSCoR eligibility table

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[1] State Steering Committee - https://www.ndepscor.ndus.edu/about/contactsandcommittees/#c638409
[2] Science and Technology Plan - https://www.ndepscor.ndus.edu/fileadmin/ndus/ndepscor/documents/ND_S_T_Plan_Eff_July_1_2018.pdf
[3] ND EPSCoR State Steering Committee Addendum to ND Science and Technology Plan - https://www.ndepscor.ndus.edu/fileadmin/ndus/ndepscor/ImagesAndFilesByPageLocation/ND_EPSCoR_Programs/ND-ACES/State_Technology_Plan_2018_addendum.pdf

shows that North Dakota is at 0.19% (Guam – 0.03%, Virgin Islands – 0.08%, Puerto Rico – 0.19%, South Dakota – 0.19%).[4] North Dakota has fluctuated around this spot for its entire tenure as an EPSCoR jurisdiction.

North Dakota's Academic Enterprise - From FY87 to FY18, ND increased its research acumen from $36M to $255.5M in research expenditures[5,6]. North Dakota researchers have been very successful in leveraging the state's financial investment in EPSCoR in ways that have grown the research infrastructure, capacity, and competitiveness at NDSU and UND since 1985.

ND's overall research expenditures at the research universities grew by 122% over the past 7 recorded years (FY11 to FY18), but federal expenditures decreased by 4.3% during the same time period. ND's growth in NSF dollars during FY11 to FY18 has been sluggish compared to NSF's overall funding pool growth of 13.8%[7]. This reality points to the critical emphasis of building R&D capacity and capabilities that better align with federal priorities while at the same time addressing important growth areas for ND. This also points to the need to continue to invest in building capacity and competitiveness across ND's higher education systems.

In the early years, the emphasis was on building research infrastructure and capacity, primarily at the state's two research universities (RUs: NDSU and UND). Since that time, adhering to NSF's expectations, ND EPSCoR has expanded its scope. Beginning with the 2014-2021 NSF EPSCoR RII Track-1 cooperative agreement (INSPIRE-ND), funded research partnerships were formed at each of the five Tribal Colleges/ Universities (TCUs: Cankdeska Cikana Community College, Nueta Hidatsa Sahnish College, Sitting Bull College, Turtle Mountain Community College, and United Tribes Technical College), the three Primarily Undergraduate Institutions (PUIs: Dickinson, Mayville, and Valley City State Universities), and the Master's College/University (MCU: Minot State University). Faculty from each of these institutions work together in the funded research centers.

While it is accepted (and expected by NSF) that the majority of the research activities will be executed on the RU campuses, there is an expectation that research bridges be built to other institutions within the state. Under INSPIRE-ND, faculty from these institutions have been integrated into the two currently funded EPSCoR research centers (Center for Sustainable Material Science and Center for Regional Climate Studies).

The result of the evolution of NSF EPSCoR has been an expansion of the activities within ND. ND EPSCoR is now responsible for research capacity building and other integrated activities at the RUs, the PUIs, the MCU, and the TCUs. There is the potential for expansion to the five technical/community colleges in the future, if resources and staffing are adequate.

Finally, competitiveness of obtaining NSF EPSCoR RII Track-1 funding has dramatically increased. In the past ten years, over 80% of the EPSCoR jurisdictions have had to resubmit proposals for funding.

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[4] NSF's FY20 EPSCoR eligibility table - https://www.nsf.gov/od/oia/programs/epscor/Eligibility_Tables/FY-2019-Eligibility.pdf

[5] National Science Foundation. Academic Science and Engineering: R&D Expenditures, Fiscal Year 1992, Detailed Statistical Tables, NSF 94-324. Arlington, VA, 1994. Retrieved June 12, 2018 from https://wayback.archive-it.org/5902/20150627202643/http%3A//www.nsf.gov/statistics/rdexpenditures/dst/.

[6] NSF. Higher education R&D expenditures, by state: FYs 2009-18. 2019. Retrieved May 31, 2020 from https://ncsesdata.nsf.gov/herd/2018/html/herd18-dt-tab020.html .

[7] NSF. Award Summary: by State/Institution FY 2018. Budget Internet Information System from National Science Foundation. 2019. Retrieved June 6, 2019 from https://dellweb.bfa.nsf.gov/AwdLst2/default.asp.

The ND EPSCoR SO works to administer STEM student pathway development efforts, manage competitive research match dollars in support of STEM programs at participating institutions of higher education across the state, and inform ND stakeholders. Through the support of state funding, the ND EPSCoR SO is helping generate STEM interests among students, which helps build a diverse, skilled workforce and grow college and university-based research efforts that provide a backbone for the state's scientific and technological enterprise.

The evolution of NSF EPSCoR has expanded STEM activities within the state. ND EPSCoR is a key state partner in research capacity building and other integrated activities at the RUs, the PUIs, the MCU, and the TCUs. Through the efforts of stakeholders, like ND EPSCoR, North Dakota is building a high-quality, higher education-based research effort that serves as the backbone of the state's scientific and technological enterprise, ensuring a strong and stable economic base for the future.

The ND EPSCoR structure (outlined in **Figure A-1**) meets the needs of the state's STEM research, education, and workforce ecosystem (through expanded programming) and addresses the growing programmatic and administrative requirements of federal funding (specifically NSF, but potentially from other federal agencies as the capacity and capabilities of the state office continue to increase).

The ND EPSCoR SO reports to the NDUS Chancellor. The SO is located at NDSU and is administered via a MOU between the NDUS and NDSU. NDSU is also the prime campus for the NSF Track-1 cooperative agreement.

Each of the SO staff positions provides programming and services to all ND EPSCoR participating institutions. These positions are fully funded by the SO budget and/or through the leveraged funds provided to NDSU and UND. When federal dollars are available, a portion of staff time is purchased by the federal award for work performed on that specific award. Permanent staff in the areas of broadening participation, communication, and STEM have helped ND EPSCoR address previous Track-1 weaknesses and have created capacity to build and implement programs necessary to enhance the ND STEM research and education ecosystem. For example, the Business Manager is crucial to ensure efficient and appropriate oversight of state and federal expenditures at all participating campuses. This service is particularly important for the PUIs, MCU, and TCUs, which lack sufficient infrastructure necessary to fully accommodate the federal regulations associated with the NSF sub awards.

ND EPSCoR State Office Programs

The ND EPSCoR SO is responsible for developing, implementing, monitoring, and assessing numerous programs related to the STEM ecosystem in the state. Most associate ND EPSCoR with the NSF EPSCoR RII Track-1. While the Track-1 is critically important to building research capacity and competitiveness within the state (and is the major jurisdictional award), it is just one of the programs managed by personnel in the State Office. There are a host of programs funded by state dollars and implemented by EPSCoR SO personnel that are separate (but complementary) to the Track-1 award (**Figure A-2**).

NSF EPSCoR RII Track-1 cooperative agreements. The current Track-1 (INSPIRE-ND; 2014-2021) focuses on two agriculturally aligned research centers; Center for Regional Climate Studies[8] and Center for Sustainable Material Science[9]. This $20M award will be active through

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[8] Center for Regional Climate Studies: https://und-crcs.org/
[9] Center for Sustainable Materials Science: https://csms-ndsu.org/
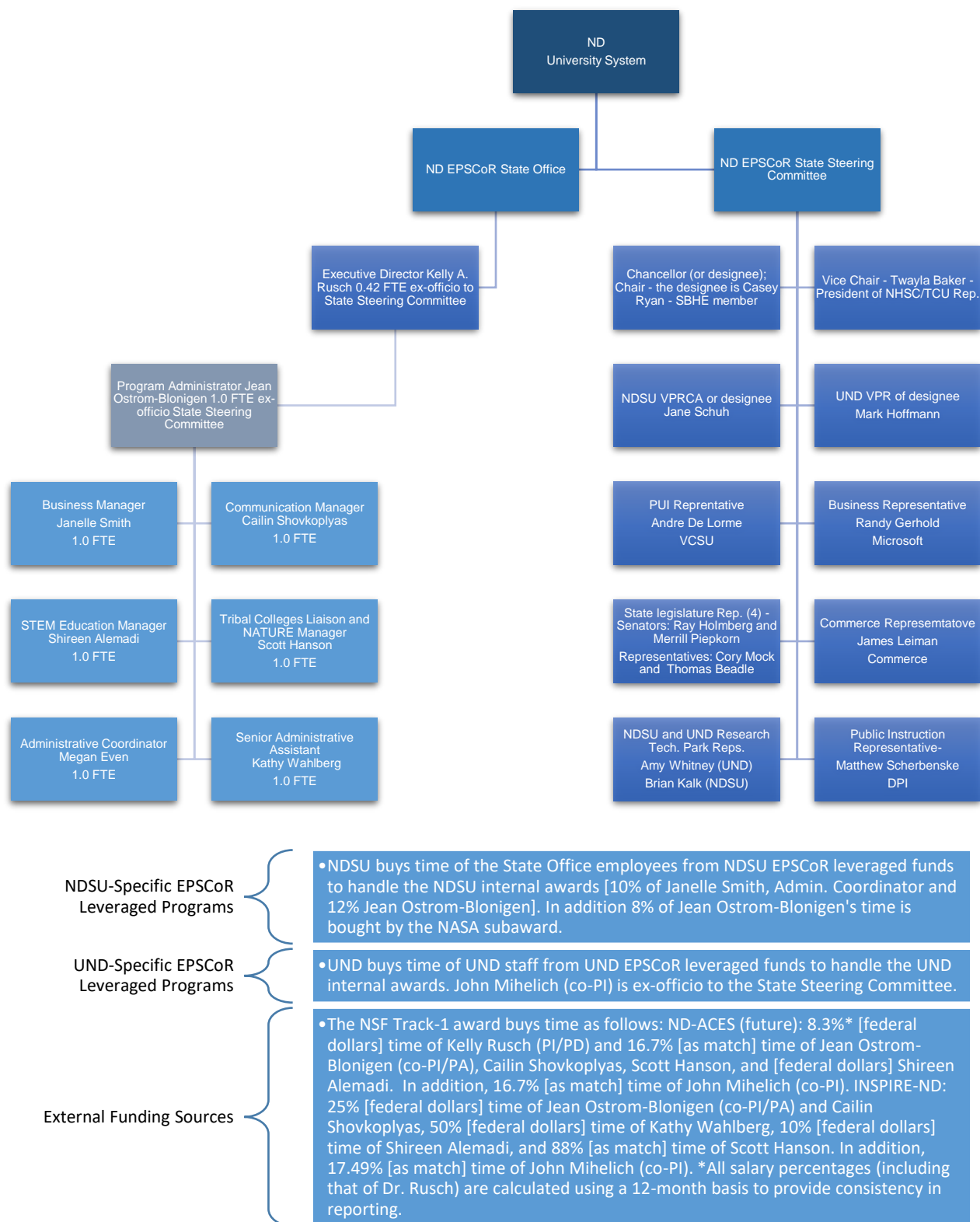
Figure A-1. Organizational structure of the ND EPSCoR State Office and the North Dakota EPSCoR State Steering Committee.
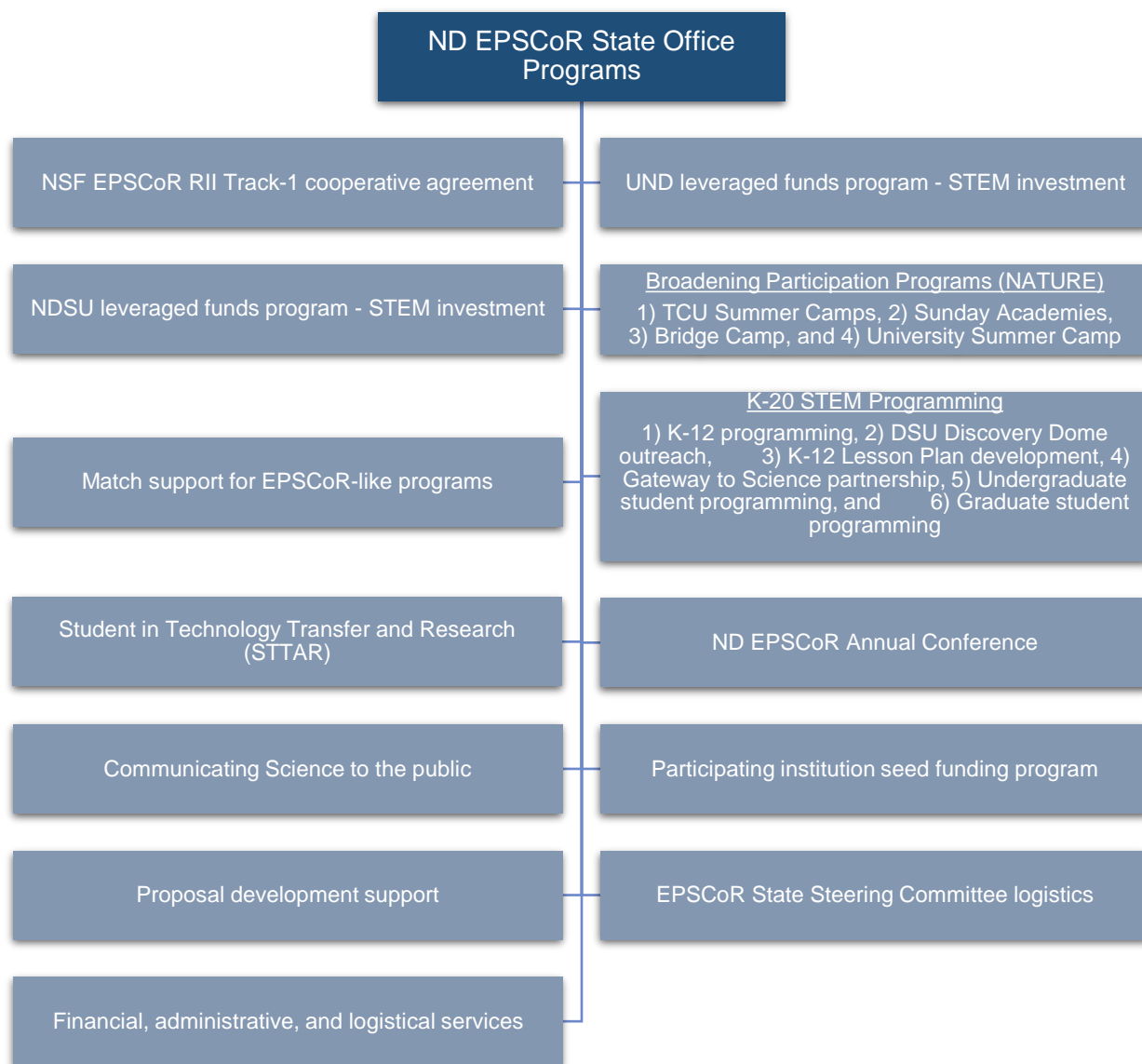
Figure A-2. ND EPSCoR State Office Programs.

June 30, 2021. To date, the INSPIRE-ND award has cumulatively included 1,109 participants; 613 of whom were students. More than 212 outreach activities have been conducted, reaching 3,264 American Indian students and 798 rural 4-12th graders. Also, four new NDSU faculty were hired on this award. The Year 6 Annual Report, filed with NSF in May 2020, reported that researchers have published 482 publications, CRCS faculty and students made 31 presentations, CSMS students and faculty made 44 presentations, researchers were awarded three patents, and successfully competed for an additional $33,532,346 in external funding.

In the absence of a FY20 match requirement, ND EPSCoR authorized $683,225 in equipment purchases in anticipation of the NSF RII Track-1 award (ND-ACES), which was to begin July 1, 2020.

<u>NDSU and UND leveraged funds program (STEM Investment)</u>. The ND EPSCoR SO provides NDSU and UND an award each year that allows these research universities to invest in strategic/priority STEM areas that build capacity and competitiveness (individual annual reports are provided in Appendix C – NDSU and Appendix D – UND).

- NDSU funds were used for: 1) collaborative seed awards across multiple departments that allow faculty to collect preliminary data needed for the submission of competitive proposals to federal agencies; 2) student travel awards to present their research at a national conference; 3) equipment that currently does not exist on the campus, which would elevate research, and can be used across more than one college in a collaborative manner; 4) contributions towards faculty start-up packages; and, 5) external proposal review of large, collaborative federal proposals. Funds are also used to help support the NDSU Innovation Challenge, Graduate Student Research Symposium, and NDSU EXPLORE (undergraduate student research showcase) and buy time of some of the State Office staff to provide administrative oversight of the awards.

- UND funds are used to: 1) provide administrative oversight of awards and 2) contribute to the support of the Center for Research Computing.

<u>Broadening Participation programs</u>. The Nurturing American Tribal Undergraduates in Research and Education (NATURE) program is a long-standing signature program for ND EPSCoR and is a means to grow and diversify the STEM pathway. American Indian students are significantly underrepresented in the STEM ecosystem throughout the country. As a result, NATURE, which began in 1994 and was initially funded primarily on federal grant dollars, was institutionalized and funding is now provided by state dollars (the UND and NDSU components). The Tribal Colleges Liaison and NATURE Manager, hired in 2015, works to build mutually respectful partnerships between the NDUS institutions and the tribal colleges/universities located in ND.

NATURE consists of four programs: Tribal College/University (TCU) Summer Camps, Sunday Academy, Bridge Camp, and University Summer Camp. NATURE is critical to growing and enhancing diversity in the STEM pathway (**Table A-1**):

- The TCU Summer Camps are held (mid-June to late-July) at each of the five TCUs. Planned by TCU faculty during the University Summer Camp, these camps expose and engage middle- and high-school tribal students to STEM. The camps average 20 students per camp. Some campuses typically run more than one summer camp. The funding for these camps comes from the NSF RII Track-1. Due to COVID-19, the FY20 planning was held virtually. The Summer 2020 virtual camps, which began June 15 and run through July 24 have 145 participants. One TCU chose not to participate in this summer's virtual camp due to bandwidth and other logistics issues.

- The Sunday Academy program is a series of hands-on STEM activities held one Sunday each month during the academic year (September – March) at the five TCUs. During five of those months, NDSU and UND faculty travel to each of the TCUs on a scheduled monthly Sunday rotation to deliver STEM modules they created during the University Summer Camp. These faculty mentors work with 7th-12th grade tribal students to generate interest in post-secondary education. During two of those academic months,

Table A-1. ND EPSCoR NATURE PROGRAM SUMMARY: Total number of participants*					
	University Summer Camps	TCU Summer Camps	Sunday Academies	Bridge Camp	Totals Since August 1, 2014
# of NDSU/UND faculty (# who are AI/AN)	123 1	2 0	37 1	1 1	163 3
# of NDSU/UND graduate students (# who are AI/AN)	28 9	0 0	18 0	1 1	47 10
# of NDSU/UND undergraduate students (# who are AI/AN)	22 22	0 0	0 0	0 0	22 22
# of TC faculty (# who are AI/AN)	2 2	55 32	27 13	5 3	89 50
# of TC graduate students (# who are AI/AN)	0 0	3 3	3 3	0 0	6 6
# of TC undergraduate students (# who are AI/AN)	1 1	65 60	5 3	0 0	71 64
# of support staff (# who are AI/AN)	20 6	78 47	18 14	12 9	128 76
# of participants (# who are AI/AN)	109 109	960 938	2.472* 2.431	27 26	3,568 3,504
AI/AN = American Indian / Alaskan Native *Numbers include multiple touchpoints for single participants					

- TCU faculty deliver STEM modules that they created during the University Summer Camp. The materials, mileage, lodging, and per diem expenses of the NDSU and UND faculty are paid by the ND EPSCoR SO. The salaries of the TCU faculty and the student stipends and meals are paid by the NSF RII Track-1. Plans are currently underway to move this program to a virtual environment for Fall 2020.

- The Bridge Camp is targeted at students who are between high school graduation and the start of their first university/college fall semester. This camp is paid from NSF RII Track-1 funds and includes a structure that mimics key skills for postsecondary education; however, each section of the camp is designed to be self-contained to provide important life skills (i.e.: resume building). Twenty students are currently participating in the 2020 program, which began June 22 and runs through July 31. Again, due to COVID-19, this camp was moved to a virtual platform. Unfortunately, bandwidth and other logistics issues prevented two TCUs from participating in the 2020 summer camp. All seven of the 2019 participants matriculated into college.

- The University Summer Camp consists of a two-week, residential program for American Indian college students. Typically held the first two weeks in June, this year's camp was moved to a virtual platform, due to COVID-19. The purpose of the camp is to expose and engage American Indian TCU students in STEM activities to generate interest in STEM as a career. Bachelors and graduate programs are promoted at NDSU and UND by

engaging the students in a research project. Under the program, five students from each of the five TCUs are selected and financially supported (by the NSF EPSCoR RII Track-1 via sub awards to the TCUs) to attend the camp. Students visit both NDSU and UND to learn about STEM research during the first week of the camp. Each student selects a faculty researcher with whom they will work during the second week of the camp, performing research in a laboratory setting. The students present their work at the end of the camp. The SO budget pays the NDSU and UND faculty and student mentor salaries, as well as the housing, meals, travel, and activity costs associated with the program. During those same two weeks, AO staff and coordinating faculty work with the TCU faculty and K-12 instructors from the communities surrounding the TCUs to plan the TCU Summer camps and Sunday Academies. The 2020 virtual camp began on June 15 and ran through July 10 with 13 students participating. One TCU chose not to participate in this summer's virtual camp due to bandwidth and other logistics issues.

A *Partnership to Build STEM Capacity* document[10] was developed by ND EPSCoR in 2016 and is updated every year. The document is a guide to help build STEM research and education partnerships across the state between the two RUs (NDSU and UND); three PUIs (DSU, Mayville State, and VCSU); one MCU (Minot State); and five TCUs (CCCC, SBC, NHSC, TMCC, and UTTC). The document provides up-to-date demographic information all 11 institutions, along with current STEM capacity and needs. The document is used by the ND EPSCoR SO to guide planning of new program development and is a valuable tool for researchers interested in developing statewide partnerships. In January 2020, the ND EPSCoR SO participated in a conversation with TCU presidents regarding the identification of additional STEM needs to incorporated into that document. Unfortunately, due to COVID-19, the STEM needs identified have yet to be ranked by each TCU president.

Match support for EPSCoR-like programs. While funds are not specifically set aside each year for this program, the EPSCoR SO provides cash match/commitments for other EPSCoR-like funding programs, if requested.

The ND EPSCoR SO also provides in-kind match to proposals (i.e., NSF EPSCoR Track-2 proposals, NSF CAREER proposals, etc.) in the form of staff time, inclusion of EPSCoR AO funded programs used by faculty for the Broader Impacts component of his/her proposal, etc. This in-kind match is extremely valuable for faculty to provide them access to well-established and staffed outreach programs versus having to create a new program for each proposal (which is not sustainable). This approach also helps streamline the number of outreach activities to allow focus to remain on the sustainability of key programs that have been successful.

K-20 STEM programming. The K-20 STEM programming is considered a continuum of programs across the K-12, undergraduate, and graduate years. 2020 programming and planning included:

- K-12 programming – In January 2020, ND EPSCoR SO sent out a revised K-12 STEM needs survey to ND teachers. To date there are 82 responses. A SO staff member was planning to attend the ND STEM Teachers Conference in mid-March to connect with teachers in an effort to increase survey responses; however, the conference was cancelled due to COVID-19. ND EPSCoR SO has made progress in partnering with institutions and organizations across the state to support their K-12 programing.

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[10] *A Partnership to Build STEM Research and Education Capacity -* https://www.ndepscor.ndus.edu/fileadmin/ndus/ndepscor/EMPOWERED-ND/STEMcapacityreviewpaper2018DectitleeditedDec2019.pdf

Examples include Mayville State STEM Carnival, which was cancelled due to COVID-19, and ND EPSCoR's NATURE programs.

- ND EPSCoR provided funding for the DSU Discovery Dome outreach. According to Corine Brevik, Professor, Natural Resources, "the Discovery Dome is an inflatable traveling planetarium that stands ten feet tall and seats up to 30 kids per show. It uses a state-of-the-art digital projection and sound system to offer the same experience that an audience experiences in a larger, stand-alone planetarium facility. The digital shows are professionally produced and expose youth to a 360-degree, fully immersive experience, surrounding them with roaring dinosaurs, rushing rivers, and explosive storms. Due to the rural nature of North Dakota, the Discovery Dome may be the only planetarium that some youth ever get an opportunity to visit, and the kids always remember when the Discovery Dome visits their school. This unique experience gets kids excited about science and offers them exposure to STEM curriculum that they may not have another chance to explore. Besides benefitting K-12 students, the Discovery Dome project is also an excellent opportunity to get university students involved in science outreach. While a DSU faculty member manages the Discovery Dome program, the primary work on the dome is carried out by university students across a variety of majors, including science majors and teacher education students."

- K-12 Lesson Plan Development and Review. To better support K-12 teachers, the ND EPSCoR SO has contracted for the development of K-12 STEM lesson plans using our successful NATURE Sunday Academy STEM modules. Cultural components will be incorporated into these STEM lesson plans tying them to American Indian indigenous knowledge. The SO has also reached out to STEM outreach faculty at DSU, Mayville State, Minot State, and VCSU to determine if they are willing to contact and work with their education alumni to create full lesson plans from their campus outreach activities. The ND EPSCoR SO pays these K-12 teachers to develop the STEM lesson plans, which will be available on a new education portal on the ND EPSCoR website by Fall 2020. The portal will allow the ND EPSCoR SO to gather information on the STEM lesson plan downloads and use across the state. Finally, the SO has contracted with a Mayville State education faculty member to review all the completed STEM lesson plans to ensure they are consistently formatted and meet state and national STEM standards. Once the STEM lesson plans are posted on ND EPSCoR's education portal, K-12 teachers will be able to search for specific STEM lesson plans.

- Gateway to Science partnership. The ND EPSCoR SO supported Gateway to Science STEMzone activities around the state. After learning more about the reach and impact of the STEMzone Program, the SO met with Gateway to Science to discuss a formal partnership. A Master Agreement designed to benefit K-12 STEM in ND is now in place.

- Undergraduate student programming. Through conversations with higher education partners and from information gathered through a survey of its undergraduate student participants, the ND EPSCoR SO discovered that some campuses do not have a comprehension Responsible Conduct of Research (RCR) training program for undergraduate students. RCR training for students and postdocs is required by NSF and NDUS policy (# 410.0). To alleviate this issue, ND EPSCoR has developed training materials (*from Council of Undergraduate Research, and the Office of Research Integrity*

materials). These materials will be delivered in person (or virtually, if needed) to students beginning in Fall 2020.

- Graduate student programming – Thirty-one graduate students participating in ND EPSCoR programs identified (via a ND EPSCoR implemented survey) 17 areas that they believe are important to increase their knowledge and skills for preparedness of advancement in a career or specific field. During FY21, ND EPSCoR will focus its programming development in these areas – in order of highest frequency of response (**Figure A-3**).
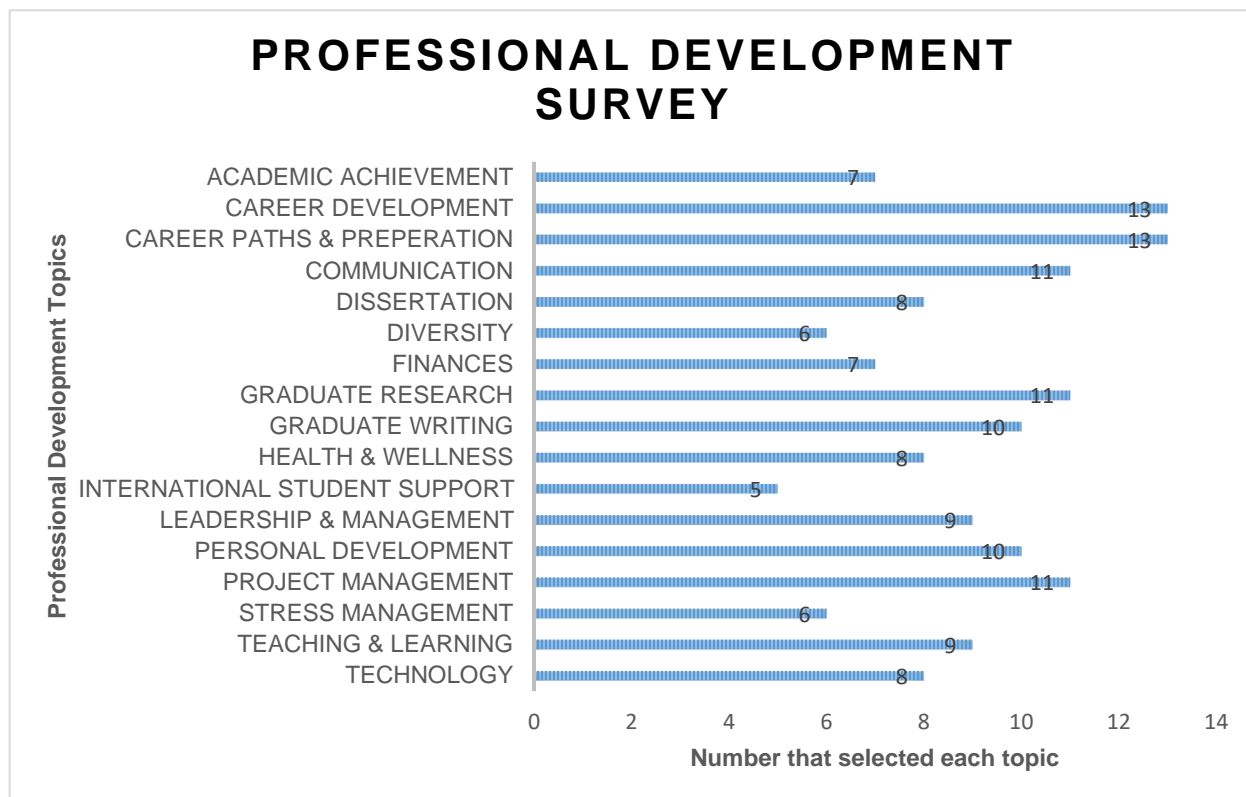

PROFESSIONAL DEVELOPMENT SURVEY

Figure A-3. Areas of professional development need identified by graduate students associated with ND EPSCoR.

Students in Technology Transfer and Research (STTAR) program. The program provides salary match for students placed in North Dakota owned STEM businesses. The program has a 2:1 funding requirement (ND EPSCoR matches at $5/hour, while the ND-based company provides at least $10/hour). For summer 2020, ND EPSCoR has 14 STTAR interns at six different ND companies. This year, three companies are new to the STTAR Program (Airtonomy, CrossFire Technologies, and Interstate Engineering, Inc.) and three companies are returning to the program (WCCO Belting, Inc., Amity Technology, LLC., and ComDel Innovation).

ND EPSCoR Annual Conference. The ND EPSCoR SO coordinates and runs the Annual ND EPSCoR State Conference. This NSF-required annual celebration of research performed across the entire state usually draws over 300 students, faculty, and staff and 140+ posters.

The conference is an important venue to showcase the research efforts of faculty and staff and provides a valuable opportunity for faculty and students of various campuses to dialogue in ways that may not normally occur due to distances between the institutions. Unfortunately, due to COVID-19, the 2020 Annual State Conference was cancelled.

Communicating science to the public. In February 2018, the SO hired a full-time Communication Manager. This individual is responsible for the ND EPSCoR website, ND EPSCoR social media, branding of the ND EPSCoR SO, the creation of a monthly newsletter that covers research and education activities occurring on all EPSCoR participating institutions[11], face-to-face interviews with students and faculty on all campuses, distribution of the newsletter to a broad spectrum of stakeholders in the state, one-on-one mentoring sessions on presentation skills for faculty and students, creation of the NSF impact statements, etc.

Participating institution seed funding program. This program was new in FY20 using FY19 savings (consisting of funds generated through salary savings due to open positions and/or charging some staff time to grants, unspent state office operational dollars, and some unused programming dollars remaining after program implementation). Awards were issued in six areas:

- 12 Equipment awards across 5 campuses
- 7 Student travel awards across 2 campuses
- 5 Undergraduate research awards across 3 campuses
- 21 Seed awards to faculty to collect preliminary data for the preparation of federal STEM proposals across 4 campuses
- 1 External proposal review awards for large, collaborative and interdisciplinary STEM efforts to 1 campus
- 7 Seed awards for faculty and student to engage K12 in STEM outreach activities across 5 campuses

Proposal development support. The ND EPSCoR SO staff provide internal review services to large initiatives, as well as budgeting assistance; particularly for those faculty at institutions with limited research infrastructure in place.

Having a full-time staff in the SO has provided the opportunity for leveraging ND EPSCoR in the development of additional proposals [outside of the NSF EPSCoR Track-1] that address the ND STEM ecosystem. As an example, ND EPSCoR is a partner on a collaborative NSF EPSCoR planning proposal (submitted on June 2020) with ID, MT, NM, SD, and WY. The proposal, focuses on the development of Indigenous STEM K-12 lesson plans. If funded, the ND EPSCoR SO, together with one faculty member from UND, will participate in a planning grant to consider the development of formal STEM modules and associated teacher professional development for 7-12th grade students. Under the planning proposal, the ND EPSCoR SO will also serve as the backbone organization for the collaborative. Federal funds are included in the budget that would pay a portion of several staff members' time to participate in this award. The goal of this planning proposal is to develop a means of collaborating across these six states to submit a larger NSF INCLUDES (Inclusion across the Nation of Communities of Learners of Underrepresented Discoverers in Engineering and Science) proposal in January 2021.

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[11] Link to ND EPSCoR's monthly newsletter - https://www.ndepscor.ndus.edu/news/newsletters/

EPSCoR State Steering Committee logistics. The ND EPSCoR SO provides logistical support for the State Steering Committee meetings. Additionally, the SO administrative coordinator serves as the secretary for the committee.

Financial, administrative, and logistical services. Each EPSCoR jurisdiction has several financial and data collection obligations. This includes the annual EPSCoR coalition dues, ERcore (EPSCoR Reporting database) membership fees, ERcore server hosting fees, mandatory travel to NSF and coalition meetings, travel to participating institutions, etc. The costs of these items are covered by the ND EPSCoR SO on behalf of all participating institutions.

The Business Manager provides financial oversight of all of the funds housed in the ND EPSCoR SO (state dollars as well as federal funds). The Business Manager is also responsible for all sub-awards to participating institutions. Throughout the past six years, 288 projects (including 56 sub-awards to other institutions) have been funded [130 federally funded projects and 158 projects funded from state dollars]. This number of projects requires a tremendous amount of oversight to ensure funds are spent within federal [NSF EPSCoR oversight is at the line item] and state regulations. The Business Manager works very closely with the accountants on the sub-awardee campuses as they often have limited research infrastructure support.

The Administrative Coordinator handles all office logistics as well as the logistics for most of the programs funded by the ND EPSCoR SO (i.e., Annual Conference, data gathering in ERcore, NATURE planning and events, etc.).

APPENDIX B

ND EPSCoR STATE OFFICE BUDGET AND EXPENDITURE DETAILS

Budget and Projects

The FY20 funding allocation to the ND EPSCoR State Office was $2,842,875 (**Figure B-1**). The total budget was disbursed through 19 projects: **five** ND-ACES startup equipment projects [1 parent project, 2 projects at NDSU, 1 subaward at University of North Dakota (UND, with 1 sub-project), and 1 subaward at Valley City State University (VCSU)]; **three** K-12 outreach [1 SO project and 2 subawards (1 to Gateway to Science and 1 to Dickinson State University (DSU))]; **two** Nurturing American Tribal Undergraduate Research and Education (NATURE) University Summer Camp projects [there are also 3 sub-projects at UND under the subaward counted above]; **two** undergraduate students, innovation, and professional development (1 SO project and 1 subaward to Minot State University (MiSU)); **one** Students in Technology Transfer And Research (STTAR) project; **one** graduate student professional development project; and **one** annual conference project; **one** leveraged parent project [from which NDSU established 27 sub-projects (*Appendix C*)]; **one** leveraged sub-award to UND [from which UND established 2 sub-projects (*Appendix D*)]*;* **one** ND EPSCoR SO administrative parent project; and **one** ND EPSCoR administration project.

Programmatic dollars (blue and orange) constituted the vast majority of the budget (67%), with the ND-ACES startup equipment being the largest segment (36%) of the programmatic allocation. Programmatic salaries (34%) comprised the second largest component.

The programmatic budget consisted of two main components: $683,225 in equipment purchases (orange) in anticipation of the NSF RII Track-1 award (ND-ACES) and all other programming activities as specified in the original budget request to the NDUS (blue). The majority of the implemented programs are personnel intensive (i.e., communicating science to the public, K-12 outreach, coordination of workshops, and the annual state conference). The time personnel spend creating, implementing, assessing, and disseminating programs, and assessing their results are classified as programmatic salaries.

A description of the programs implemented by the state office is included in *Appendix A*. As anticipated in FY20, with the SO at nearly full capacity [the STEM manager position was vacant for several months], ND EPSCoR has begun writing additional state-wide proposals for research, education, and outreach programs. The majority of these proposals will be driven by: 1) the needs of the K-12 community, 2) for graduate student professional development, 3) for undergraduate training (innovation, entrepreneurism, and research), 4) to better communicate the impact of ND EPSCoR programming to ND stakeholders, 5) to grow and diversity the ND STEM pathway and workforce, and 6) to meet the IT infrastructure needs of the state (especially within tribal and rural communities).

Leveraged funds (gray; subaward to UND and transfer of funds to a NDSU leveraged project of $300,000 per campus) comprised 21% of the overall budget and provided dollars to both research universities for EPSCoR-related activities. Reports on funds usage for NDSU and UND are contained in Appendices C and D, respectively. *NOTE: The ND EPSCoR SO activities (department 4450) and the NDSU EPSCoR-related activities (department 4200) have been intentionally separated for accounting and tracking purposes.*

The ***administrative*** budget comprised 12% of the overall budget and 28.5% of the overall salary budget. The administrative pool was comprised of salaries (9% of total FY20 budget) and operating budget (3% of total FY20 budget). The personnel in the SO are categorized as programmatic, administrative, or a combination of the two (see **Table 2**). Of the $900,290 SO salary budget, 71.5% was for programmatic personnel who develop, implement, and assess research, education, outreach, and diversity programs on behalf of ND EPSCoR. Without these personnel, ND EPSCoR would be unable to meet its mission of building the STEM ecosystem in

North Dakota. The administrative responsibilities included purchasing, billing, managing budgets, financial oversight, scheduling, etc., while the operational expenses included phone lines, copying, mailing, office furniture/computers, travel to EPSCoR meetings and participating institutions, EPSCoR coalition dues, ERcore (the data reporting and tracking tool for the NSF EPSCoR RII Track-1) fees, ERcore server hosting fees, etc.

ND EPSCoR State Office Budget FY20 - By Category
$2,842,875

- UND Leveraged 10.5%
- Admin - Salaries & Fringe 9%
- Admin - Operating Expenses 3%
- NDSU Leveraged 10.5%
- Programming - Salaries & Fringe 23%
- ND-ACES Equipment 24%
- Programming - Operating Expenses 4%
- NATURE 7%
- K-12 Outreach 2%
- UG Research/Innov/Entrepreneur 3%
- Grad Student Prof Dev 1%
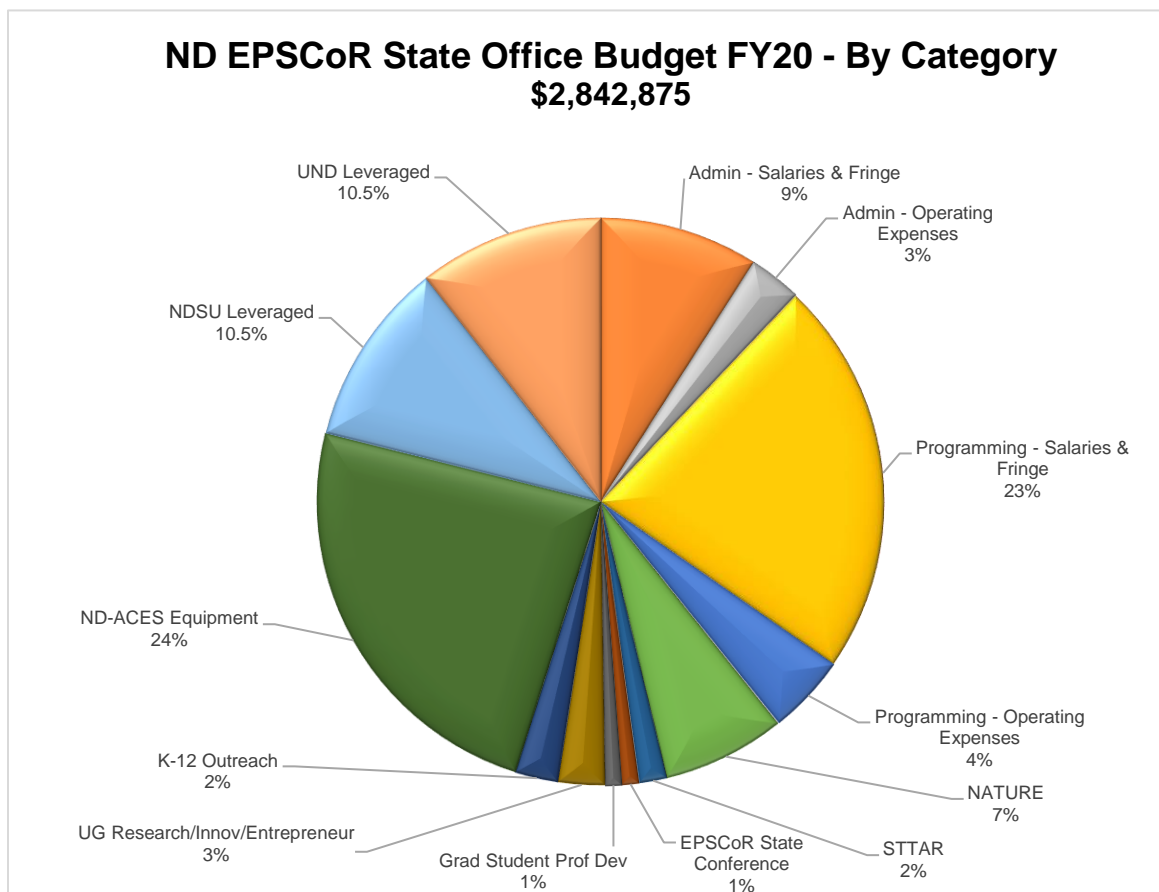- EPSCoR State Conference 1%
- STTAR 2%

Figure B-1. FY20 budget allocated to categories within the three base pools of administrative (green), programmatic (orange/ND-ACES equipment and blue/other), and leveraged (gray).

Within these three base pools are funding, there are six program budget types (Figure B-2):

1. Education, Outreach, and Broadening Participation – includes salary for programmatic staff who develop and implement STEM outreach programs that seek to broaden the diversity of the STEM pathway in ND, NATURE, STEM partnership paper implementation, K-12 partnership development, etc.
2. Competitiveness and Sustainability – includes efforts focused on building collaborations and partnerships and proposal preparation.
3. Communications – includes salary for the Communications Manager, travel to participating campuses, supplies, EPSCoR Annual Conference [cancelled this year due to COVID-19], branding materials, website maintenance, fees for dissemination services,

etc. *Of note here is the significantly increased effort in communicating science to the public (i.e., monthly newsletter that is distributed throughout the state to a host of constituents and stakeholders and increased targeted social media presence).*

4   Workforce Development – includes STTAR, graduate student research assistantships, undergraduate research funds, etc.
5   ND-ACES equipment.
6   Other EPSCoR Activities – includes onetime use of funds not captured in another category (i.e., conference registration fees, travel and programmatic allocation for expenses not captured elsewhere).
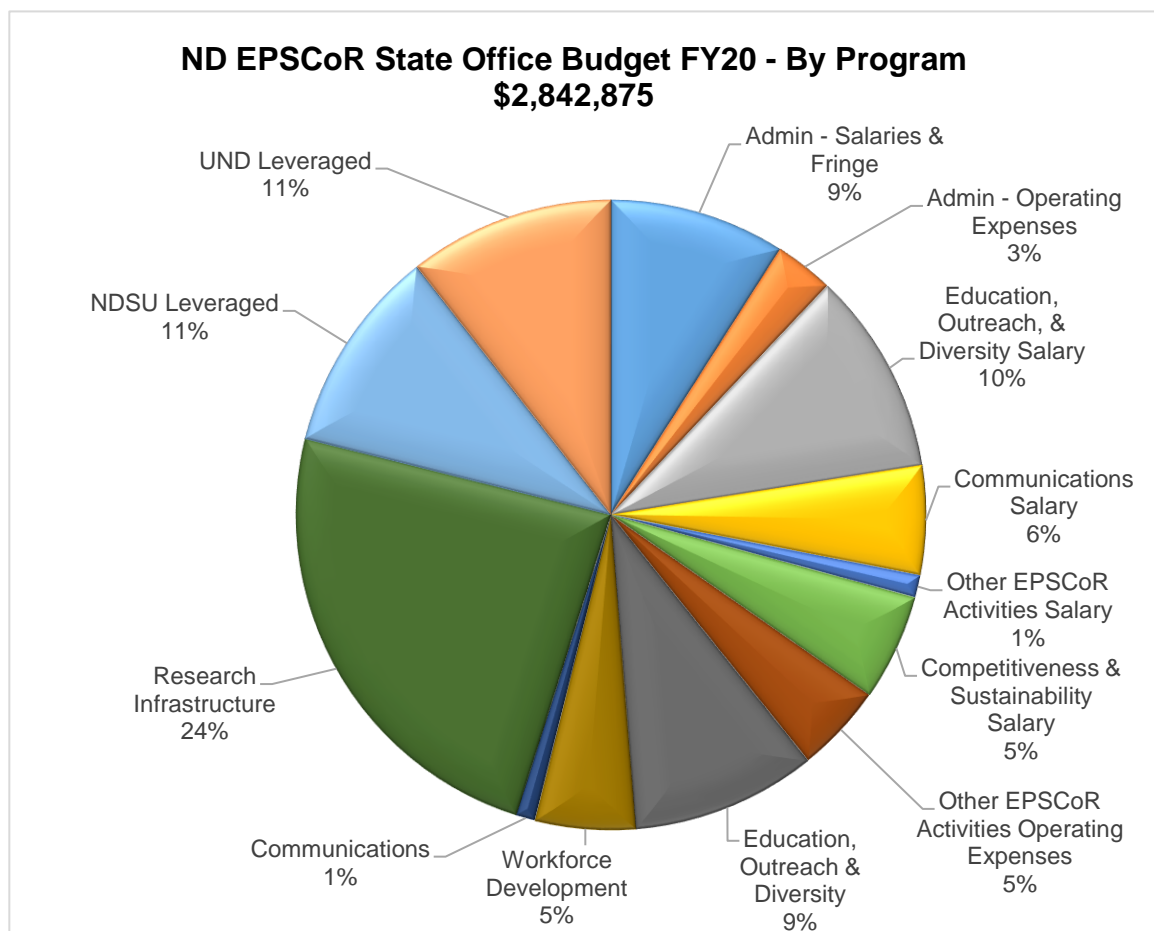

ND EPSCoR State Office Budget FY20 - By Program
$2,842,875

Figure B-2. Budget allocated by program type within the three base pools.

Seventeen projects were established within these six program types (Figure B-3). Five under Education, Outreach, and Broadening Participation; one under Competitiveness and Sustainability; one under Communications; four under Workforce Development; four under ND-ACES Equipment; and two in Other Activities. The budgets of these 17 combined projects are shown by the textured orange/blue pie chart slices.
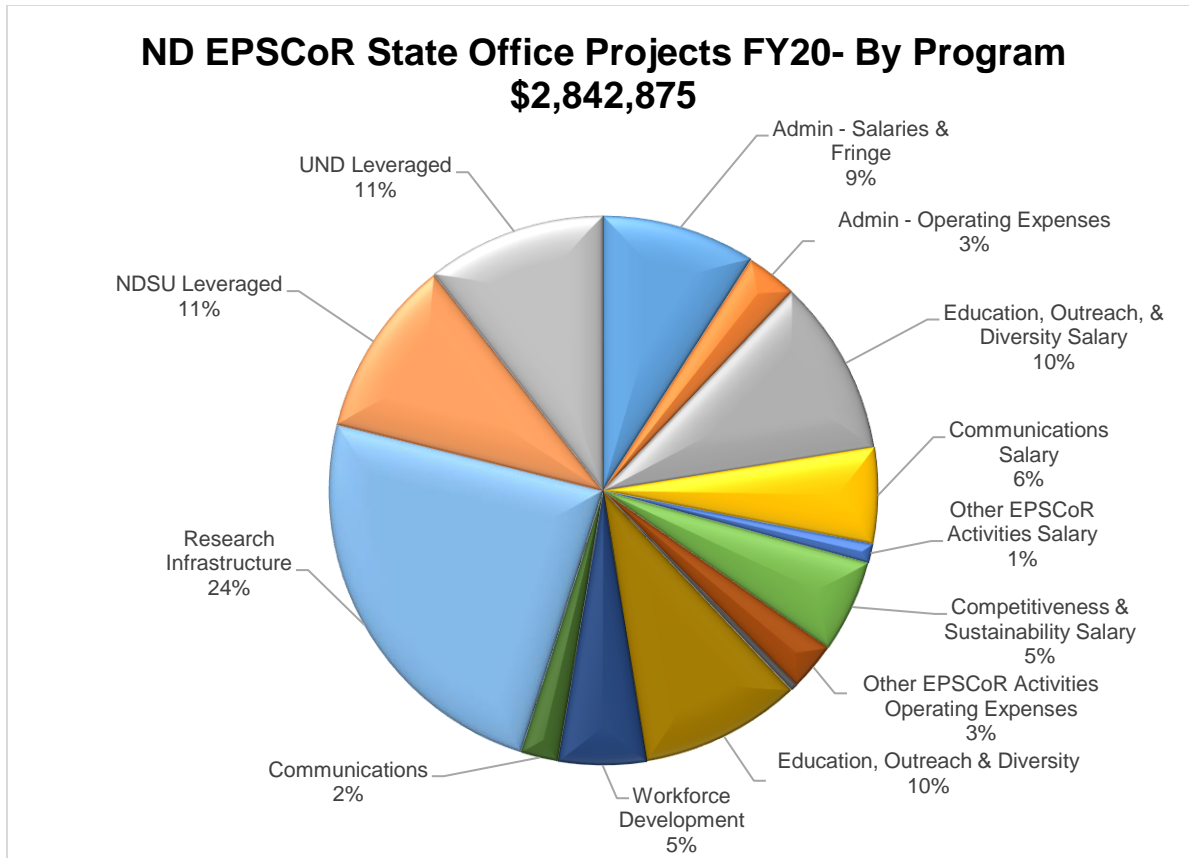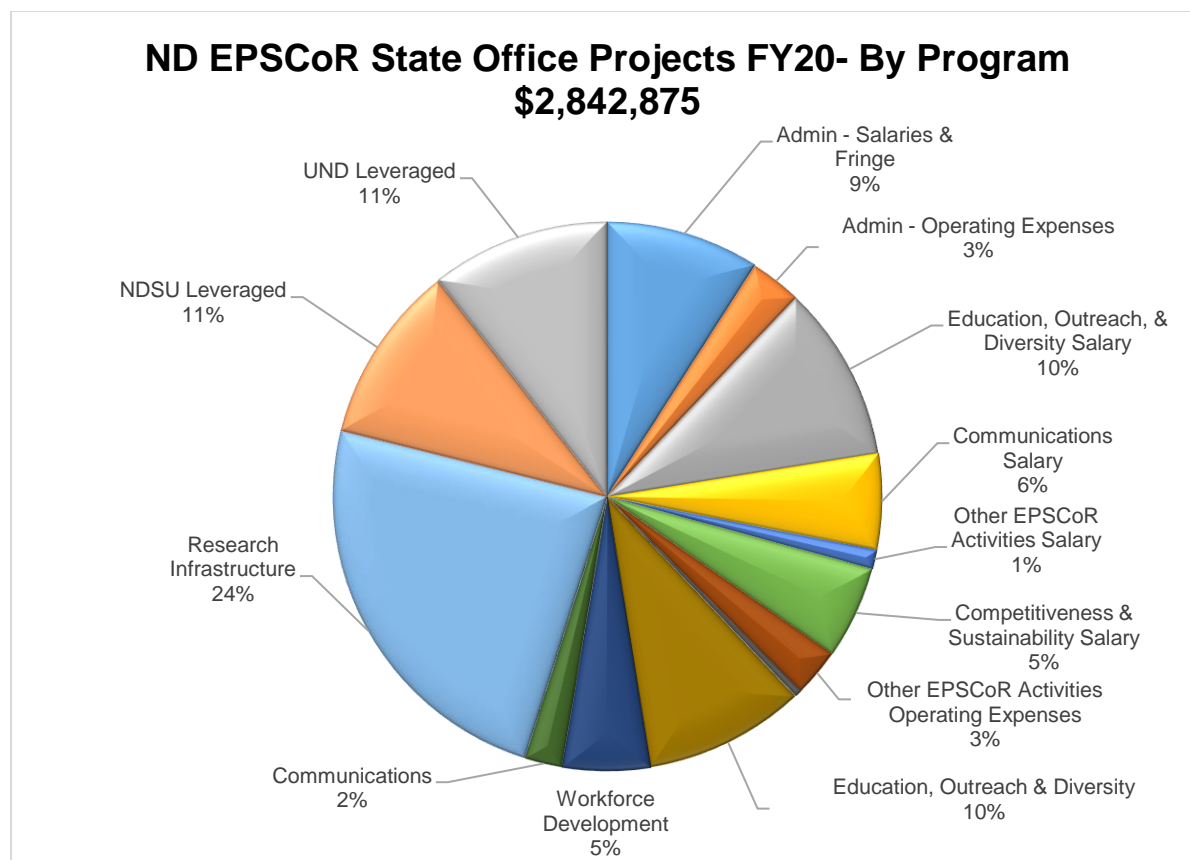
ND EPSCoR State Office Projects FY20- By Program
$2,842,875

- Admin - Salaries & Fringe 9%
- Admin - Operating Expenses 3%
- Education, Outreach, & Diversity Salary 10%
- Communications Salary 6%
- Other EPSCoR Activities Salary 1%
- Competitiveness & Sustainability Salary 5%
- Other EPSCoR Activities Operating Expenses 3%
- Education, Outreach & Diversity 10%
- Workforce Development 5%
- Communications 2%
- Research Infrastructure 24%
- NDSU Leveraged 11%
- UND Leveraged 11%

Figure B-3. Funded project by program type within the three base pools.

ND EPSCoR State Office Projects FY20- By Program
$2,842,875

Expenditures and Encumbrances

By fiscal year-end, $1,722,598 were expended (charges cleared as of the July 22nd expense reports) (**Figures B-4 and B-5**). Based on the initial budget, 73.0% of leveraged funds, 73.3% of the administrative funds, and 54.4% of the programming funds were expended by June 30, 2020. The expenditures must be reviewed in concert with committed/encumbered funds (**Figure B-6**). Sixteen of the 19 projects are still active and have been extended through FY21. These active projects collectively contain $375,423 in encumbered funds.

The majority ($213,159; 57%) of the encumbered funds are programmatic, with $116,606 of these funds reserved for ND-ACES equipment that was delayed in arriving or installation due to COVID-19.

The encumbered funds in the Workforce Development category will be used to pay the STTAR (Students in Technology Transfer And Research) students this summer. There are 14 students working at six North Dakota companies. ND EPSCoR contributes $5/hour towards each student's salary, while the company contributes at least $10/hour. This program is intended to help increase the STEM workforce capacity within ND.

The majority of funds encumbered within the Education, Outreach, and Diversity are needed to cover Summer 2020 expenses related to NATURE University Summer Camp and Sunday Academy planning activities.
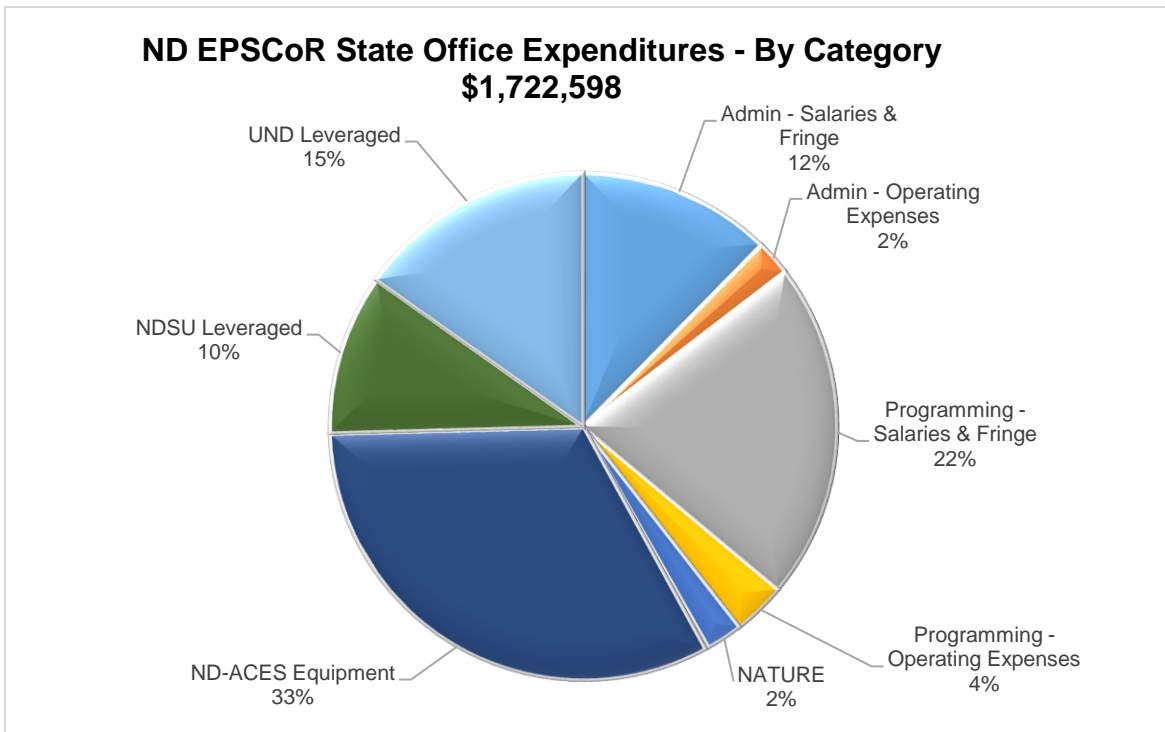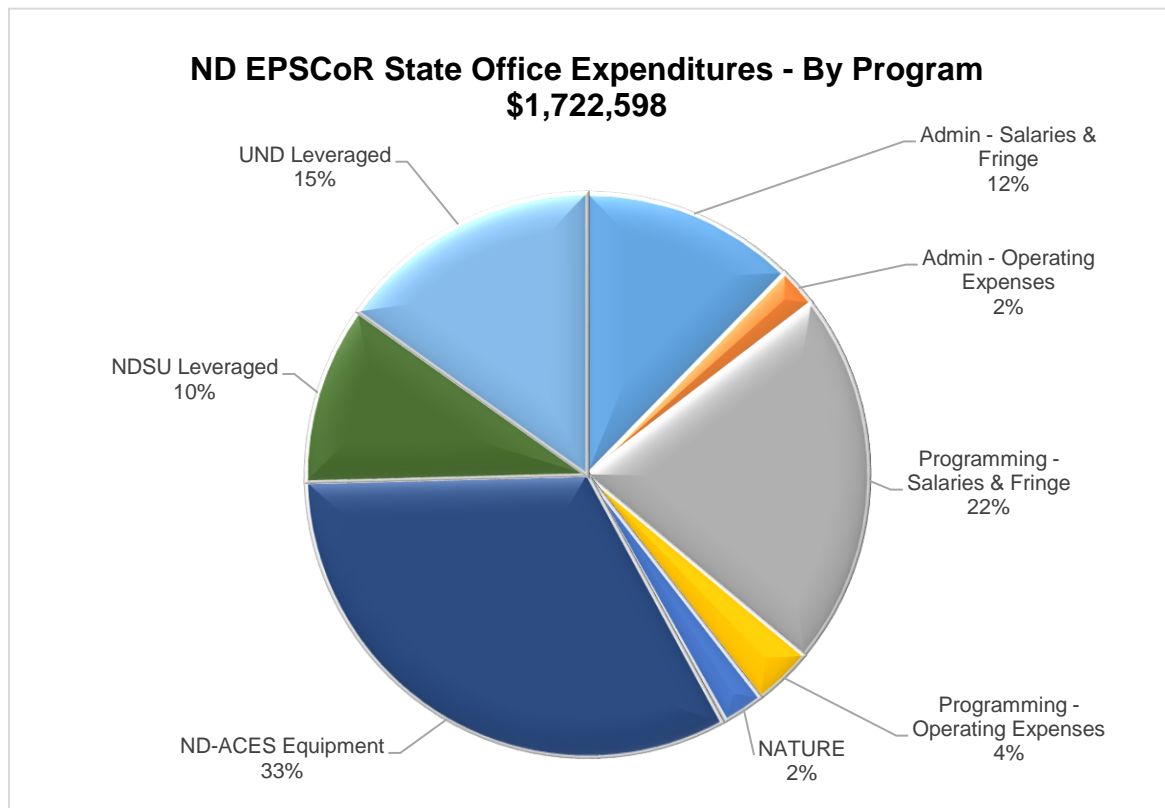
ND EPSCoR State Office Expenditures - By Category
$1,722,598

Figure B-4. Expenditures by category

ND EPSCoR State Office Expenditures - By Program
$1,722,598

Figure B-5. Expenditures by program type.

ND EPSCoR State Funds Committed FY20 - By Program $375,423

- Competitiveness & Sustainability 3%
- Education, Outreach & Diversity 14%
- Workforce Development 9%
- Research Infrastructure 31%
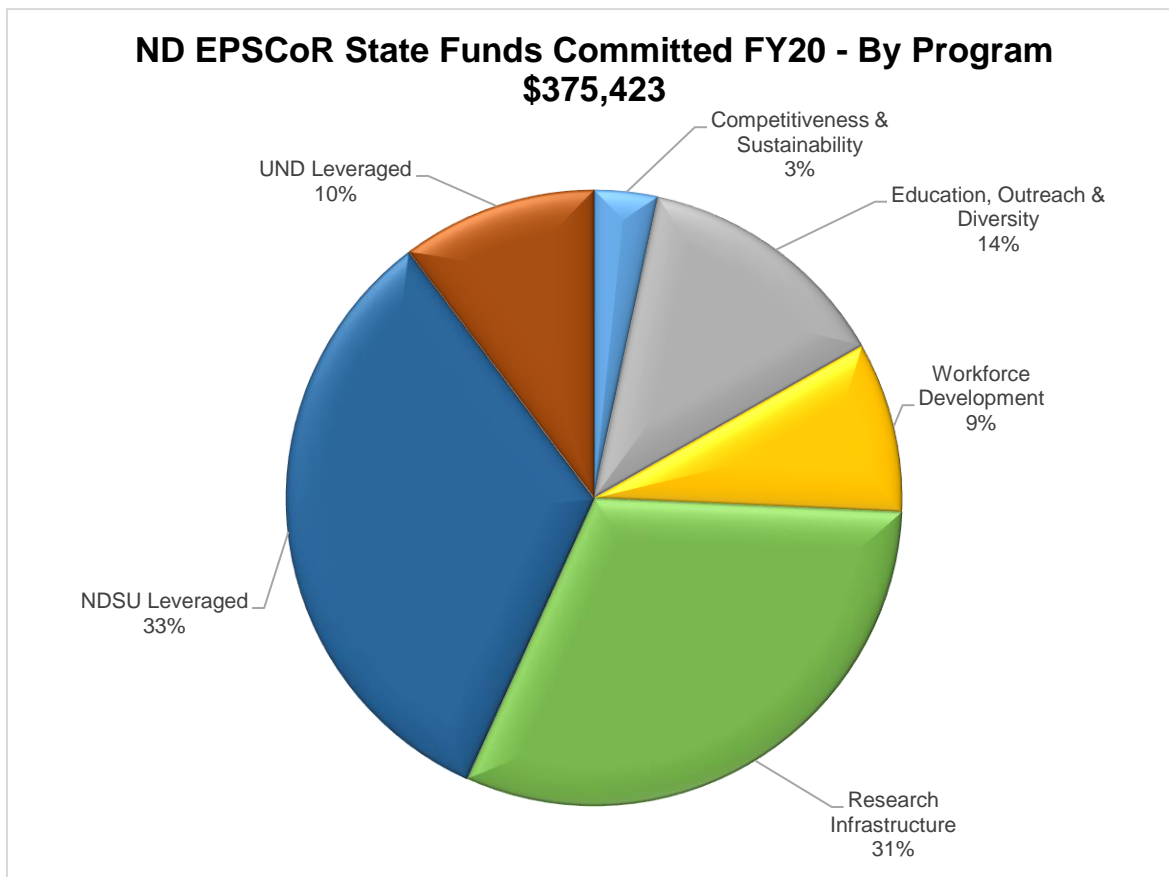- NDSU Leveraged 33%
- UND Leveraged 10%

Figure B-6. Encumbrances and committed funds.

Rollover Budget

The rollover budget of $744,854 (87.7% originated from programmatic funds) is a combination of salary savings, unexpended funds from projects that were completed but had funds remaining ($627,915), and unused operating funds (both administrative and programmatic - $116,939) (**Figure B-7**). Salary savings ($318,149) were generated through two means: 1) vacant staff lines and 2) charging ND EPSCOR staff time to other projects (i.e., NSF RII Track-1) while they performed work on the projects. Going forward, the salary savings generated via open lines should be minimal. In contrast, as the ND EPSCoR staff continue to gear up to write additional proposals, there is the potential for increased salary savings if new awards are funded.

The unused programmatic operating funds were originally set aside to create programming flexibility for new programs that came on line as the programmatic staff joined the office. ND EPSCoR filled the STEM Manager position in December 2019 and the Communication Manager position in May 2021. ND EPSCoR is currently working to fill the open Administrative Coordinator position; thus, these funds were not put towards new programs.
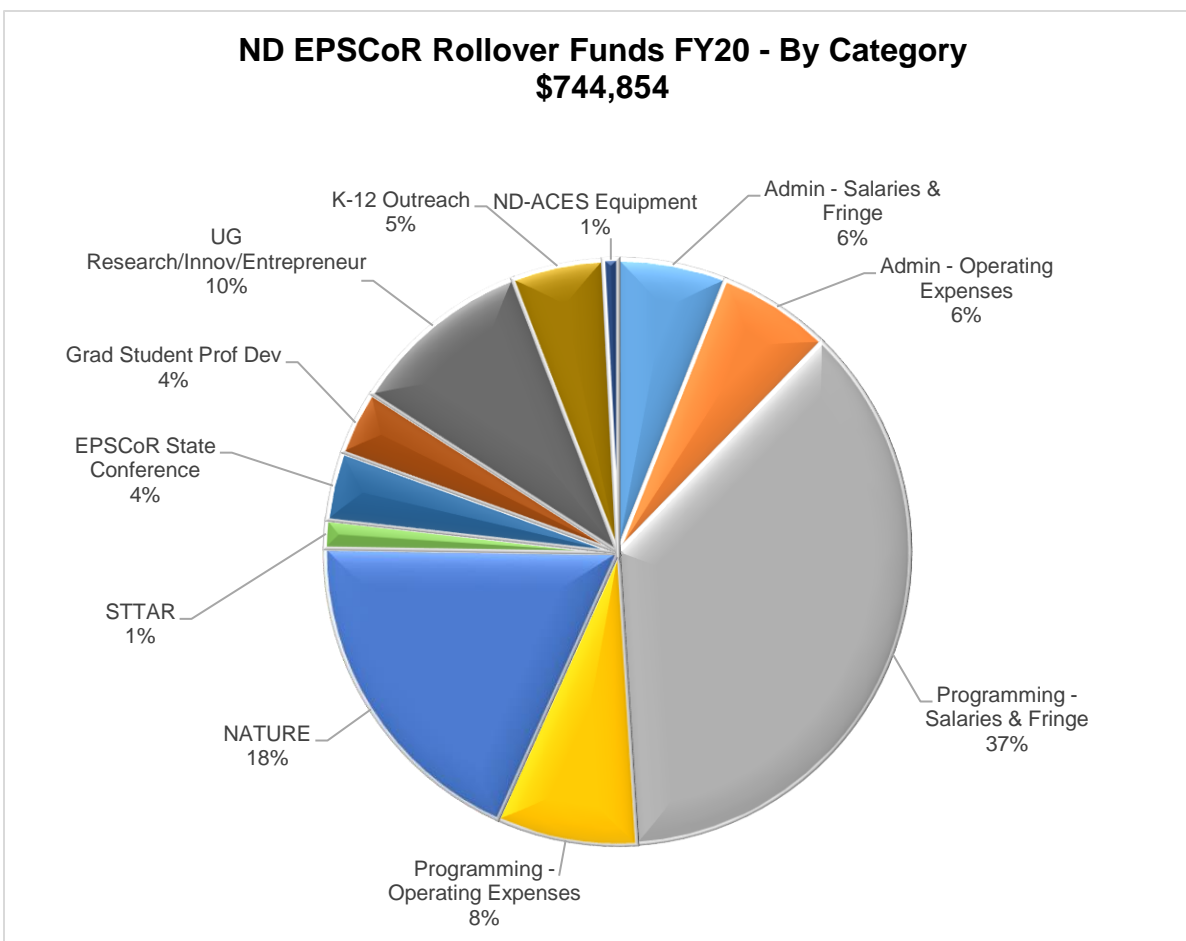
ND EPSCoR Rollover Funds FY20 - By Category
$744,854

Figure B-7. Source of funds by category for rollover budget.

The rollover budget will be used to invest in EPSCoR participating institutions in FY21. *A RFP will be released to all EPSCoR participating institutions (in early August) requesting proposals in the areas of: 1) equipment, 2) equipment repair, 3) preliminary data seed awards, 4) external proposal review, 5) undergraduate research, 6) development of online/virtual modules for STEM laboratory courses, and 7) seed awards for K-12 outreach (of particular interest will be the development of virtual activities). A total of $675,000 of the $744,854 will be allocated to allow individual institutions/faculty to expand capacity and infrastructure in EPSCoR STEM areas.* The RFP will be overviewed during the August 4 ND EPSCoR State Steering Committee meeting. The remaining funds will be held in reserve to cover potential project overruns and address special requests in critical areas that build collaboration between institutions within the state.

Summary

The initial proposed budget reflects the projected strategic needs of the ND EPSCoR SO at the time the budget request was submitted to NDUS; however, events [particularly COVID-19], requests, and opportunities over the course of the year, created some deviation from the original budget categories. In each of these cases, ND EPSCoR worked with NDSU's Grant and Contract Accounting to re-budget funds from one project to another. The budget continues to be refined to ensure funds are being used where most needed to support the ND STEM ecosystem. Additionally, as new programs are developed and implemented by the SO, the "programming" budget increases as those programs are developed and come online.

APPENDIX C

NDSU LEVERAGED FUNDS

Budget

NDSU received $300,000 in leveraged funds from ND EPSCoR to cover EPSCoR-related activities on the campus for FY20 (**Table C-1**).

Table C-1. High level summary of budget, funds allocated to projects, expenditures, and encumbrances and FY20 commitments.			
Budget – 07/01/19	**Established Projects**	**Expenditures – 07/31/20**	**Encumbrances – 07/31/20**
$300,000	$300,000	$176,283	$123,717
Number of Projects Established (E)/Still Active (A)/Committed (C)			
Projects	27 (E)	27 (E)	17 (A) / 2 (C)

The initial budget NDSU submitted to ND EPSCoR was allocated to the two base pools: administrative (green) and programming (blue) according to the percentages shown in **Figures C-1 and C-2.**
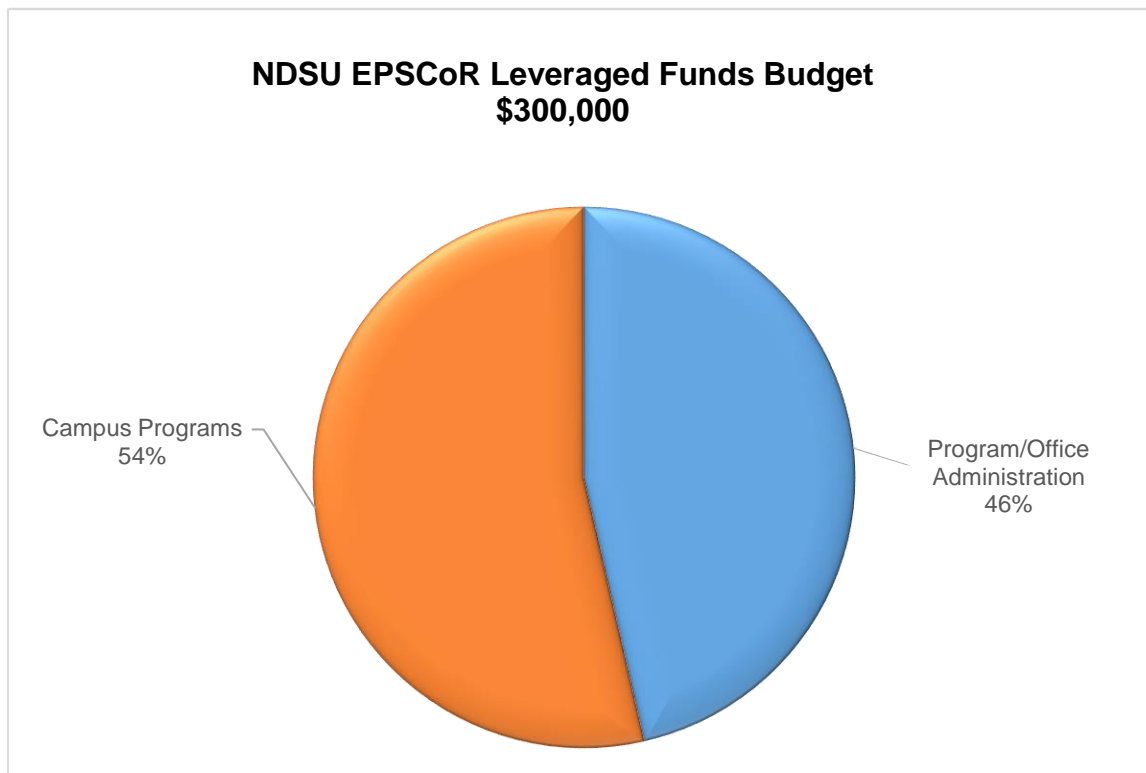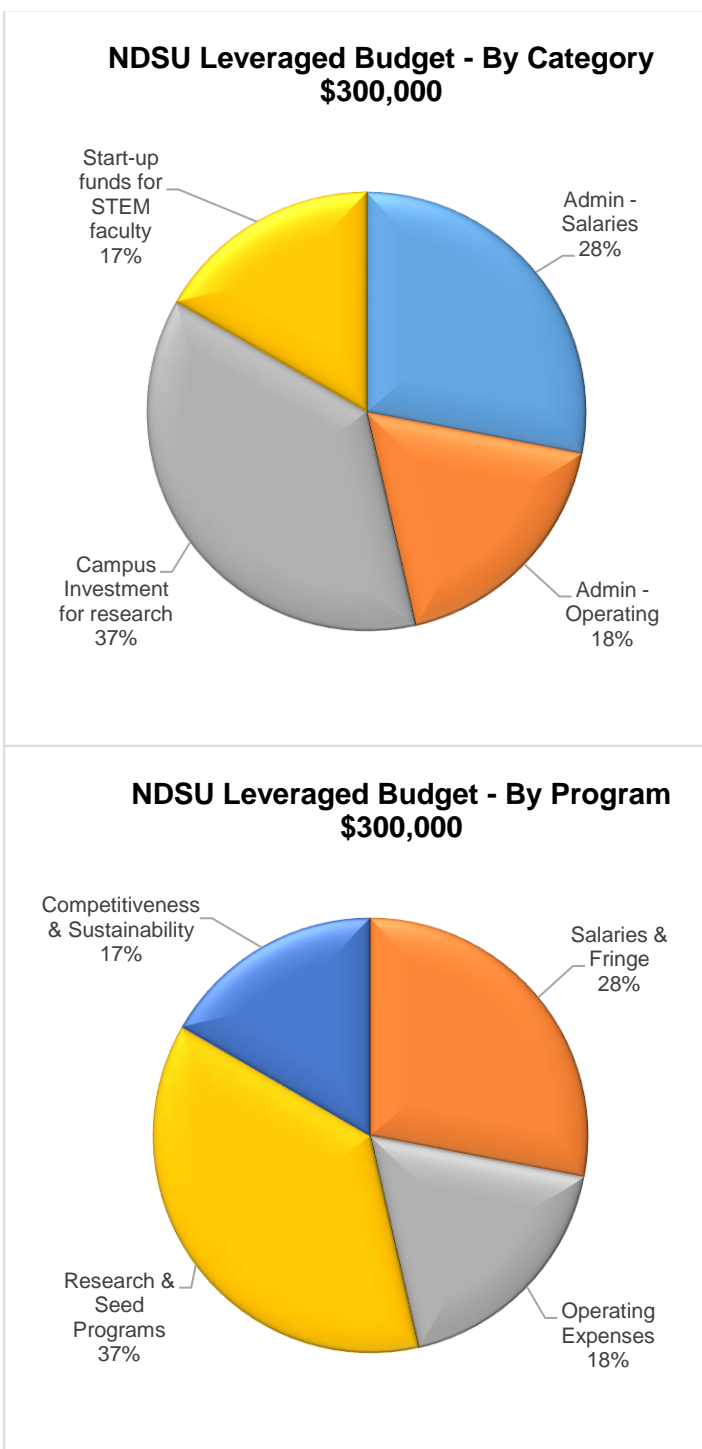

Figure C-1. Approved NDSU leveraged budget.

NDSU Leveraged Budget - By Category
$300,000

- Admin - Salaries 28%
- Admin - Operating 18%
- Campus Investment for research 37%
- Start-up funds for STEM faculty 17%

NDSU Leveraged Budget - By Program
$300,000

- Salaries & Fringe 28%
- Operating Expenses 18%
- Research & Seed Programs 37%
- Competitiveness & Sustainability 17%

Figure C-2. Approved leveraged budget allocated by category and program type - aligns with ND EPSCoR nomenclature.

The administrative budget covered portions of ND EPSCoR staff salaries for time spent working on "purely" NDSU activities (including associated operating expenses). This is an intentional budgeting strategy to ensure proper allocation of time and resources to the appropriate fund/project.

Most of the funds in the campus programs category are distributed to NDSU researchers via an annual RFP process to support initial research (data collection needed for proposals submitted to federal agencies – Research and Seed Programs), equipment (Research Infrastructure), student travel (undergraduate and graduate – Workforce Development) to present research at national conferences, external proposal reviews (Competitiveness and Sustainability), and undergraduate research support (Workforce Development). Other funded projects included student seminars and symposiums (Workforce Development), as well as NDSU Explore 2020 and Innovation Programs (Education, Outreach and Diversity). All disbursed program dollars help expand the STEM research and education ecosystem on the NDSU campus.

Projects

While the approved budget contained administrative funds at 46%, the administrative budget was greater than needed. Thus, funds were re-budgeted to provide more funds to campus programs (**Figure C-3**). As a result, the Campus Programs allocation increased from 54% to 76%. A total of 27 projects were funded under these combined categories.
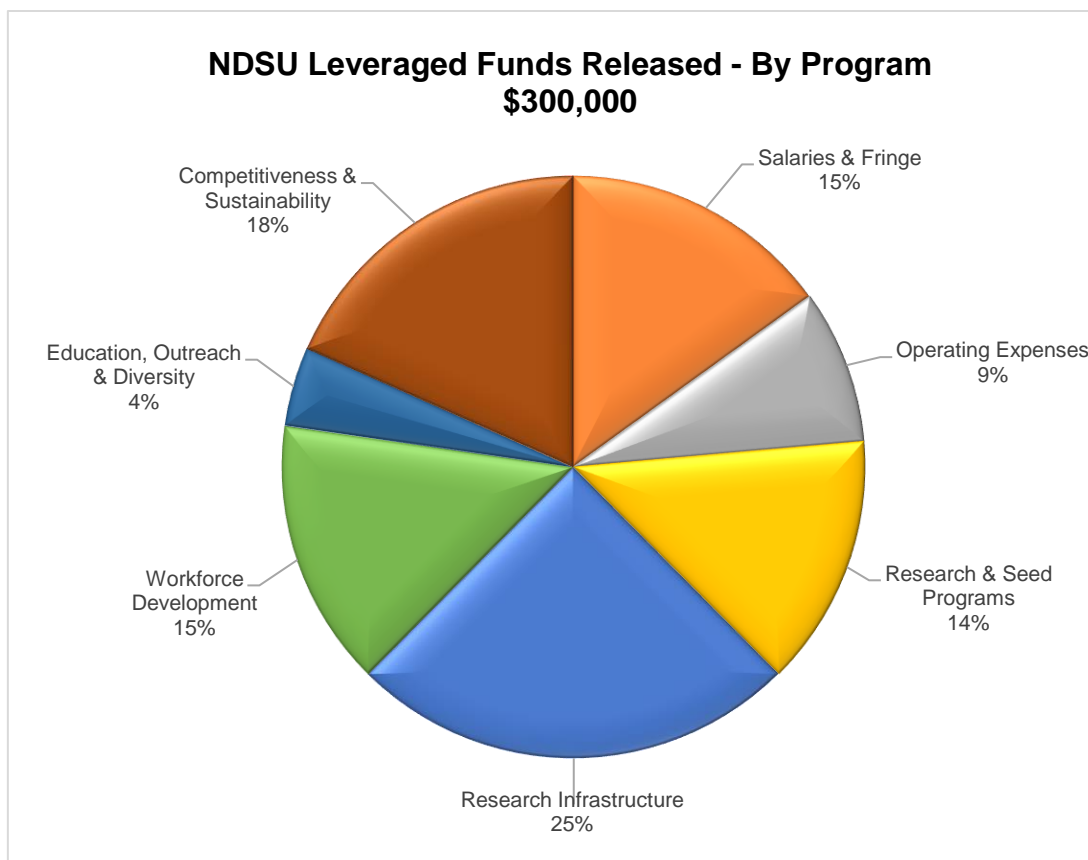
NDSU Leveraged Funds Released - By Program
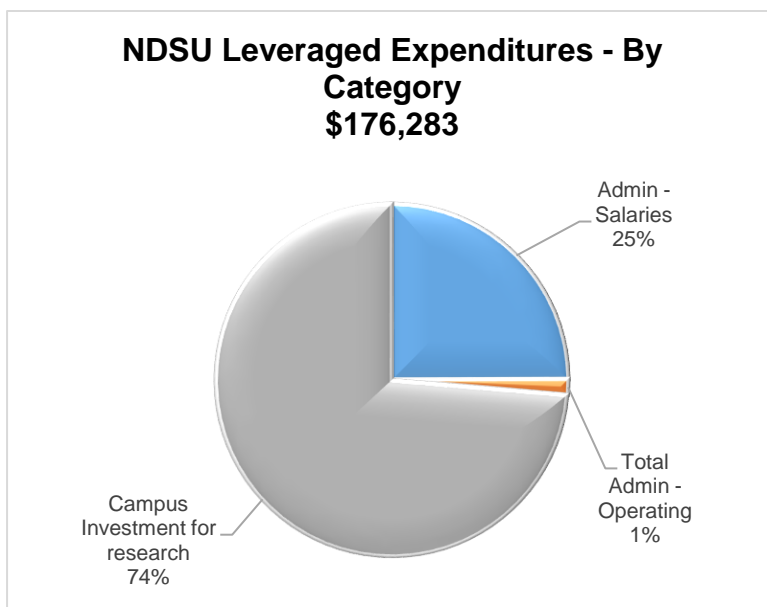**$300,000**

- Salaries & Fringe 15%
- Operating Expenses 9%
- Research & Seed Programs 14%
- Research Infrastructure 25%
- Workforce Development 15%
- Education, Outreach & Diversity 4%
- Competitiveness & Sustainability 18%

Figure C-3. NDSU leveraged projects by program type.

NDSU Leveraged Expenditures - By Category
$176,283

- Admin - Salaries 25%
- Total Admin - Operating 1%
- Campus Investment for research 74%

Figure C-4. NDSU leveraged expenditures by category.

Expenses and Encumbrances

Overall, 58.8% ($176,283) of the leveraged funds were spent during the year (**Figures C-4 and C-5**). COVID-19 impacted the rate of spending during the final quarter of the year. Of the funds spent, 74% ($129,847) were associated with the 25 projects funded under the Campus Program. Expenditures on administrative salaries and operating expenses totaled 26% ($46,436), which was less than the budgeted amount. Administrative time was charged in proportion to the work performed for NDSU EPSCoR-related activities.
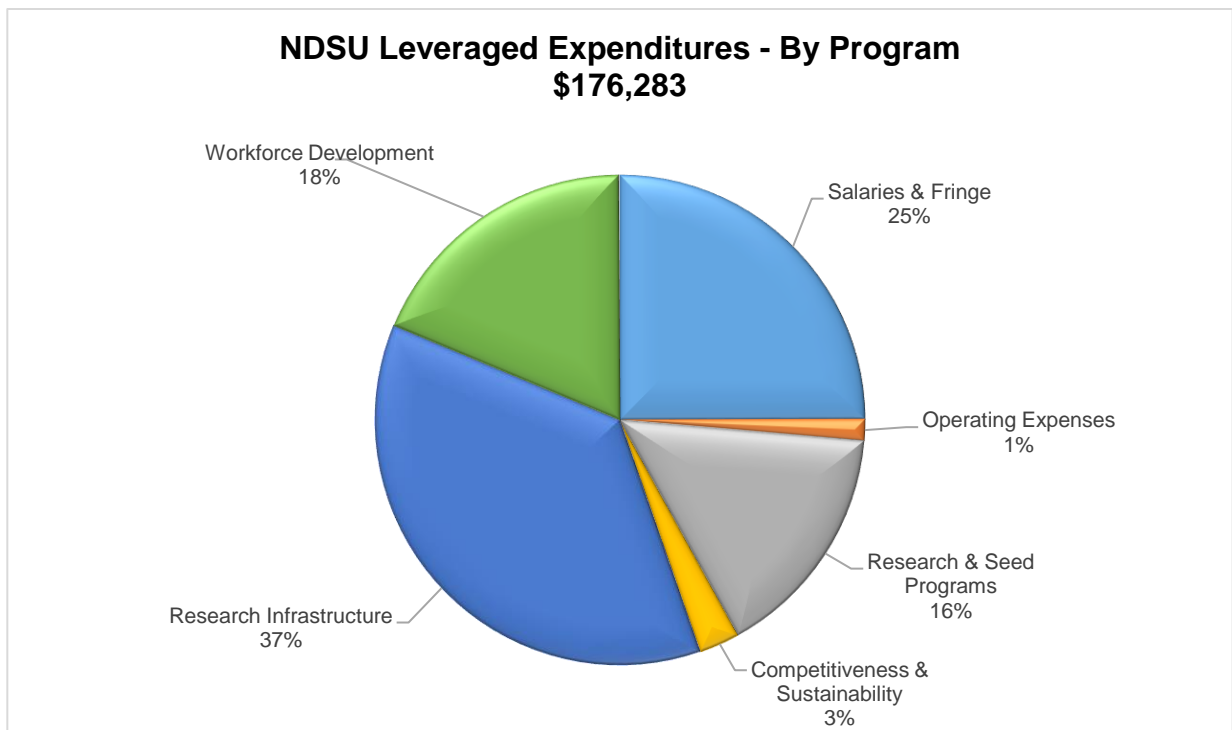
NDSU Leveraged Expenditures - By Program
$176,283

Figure C-5. NDSU leveraged expenditures by program.

All remaining funds ($123,717) are either encumbered within existing projects (19) that have been extended through FY21 due to COVID-19 or are primarily committed to FY21 projects. The funds for FY21 commitments came from finished projects for which funds remained unexpended.

APPENDIX D

UND LEVERAGED FUNDS

July 1, 2019 – June 30, 2020 UND EPSCoR LEVERAGED SUBAWARD ANNUAL REPORT

UND EPSCoR received a subaward from NDSU (ND EPSCoR SO) for leveraged funds in the amount of $300,000 to be expended during the time period of July 1, 2019 – June 30, 2020. Funds were set up in the following projects: EPSCoR Administration and High Performance Computing **(Figure D-1)**.
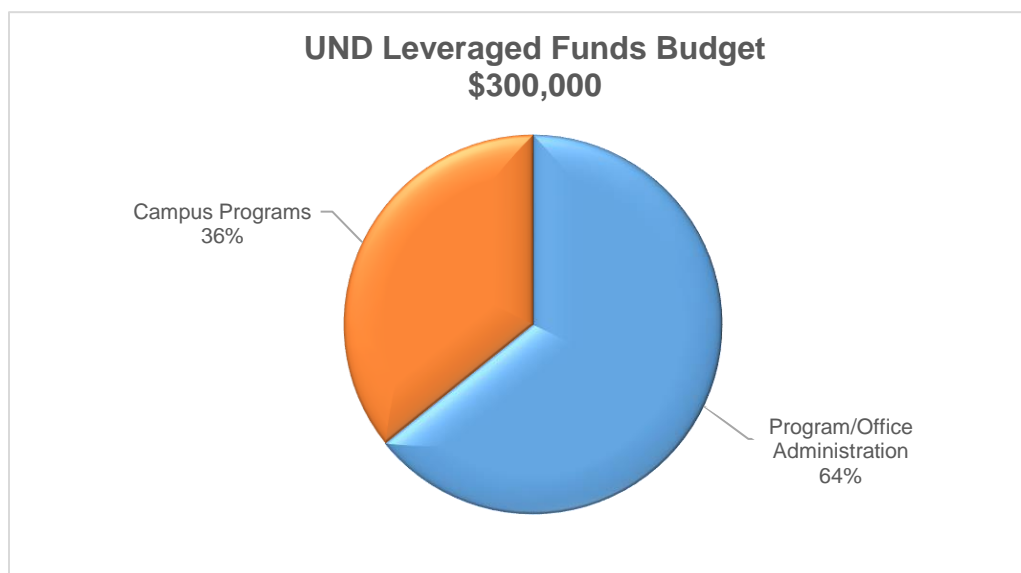

Figure D-1. UND Leveraged Budget

As shown in **Figure D-2**, the EPSCoR Administration project provided salary and benefits to UND EPSCoR staff as well as operating funds. Salary and benefits were paid towards the following individuals: Trinity Bohlman, Accountant; Cathy Lerud, Administrative Officer; and Carla Kellner, Administrative Secretary. Operating funds were used for the office phone lines, office supplies, and duplicating charges. The EPSCoR-UND administration provides support to the UND faculty involved with the ND INSPIRE and work towards the ND ACES Track-1 awards. Support includes budget planning and monitoring, ERCore, NATURE University Summer Camp, and other support as needed. Funds remaining are due to the departure of Carla Kellner, Administrative Secretary and also a decrease in operating due to COVID restrictions. Due to this departure, salary and fringe decreased for Cathy Lerud, as part of her time and effort were moved to the NSF EPSCoR CRCS cluster. Carryover funds from FY19 were used as planned for salaries and benefits.

The High Performance Computing funds provided salary and benefits for Aaron Bergstrom, Advanced Cyberinfrastructure Manager, to assist faculty and student opportunities with their research capabilities and by providing resources and training activities associated with scientific computing software development.

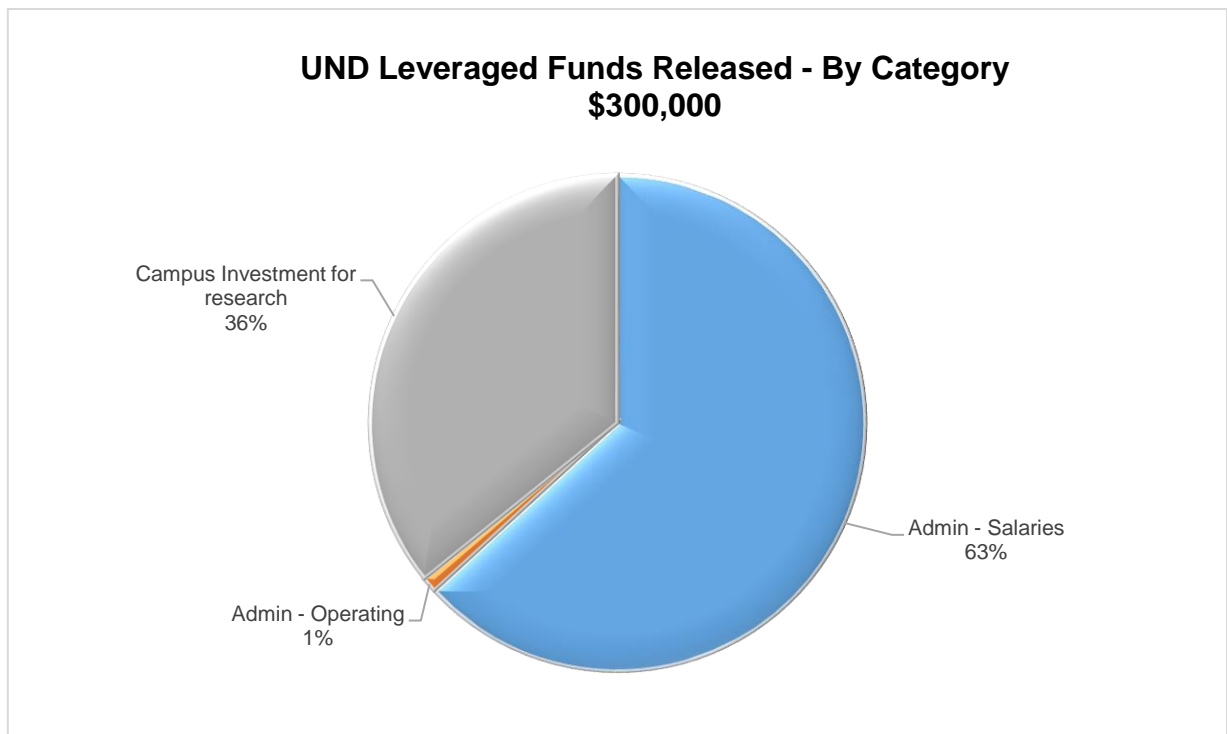Expenses for FY20 include salary/fringe, travel, supplies, publications, etc. (**Figure D-3**)

UND Leveraged Funds Released - By Category
$300,000

Campus Investment for research
36%

Admin - Salaries
63%

Admin - Operating
1%

Figure D-2. UND Leveraged funds released by category

UND Leveraged Expenditures - By Program
$261,453

Research Infrastructure
41%

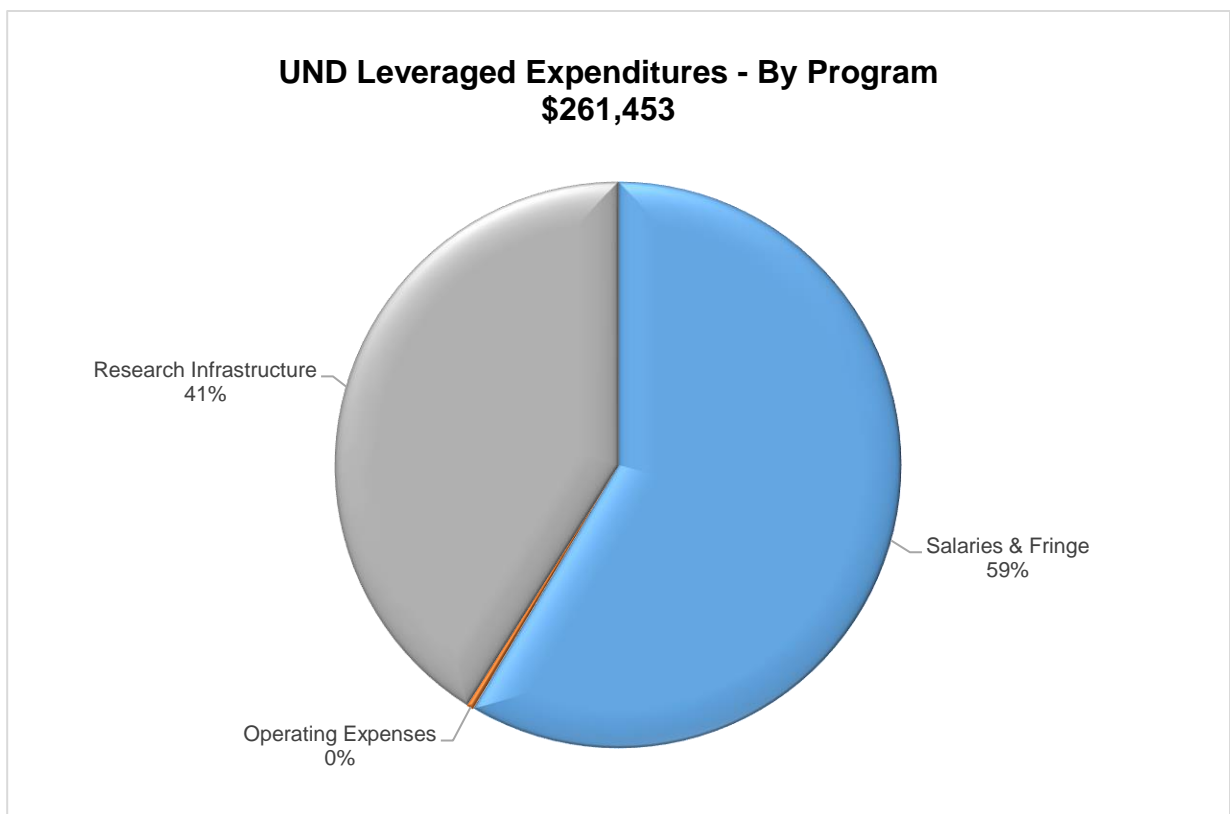Salaries & Fringe
59%

Operating Expenses
0%

Figure D-3. UND Leveraged expenditures by program

Dollars remaining in the current leveraged subaward (**Figure D-4**) are from Administration ($38,547). These dollars remaining will be used until the FY21 subaward is received.

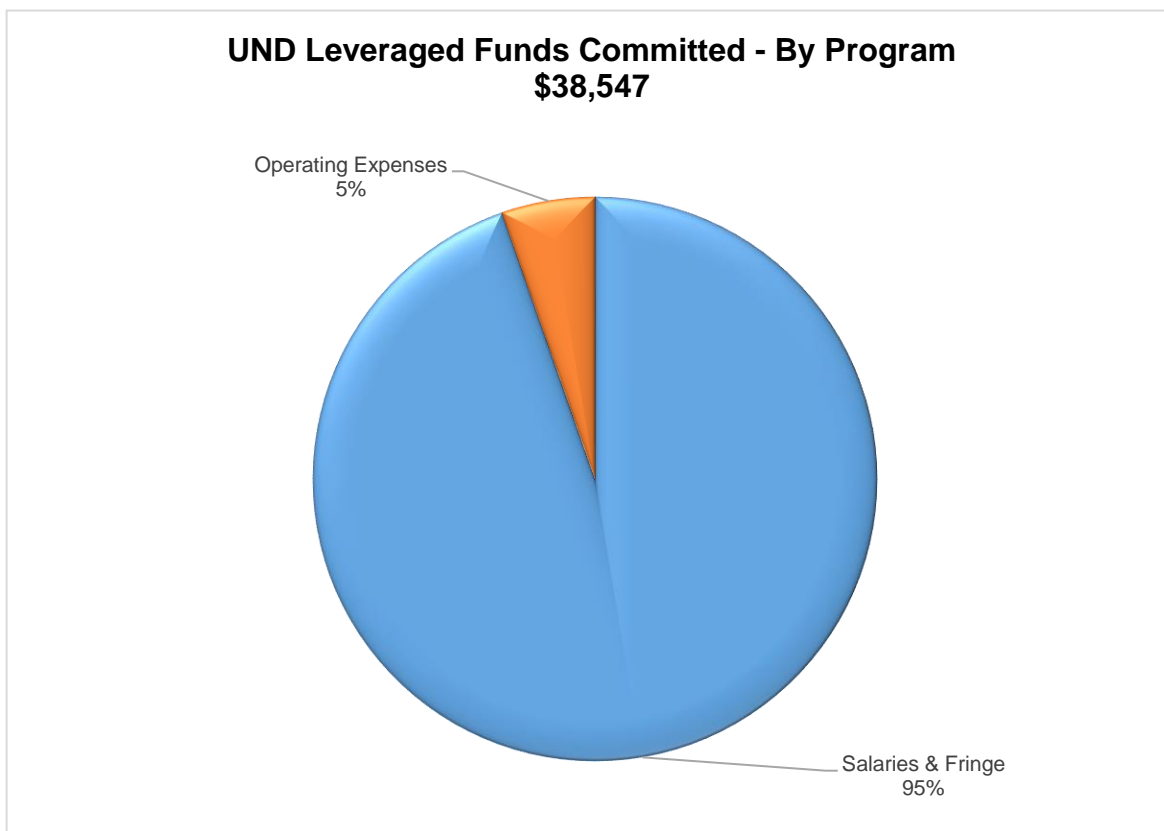**UND Leveraged Funds Committed - By Program**
$38,547

Operating Expenses
5%

Salaries & Fringe
95%

Figure D-4. UND Leveraged expenditures by program