



**2023-25
BIENNIAL BUDGET REQUEST**
NDSU » AGENCY 235
DAVID COOK, PRESIDENT

OMB BUDGET MEETING
OCTOBER 11, 2022

NORTH DAKOTA STATE UNIVERSITY

NDSU



North Dakota State University is pleased to submit for consideration this agency review and summary for the 2023-25 biennial budget request.

INTRODUCTION

NDSU has a longstanding commitment of bringing educational opportunities and research solutions to the people of North Dakota. Our commitment remains focused on affordable access to a high-quality education for our students and serving state interests in a manner demonstrating sound stewardship and accountability.

NDSU is proud to support the state's agriculture industry, while also excelling in engineering, health professions, pharmaceutical, biological and physical sciences. As the SBHE's designated site for high-performance computing, NDSU's Center for Computationally Assisted Science and Technology (CCAST) provides the super-computing facilities and staffing backbone for those data intensive disciplines, and is critical to key North Dakota initiatives, particularly in the UAS industry.

Our graduates enjoy an exceptional job placement rate in their fields of study, exhibit a high level of residency in the state after graduation, and make significant contributions to the state's tax base. The university's research success has led to federal research and development expenditures, licensing revenues and new business growth, resulting in job creation and a diversified economy.

As NDSU continues to evolve and grow, we also continue our commitment to affordability, efficiency and productivity. We look forward to addressing the needs and aspirations of North Dakota.

AGENCY OVERVIEW

Agency Statutory Authority ND Constitution, Section 215, North Dakota Century Code Chapter 15-12

AGENCY DESCRIPTION

NDSU is the state's 1862 land grant institution and serves the state by bringing educational opportunities and research solutions to the people of North Dakota. Our commitment remains focused on affordable access to a high-quality education for our students and serving state interests in a manner demonstrating sound stewardship and accountability. NDSU's success has led to higher national and international visibility, not just for itself but the entire state, and most importantly, more substantial contributions to the success of North Dakota and the nation.

NDSU offers undergraduate, masters and doctoral degrees as well as undergraduate and graduate certificate programs. While the significant majority of its students are in-person, NDSU also offers online options and is committed to expanding its online and hybrid offerings.

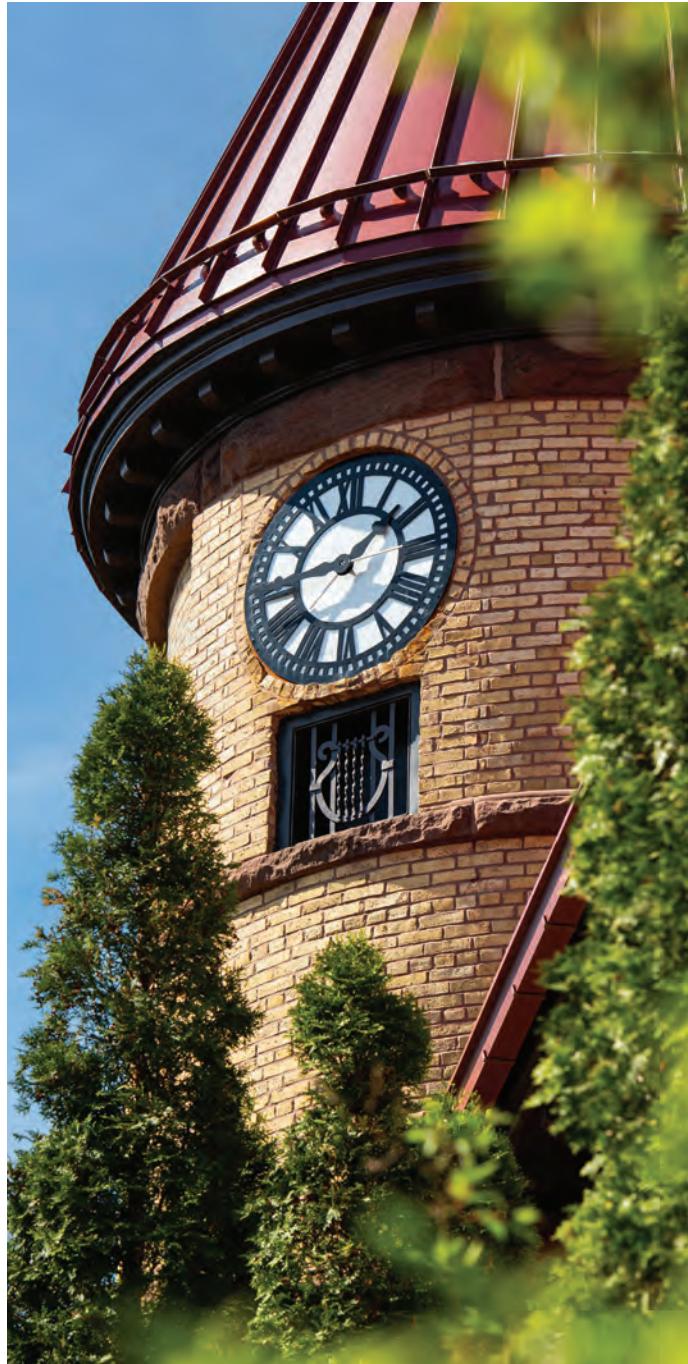
NDSU leads the state in the enrollment of first-time freshmen, and remains the largest university in the state in terms of overall full-time enrollment. Our signature programs include Engineering (largest discipline enrollment), Agriculture (largest NDSU research productivity), and Health Professions (2nd largest discipline enrollment with nationally ranked programs for Pharmacy and Nursing).

NDSU collaborates with many institutions across the country and the state. Some of these relationships include research collaborations with other leading research universities throughout the country, administrative service agreements with other institutions within the NDUS whereby NDSU provides administrative support (e.g., payroll) to those institutions, transfer agreements designed to facilitate student transfers within the NDUS, and joint-degree programs where institutions within the NDUS collaborate on degree programs.

As NDSU continues to evolve, adapt and thrive, we also continue our commitment to affordability, efficiency and productivity. That commitment is reflected in the success of our students, local and service region communities and the statewide economic interests we serve. We look forward and remain committed to addressing the needs and aspirations of North Dakota by building on our land grant foundation.

AGENCY MISSION STATEMENT

We provide transformational education, create knowledge through innovative research, and share knowledge through community engagement that meets the needs of North Dakota and the world.



PROGRAM NARRATIVE

PROGRAM GOALS AND OBJECTIVES

NDSU is proud of its tradition as the state's student focused, land grant, research institution. The mission of the university is to provide transformational education, create knowledge through innovative research, and share knowledge through community engagement that meets the needs of North Dakota and the world. We embrace this responsibility as a cornerstone of our future productivity.

NDSU continues to excel in providing high-quality accessible and affordable education to meet academic and professional standards. Research productivity remains strong; our faculty compete successfully for corporate, state, and federal research grants, and our creative activity is vibrant and diverse. We serve, and are accountable to the constituents of the state.

The vision for NDSU as outlined in our strategic plan is to be innovative in education, research and outreach, and identifies goals and objectives in five areas including Diversity, Inclusion and Respect; Student Success and Achievement; Research and Creative Activity; Education, Extension and Outreach; and Resource Planning and Development. We incorporate best practices in teaching and learning to deliver high quality curricula approved by the State Board of Higher Education to meet student and labor force needs. As a land grant institution, we serve the constituents of the state through programmatic and outreach efforts. Additionally, the university's research and creative outputs are critical to improving the vitality of the state's economy and quality of life (https://www.ndsu.edu/fileadmin/president/pdf/NDSU_Strategic_Plan_0522.pdf).

In support of these goals and objectives, student services and institutional support is necessary. NDSU must meet the needs of students by providing traditional and innovative programs to assist in the total development of the student. Moreover, we must be responsive to labor-force demands and opportunities in the state through expanded offerings while balancing our portfolio for the best and responsible use of resources. In response to the pandemic, NDSU adopted the HyFlex (Fall 2020) learning model which synchronously incorporates traditional in-person classes with remote learning. We are now seeing increasing demand for asynchronous on-line programming as well, and will expand efforts accordingly.

We are also committed to supporting student achievement and academic excellence through career preparation and development. We promote a better quality of life for our students through wellness programs, the provision of alcohol-free social activities, counseling and personal growth opportunities, as well as services for first generation students, veterans, and students with disabilities.

PROGRAM STATISTICAL DATA

NDSU consists of eight colleges: College of Agriculture, Food Systems and Natural Resources; College of Arts, Humanities, and Social Sciences; College of Business; College of Engineering; College of Human Sciences and Education; College of Health

Professions; College of Science and Mathematics; and the College of Graduate and Interdisciplinary Studies.

NDSU offers a wide range of undergraduate majors, minors and certificate programs, as well as graduate programs at the doctoral, masters, specialist and certificate levels. As a land grant institution, we are responsive to workforce demands and provide undergraduate and graduate degree programs in high-need areas such as Engineering, Nursing, Software Engineering and Security, and Teacher Education. In response to societal needs and student demand, we have launched new programs such as a degree in Supply Chain Management, and on-line initiatives in Marketing and Natural Resource Management. Strengthening relationships with communities and tribal organizations occurs through joint research projects and leadership development programs. We also partner with NDUS institutions through articulation agreements in areas such as agriculture and health professions.

As of fall 2021, NDSU student enrollment headcount was 12,461 students.

EXPLANATION OF PROGRAM COSTS

Salaries and fringe benefits continue to make up the majority of NDSU's expenses, representing approximately 73% of the University's state educational and general fund operating budgets in the most recent fiscal year. At NDSU, in order to achieve and sustain the University's viability, programming and recognition as a leading student focused, land-grant, research university, sufficient funding is required for competitive compensation and start-up packages for faculty and staff, along with the capacity to retain those faculty and staff in a performance-based, market driven environment.

Non-salary operating expenses represent the remaining 27% of the state education and general fund operating expenses. NDSU's continued focus on operational efficiencies allows us to meet extra student demand of both undergraduate and graduate students.

PERFORMANCE MEASURES:

NDUS has adopted several data systems that help incorporate accountability measures and transparent reporting in accordance with the Board's vision and strategic plan. These data systems, including Dashboards, Predictive Analytic Reporting, Strategic Planning Online, and the State Longitudinal Data System, provide public reports on completion and retention rates, semester-by-semester enrollment, peer comparisons, financial aid and tuition, and much more. Additionally, the publicly-available data available throughout the systems provides real-time data to researchers and decision-makers. These analytical tools complement the system's biennial report on its strategic plan, which incorporates the "flexibility with accountability" expectations created in Senate Bill 2003 passed by the 2001 Legislative Assembly.



CRITICAL ISSUES

NDSU serves the state and its workforce needs in two primary ways: (1) retaining North Dakota students in the state, recruiting out-of-state students and retraining non-traditionally aged students; and (2) conducting world-class applied research that helps strengthen and diversify North Dakota's economy.

In serving this mission, NDSU's has many strengths including productive faculty, good name recognition, national visibility and an attractive surrounding community. However, numerous critical issues exist which may materially impact NDSU's operations:

- 1 Enrollment has been steadily declining since 2017, this has resulted in a decrease in student credit hour production under the Higher Education Funding Formula which has resulted in a base budget decrease of \$7.5M for the upcoming 2023-25 biennium.
- 2 Inflationary pressures and workforce competition are affecting NDSU's ability to retain existing faculty, staff and recruiting top talent.
- 3 Enhanced, modern laboratory and fabrication space for Engineering and AG Engineering key program areas (precision agriculture, cybersecurity, robotics, artificial intelligence, biomedical engineering, environmental engineering) is vital to enroll, retain and graduate students to make them successful on the job when they enter the workforce today and in the future. Modernized facilities will also promote interdisciplinary collaboration for faculty to be productive and advance research opportunities in these vital program areas.

- 4 Due to increasing competition to apply for federal research grant opportunities, NDSU needs to modernize dated instructional and research lab space, and technology infrastructure to continue to provide experiential education for students as well as prioritize our R-1 Carnegie Classification status in support of our land grant mission to meet the aspirational and economic needs of ND.

We are requesting ongoing base funding for continued access to high speed research and education network resources with connectivity, maintain cybersecurity control standards, computational research tools and methods to support cybersecurity, artificial intelligence and quantum computing programming efforts.

- 5 Request modification to the Higher Education Funding Formula to reinstate a base funding minimum amount payable (NDCC 15-18.2-06), this would provide additional time to allow for evaluation and strategic planning for reductions in fixed programmatic and operational costs.
- 6 Affordability. Request consideration for additional base funding, provided through the HE Funding formula, in an amount to defray salary and operational costs so NDSU does not have to increase tuition for students during 2023-25. As student demographics change, many state markets have changed their strategy to compete for student enrollment and have not increased their tuition rates. This has created a difficult enrollment and pricing environment with future potential reciprocity agreement changes. Additional base funding to support affordable tuition pricing will provide a competitive recruiting advantage and support our land grant mission.



MAJOR ACCOMPLISHMENTS

- 1 NDSU helps fulfill the state's workforce needs by enrolling the largest number of face-to-face students of any institution in the NDUS. Each of these students was either a North Dakota resident retained in the state or an out-of-state student recruited to physically come to North Dakota. Not only will these students be the state's next generation of leaders and entrepreneurs, but while they are in college, they (along with their families) provide multiple years of beneficial economic impact for the state by working service jobs, paying rent and other living expenses and having their families visit.
- 2 NDSU has more graduates in numerous high-demand fields than any other institution in the NDUS including engineering, computer/information science and nursing.
- 3 NDSU has the highest four- and six-year graduation rates among the four-year institutions in the NDUS.
- 4 NDSU achieved post-graduation success rates (employment/graduate study) of 92 percent for undergraduate students and 94 percent for graduate students.
- 5 Among NDSU's recent graduates, 80% who started NDSU as a North Dakota resident were working in North Dakota after graduation and 41% who started NDSU as a Minnesota resident were working in North Dakota after graduation.
- 6 In 2021, NDSU completed the largest fundraising campaign in school and state history totaling \$586.7 million. In addition, the endowment grew from \$82 million in 2010 to \$457 million in 2021.
- 7 NDSU completed construction of Sugihara Hall which is a laboratory intensive building with approximately 105,000 square feet. In addition, NDSU started construction of the Peltier Complex, which will support a wide range of research involving food science, meat science, muscle biology, food safety, nutrition, consumer sensory traits and the development of new agricultural products. Designed to meet federal and state food processing and food handling regulations, the center's labs will expand research grant opportunities and partnerships with federal and state agencies.
- 8 NDSU's athletics program is ranked among the best overall NCAA Division-I programs in the nation. The new Nodak Insurance Football Performance Complex is expected to open in the fall of 2022. The entire cost of the estimated \$50 million building project is being privately funded, including a lead gift from Nodak Insurance Company, which was awarded naming rights.

NDSU AT A GLANCE



699
RANKED FACULTY
AND LECTURERS



1,712
FULL-TIME
EMPLOYEES



12,242
FALL 2022
ENROLLMENT

WHAT WE'RE ABOUT**VISION**

To lead the advancement of our land-grant ideals through innovative education, research, and outreach.

VALUES

NDSU is committed to shared governance, transparency, responsible decision-making, and a sustainable future. Our core values include: collegiality, inclusivity, community, creativity, excellence, impact, innovation, integrity, resilience, responsiveness and transformation.

GOALS/OBJECTIVES

Provide transformational educational and research opportunities for our students, state and world.

WHO WE SERVE**STUDENTS**

We're focused to retain/retrain/recruit the next generation of workforce and entrepreneurs.

THE COMMUNITY

NDSU supports and works with local leaders from the city of Fargo and Chamber of Commerce to contribute and ensure the success of our community.

STATE OF NORTH DAKOTA

Through workforce development, community and tribal engagement, NDSU fulfills our land grant mission for an educated citizenry.

THE WORLD

NDSU's research activities lead to the next generation of innovations and knowledge.

WHAT WE'RE PROUD OF**STUDENT FOCUSED**

High-quality academic programs

Sustained delivery during the pandemic, students continued to make progress toward degree completion

Innovative learning with face-to-face, online and hyflex delivery.

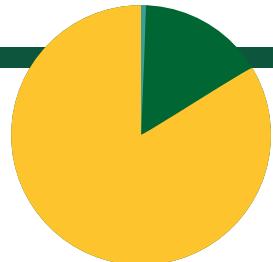
LAND GRANT

Faculty and student engagement in state and community service that enhances the public good.

RESEARCH

World-class faculty researchers, creating public/private partnerships leading to economic diversification and workforce innovation and advancement.

**HOW WE
DO IT**



**TOTAL AGENCY 2021-23
BUDGET: \$1.0B**

● GENERAL: \$164.1M ● SPECIAL: \$839.5M ● ND CARES: \$2.1M



HOW WE MEASURE SUCCESS

STUDENT SUCCESS

- 3.17 avg NDSU student GPA
- 1,435 degrees awarded 2020-21
- 92% Undergrad career success (2021)
- 94% Graduate career success (2021)

WORKFORCE DEVELOPMENT

Offer degree programs in 19 of top 20 hard to find jobs in ND.

- Engineering
- Nursing
- Software Engineering
- Security Engineer/Analyst

FINANCIAL HEALTH AND STEWARDSHIP

- Aa3 issuer-Moody's Investors Service (Nov 2021)
- AA-/Stable: S&P affirmed (April 2021)
- FY21 Composite Financial Index (CFI) = 5.30

WHAT WE DO – PROGRAM HIGHLIGHTS

COLLEGE OF ENGINEERING

Mechanical, Civil, Environmental, Industrial, Biomedical Engineering programs. Computer Science, Cybersecurity, Autonomous systems, Robotics, Software Engineering.

COLLEGE OF AGRICULTURE, FOOD SYSTEMS, AND NATURAL RESOURCES

Animal Science, Agribusiness, Ag Econ, Plant Science, Crop and Weed Science, Vet Tech, Microbiology.

COLLEGE OF BUSINESS

Business Admin, Marketing, Finance, Accounting Management Info Systems, MBA, Transportation and Logistics, Supply Chain Management.

COLLEGE OF SCIENCE AND MATHEMATICS

Biological Sciences, Psychology, Biochemistry and Molecular Biology, Chemistry, Statistics, Geology, Mathematics.

COLLEGE OF HEALTH PROFESSIONS

Pharmacy, Pharmaceutical Sciences, Pharmacy Practice, Nursing, Allied Health, Public Health.

COLLEGE OF ARTS, HUMANITIES AND SOCIAL SCIENCES

Architecture, Landscape Architecture, Fine Arts, Political Science, Criminal Justice, History, English, Emergency Management, Communication.

COLLEGE OF HUMAN SCIENCES AND EDUCATION

Teacher Education and Educational Leadership, Counselor Education, Sport Management, Human Development and Family Science, Interior Design, Exercise Science, Apparel, Retail Merchandising and Design.

FALL 2022

ENROLLMENT



	Undergraduate	Professional	Graduate	Grand Total
NORTH DAKOTA	4,248	118	948	5,314
Cass	2,204	65	704	2,973
Burleigh	558	16	52	626
Morton	134	3	15	152
Ward	126	1	15	142
Grand Forks	121	6	19	146
Richland	108	2	14	124
Stutsman	82		8	90
Stark	76		10	86
Traill	66	2	3	71
Walsh	57	3	5	65
Barnes	55	2	8	65
Williams	50	3	9	62
Mercer	35		3	38
Dickey	32	1	4	37
Ransom	31		3	34
Sargent	30		2	32
Lamoure	29	2	2	33
McLean	28	1	2	31
Emmons	25		8	33
Ramsey	25	2	13	40
McHenry	23	1	2	26
McKenzie	23		4	27
Pierce	22	1		23
Foster	21	1	2	24
Bowman	20		2	22
Wells	20		1	21
Pembina	20		3	23
Mountrail	19	1	4	24
Bottineau	18	1	5	24
Benson	17		4	21
Rolette	17		2	19
McIntosh	16	1	3	20
Cavalier	15	1	1	17
Eddy	14		2	16
Hettinger	12		1	13
Renville	12		1	13
Nelson	10		2	12
Grant	9			9
Steele	7		3	10
Griggs	7	1		8
Kidder	7		1	8
Oliver	6		1	7
Adams	6		1	7
Dunn	5			5
Golden Valley	5			5
Logan	5			5
Burke	4			4
Towner	4		1	5
Sioux	4		1	5
Divide	4	1		5
Billings	2			2
Sheridan	2		1	3
Slope			1	1
MINNESOTA	5,018	111	333	5,462
OTHER	830	15	621	1,466
TOTAL	10,096	244	1,902	12,242

PERFORMANCE INDICATORS

RETENTION	2018-19	2019-20	2020-21	2021-22	2022-23
First-year retention	78.90%	78.90%	82.00%	76.10%	75.20%
Second-year retention	71.35%	71.05%	72.09%	71.10%	68.80%
4 year graduation rate	37.80%	41.22%	43.27%	44.70%	46.30%
6 year graduation rate	57.60%	60.32%	62.33%	64.90%	63.20%
OTHER INDICATORS	2018-19	2019-20	2020-21	2021-22	2022-23
Student-faculty ratio	19:1	18:1	19:1	18:1	
Percentage of first-year students taking at least 15 credits	83%	81%	71%	73%	65%



NDSU RESEARCH OVERVIEW

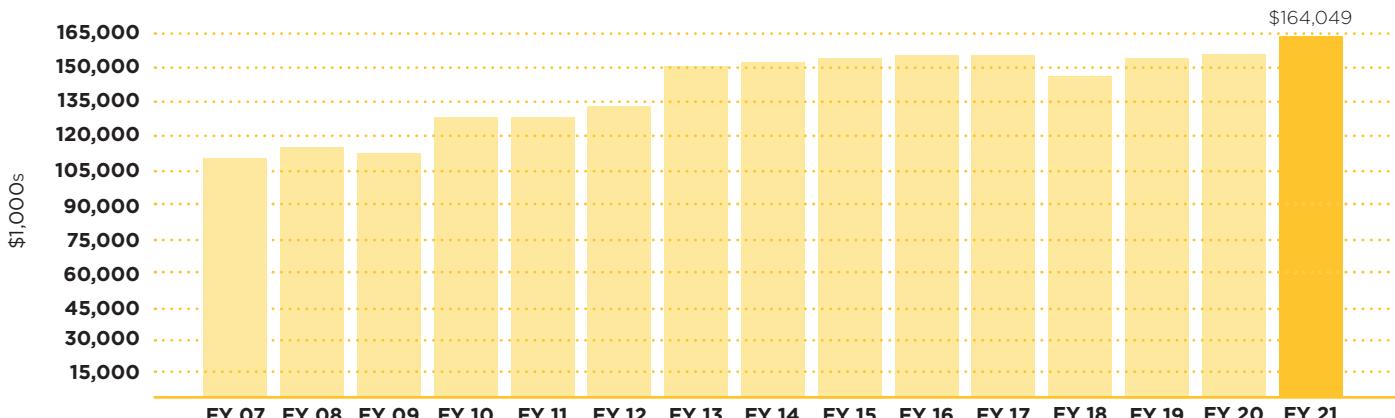
THE NATIONAL SCIENCE FOUNDATION RANKED NDSU 97 AMONG ALL PUBLIC INSTITUTIONS, 139 AMONG ALL INSTITUTIONS AND 108 AMONG NON-MEDICAL SCHOOLS.



NDSU RESEARCH ACCOMPLISHMENTS

GROWTH OF NDSU RESEARCH AND DEVELOPMENT EXPENDITURES

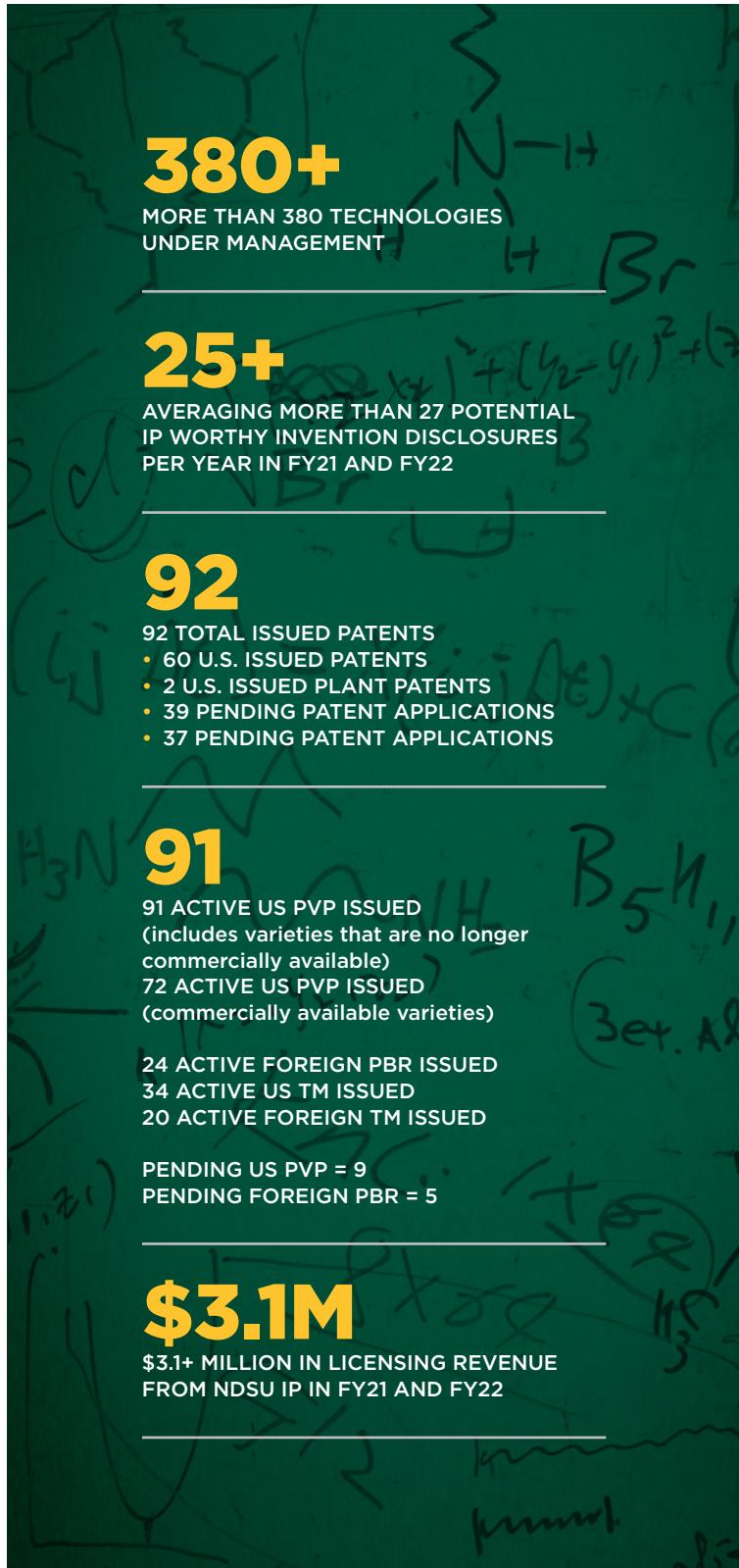
MORE THAN \$2.425 BILLION IN RESEARCH EXPENDITURES SINCE FY2004; \$164 MILLION IN FY2019



Source: National Science Foundation Higher Education Research & Development Survey



RESEARCH FOUNDATION ACCOMPLISHMENTS



RESEARCH CORPORATE PARTNERS

CORPORATE PARTNERS ENGAGED IN RESEARCH WITH NDSU THROUGH SPONSORED RESEARCH, CAPSTONE PROJECTS AND THE CENTER FOR BIOPOLYMERS AND BIOMATERIALS IN FY21 AND FY22

3M	eScience & Technology Solutions, Inc.	ND Corn Council
Action Fabricating	Evolve Golf	ND Insurance Reserve Fund
Adams County Development Corporation	Evonik	ND Pharmacy Service Corporation
Adaptive Surface Technologies, Inc	Falkirk Mining Company	Noridian Healthcare Solutions
ADM	FargoRate LLC	Northern Plains Railroad
Adventium Labs	Farm Credit Services of North Dakota	Northern Plains Sustainable Ag Society
Agri Industries Inc.	FAST Global Solutions	Northwest Green Chemistry
Akzo Nobel Coatings Inc.	Felling Trailers	Nuseed
Amazon	Ford Motor Company	ONEOK, Inc.
American Crystal Sugar Company	Fortus Medical	OpREMS LLC
American Simmental Association	Futamura	Pedigree Technologies LLC
Applied Technologies Group, Inc	GA Group	PepsiCo. Inc.
Architecture Technology Corp.	Garlock Equipment Company	Pioneer Hi-Bred International Inc.
Ardent Mills	GC Innovation	Plain Sight Innovations LLC
AURI	Great Big Kid Toys	Powder Coating Research Group
Avery Dennison	Greater ND Chamber of Commerce	PPG Industries
BASF Corporation	Green Dot Bioplastics	Precision Food Equipment, LLC
Bayer Crop Science	GreenLight Biosciences, Inc.	Premier 1 Supplies
Benson Hill Biosystem	Hercon Environmental Inc	PRx Performance LLC
BioConsortia, Inc	Horizon Resources	Purina Mills
Biogemma USA Corp	Horn Plastics	Resource Systems Group
Bioplastics Magazine	Hyundai	RheTech
Bioscience Association of North Dakota	Idaho Forest Group Timber LLC	RWDC
Blue Cross Blue Shield ND	Indigo Agriculture, Inc.	Sanford Health
BNI Energy, LTD.	Inwerken AG	Scheels Information Services
Boehringer-Ingelheim	iWALKFree, Inc.	Shaw
Border States Electric	J.R. Simplot Company	Sherwin Williams
Bobcat Company	John Deere & Company	Sheyenne Tooling & Manufacturing
Branson Ultrasonics	KFH Group	Southpointe Pharmacy
Brewers Association, Inc.	Kimberly-Clark Corporation	Syngenta Crop Protection Inc.
BTD Manufacturing	Kinesio Taping Association International	Synoptic Data Corp.
Bushel, Inc	Koch Ag & Energy LP	Tesoro Logistics Operations LLC
Cargill Inc.	KWS Seeds, LLC	toXcel
Ceres Imaging, Inc.	Lignite Energy Council	Triton Systems, Inc.
Chase Steel Services	Longboard Power LLC	TSR Parts
CHS, Inc.	M-Base	UNFI United Natural Foods, Inc
Clam Outdoors	Macaulay-Brown Inc.	UPL NA Inc.
Clark Equipment Company	Marvin	Valent BioSciences LLC
CNH Industries	Massman Automation Designs, LLC	Valent USA
Corteva Agriscience	Meadowlark	Valley Fiber Processing Inc.
Coteau Properties Company	Medtronic	Verdesian Life Sciences
Cotton Incorporated	Merck Sharp & Dohme LLC	WCCO Belting
Coyote Creek Mining Company, LLC	Mid-American Athletic Trainers' Assn	Western Cooperative Credit Union
Dakota Fiber	Minn-Dak Growers Ltd	Western Dakota Energy Association
Door Stud LLC	Monsanto Co.	Westrock
Eastman Chemical Company	Native American Fiber Program	Williams County Ag Improvement Association
Elinor Specialty Coatings	NatureWorks LLC	Winfield United
Ellingson Companies	Nau Country	Zymergen, Inc.

Final Enrollment of SB2003

2019-21 Adjusted General Fund Appropriation **\$ 132,714,983**

Base adjustments:

1/ Funding formula: Credit Hour completion adjustment	(29,096)
2/ Funding formula adjustments	3,763,288
3/ 2021-23 Salary increase 1.5% / 2.0%	2,083,656
4/ 2021-23 Health insurance increases	23,494
5/ Other Adjustment: Legal Settlement	125,000

One-time adjustments:

5/ Other Adjustment: Legal Settlement	(125,000)
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Total Base and One-time Adjustments **5,841,342**

2021-23 Total General Funds-Base, One-time **\$ 138,556,325**

4.4%

1/ Student Credit Hour production change

2/ HE Funding model adjustments; per Interim HE Committee recommendation

3/4 Salary compensation and health insurance amounts reflect General Fund amounts only.

5/ Other adjustment for Legal Settlement

Other 67th Legislative Assembly approval:

		Capital Bldg NDSU	Capital Bldg Fund
Capital Building Fund/Extraordinary repair tier matching funds			
Tier I: Extraordinary Repairs (\$2,732,244 base + 2:1 match)	\$ 8,196,732		
Tier II: Capital Building Fund (1:1 match)	\$ 2,899,596	\$ 2,899,596	
Tier III: Capital Building Fund (2 NDSU : 1 Capital Bldg match)	\$ 4,500,000	\$ 2,250,000	

Agricultural Product Development Center authorization \$85m

State Bonds \$50m

General Funds \$20m

Other Funds \$15m

NDSU 2023-25

BIENNIAL BUDGET REQUEST



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2021-23 BIENNIAL BUDGET REQUEST

NDSU HAS PREPARED A NEEDS-BASED BUDGET FOR CONSIDERATION, AS APPROVED AND DIRECTED BY THE NORTH DAKOTA STATE BOARD OF HIGHER EDUCATION.

BASE BUDGET REQUEST

Minimum amount payable

\$2,054,479 - \$7,591,732

Restoration of the minimum amount payable NDCC15-18.2-06; slows funding decreases as credit production drops. Provides additional time for strategic planning and efficient reduction of fixed operational costs.

Behavioral Health Initiative

\$1,100,000

Allows for additional services, outreach and prevention efforts to ensure the well-being of the campus students.

IT Network Infrastructure

\$3,201,100

Request for base funding for ongoing research efforts, including network infrastructure funding.

Research and education network resources \$3,201,100

CAPITAL PROJECT REQUEST

Engineering Project

\$111,600,000

- General Funds: \$83,700,000
- Special Funds: \$27,900,000

CAPITAL PROJECT AUTHORIZATION REQUEST

Music Building Addition/Renovation

\$20,000,000

Sudro Hall Small Animal Research Facility Expansion and Renovation

\$3,000,000

ONE-TIME REQUEST

Inflationary adjustment

Student share of 2023-25 compensation package increase

Systemwide Marketing Program

NORTH DAKOTA UNIVERSITY SYSTEM
2019 - 2021 COMPLETED STUDENT CREDIT HOUR REPORT SUMMARY
AND FINAL 2023-25 ESTIMATED INCR (DECR) IN BASE FUNDING

Institution	2019-21 Completed Student Credit Hrs (SCH)	2019-21 Adjusted Weighted SCH	2021-23 Base Funding per Credit Hour	Est 2023-25 Adjustment	2021-23 Total Base Funding	Prelim Estimated Incr (Decr) Base Funding	Percentage Increase (Decrease)	2023-25 Adjustment for 96% Min. Amt. Payable	2023-25 Funding Formula (Includes Adjustment for Min. Amt. Pay)	2023-25 Total Funding Formula Increase (Decrease)	Percentage Increase (Decrease)
BSC	139,377	316,931	\$98.84	\$(101,618.00)	\$31,223,842	\$32,084,055	\$(860,213)	-2.68%	31,223,842	\$(860,213)	-2.68%
DCB	31,746	100,836	\$98.84	\$-	\$9,966,630	\$9,537,862	\$428,768	4.50%	9,966,630	428,768	4.50%
LRSC	54,480	132,380	\$98.84	\$-	\$13,084,439	\$14,242,152	\$1,157,713	-8.73%	13,672,466	(569,686)	-4.00%
NDSCS	106,401	317,625	\$98.84	\$-	\$31,394,055	\$35,714,792	\$(4,320,737)	-12.10%	2,892,145	34,286,200	(1,428,592)
WSC	37,801	115,583	\$98.84	\$-	\$11,424,224	\$11,286,737	\$137,487	1.22%	11,424,224	137,487	1.22%
DSU	60,000	229,391	\$9260	\$-	\$21,241,607	\$20,242,730	\$998,877	4.93%	21,241,607	998,877	4.93%
MASU	47,249	209,125	\$9260	\$-	\$19,364,975	\$18,679,828	\$685,147	3.67%	19,364,975	685,147	3.67%
MISU	128,850	421,203	\$9260	\$-	\$39,003,398	\$41,206,630	\$(2,203,232)	-5.35%	39,558,355	(1,648,265)	-4.00%
VCSU **	67,531	266,115	\$9260	\$-	\$24,642,249	\$24,161,377	\$480,872	1.99%	24,642,249	480,872	1.99%
NDSU	629,828	2,116,803	\$61.81	\$-	\$130,839,593	\$138,431,325	\$7,591,732	-5.48%	2,054,479	132,894,072	(5,537,253)
UND	630,113	3,375,173	\$61.81	\$-	\$149,310,794	\$150,927,126	\$(1,616,332)	-1.07%	149,310,794	(1,616,332)	0.12%
UND SMHS					\$59,308,649	\$57,446,808	\$1,861,841	3.24%	59,308,649	1,861,841	
UND SMHS-HW					\$10,676,150	\$10,676,150	\$-	0.00	10,676,150	-	
Institution Total	1,933,376	7,601,165			\$551,480,605	\$564,637,572	\$13,156,967	-2.33%	6,089,618	546,894,073	(7,067,349)

BASE BUDGET REQUEST

MINIMUM AMOUNT PAYABLE \$2,054,479

Request to restore NDCC 15-18.2-06, to provide a minimum amount payable of the previous biennium funding. By restoring this section of the code provides additional time for strategic planning and efficient reduction of fixed operational costs. Increased tuition costs for students may result when institutions need to implement cost reductions without time to evaluate the most effective and efficient strategy.

BEHAVIORAL HEALTH INITIATIVE \$1,100,000

This initiative will provide for additional counseling, disability and care team staff in support of outreach and prevention efforts to ensure the well-being of campus students. Request four FTE's \$1,025,000 (estimated salary and benefits) and \$75,000 operating funds.

- One 12-month provider
- One 12-month Disability Specialist Position
- One 10-month Nurse Practitioner for prescribing and medication management
- One 12-month Case Manager for students on Care Team

Additional operating funds to assist with professional development/training (required), educational programming, intern/trainee stipends, software.

IT NETWORK INFRASTRUCTURE \$3,201,100

We are requesting base funding for ongoing research efforts and network infrastructure including continued access to high speed research and education network resources with connectivity, maintain cybersecurity control standards, computational research tools and methods to support cybersecurity, artificial intelligence and quantum computing programming efforts.

- Northern Tier Network-Internet2 Connectivity \$650,000 An independent network that serves research and educational institutions. This network provides direct, and high-speed access to collaborators and government laboratories across the nation that is essential to successful research operations within the state.
- Computational Research \$1,551,100 Hiring experts to support faculty research on existing cutting-edge computational resources, so that most research disciplines can effectively utilize resources available. A small portion of the base funding will be used to support regular maintenance operations on the equipment.

- Cybersecurity Maturity Model Certification (CMMC) \$1,000,000 CMMC is a set of security standards issued by the Department of Defense (DoD) intended to protect Controlled Unclassified Information, which constitutes most information associated with or produced by DoD grants and contracts. The vast majority of DoD grants and contracts in the future will require CMMC level 2 certification.

To meet this requirement, NDSU will be required to implement new infrastructure for desktops, servers, networks, and other information services. Funds will cover additional staffing, equipment, and licensing.

ONE-TIME REQUEST

INFLATIONARY ADJUSTMENT

To assist with retention of faculty and staff increased salaries due to job market (locally and nationally) pressures on wages. And address the loss of purchasing power due to local and national inflationary effects on operating budgets.

NDSU looks forward to working with the Governor and Legislative Assembly to address inflation as part of a statewide plan, request consideration of an increase in the funding formula per credit hour rate for the university system institutions.

STUDENT SHARE OF 2023-25 COMPENSATION PACKAGE INCREASE

College affordability is a significant factor in student access, retention and completion. Tuition and fee rates are a major component of affordability. Any tuition increase, particularly in the current economy, could prohibit students from obtaining the education needed to join the ND workforce.

If funded, this request would replace the need to increase annual tuition for an approximate 65% of the approved compensation package. NDSU is requesting general funds for the student share of the legislatively approved compensation package increase.

REQUEST: ENGINEERING PROJECT

NDSU PRIORITY #1

TOTAL PROJECT ESTIMATED COST: \$111,600,000

STATE GENERAL FUNDS: \$83,700,000 (75%) SPECIAL FUNDS: \$27,900,000 (25%)

BASED ON PERCENTAGE OF COST AS PER NDSU MASTER PLAN SECTION 3: PED: 15% DMP:70% LSS: 15%

MASTER PLAN ALIGNMENT

Engineers and computing professionals are a critical need for the state of North Dakota. They develop new technology to improve our lives and keep our physical and digital infrastructure safe, design and build our roads and cities, create new businesses and jobs, and fill a high-priority workforce need. As a land grant university, engineering education, research and outreach have been part of North Dakota State University's mission since its founding. The subject was listed in the very first university bulletin in May 1892, with the establishment of the Department of Mechanic Arts. Now, over a century later, we have more than 15,000 engineering alumni working regionally, nationally and around the world in every major field of engineering and computer science.

Offering 11 undergraduate degrees (and more than 26 concentrations) in engineering, computer science, and construction management, along with 11 M.S. and 9 Ph.D. degrees in the college's seven academic departments, NDSU's College of Engineering is the largest contributor to the engineering and computer science workforce in North Dakota. The College of Engineering is also the biggest college at NDSU, with more than 2,800 undergraduate and graduate students. Demand for our graduates continues to grow, with nearly 300 regional employers recruiting College of Engineering students at NDSU's Engineering and Technology Expos each year.

The opportunities for engineers, computer scientists, and cyber security professionals in North Dakota and beyond are expected to continue to grow rapidly. For example, the World Economic Forum has reported annual predicted growth rates for 2020-2022 of 41% for Data and Artificial Intelligence and 34% for Engineering and Cloud Computing Professionals.¹ In North Dakota, Engineering (and Architecture) is projected to grow by 1,397 jobs by 2026 and Computer and Mathematical occupational titles will offer 1,403 additional jobs.² In their Long Term Occupational Projections (2016-2026), the Bureau of Labor Statistics forecasts a job increase of 42.9% for cybersecurity (information security analyst), 16.7% for robotics (mechanical engineers), and 12.5% for environmental engineers in North Dakota, all new academic programs that are being developed by NDSU's College of Engineering to meet workforce need and student demand.³

In addition, even though NDSU has more out-of-state students than in-state students, the majority of NDSU's employed graduates takes jobs in North Dakota, contributing to



our growing economy by filling high-skilled jobs.⁴ For every job in engineering or computer science that is filled, 2.94 supplier and induced jobs will be created.⁵ Considering that the ND Job Service Website is currently listing 879 Engineering, Computer Science and Construction Management openings,⁶ an estimate of 2,584 total jobs in ND could be created if we could graduate enough engineers to meet the demand.

The College of Engineering, with its recent addition of new B.S. degree and graduate certificate programs in cybersecurity, is helping to meet a growing need for workforce in the cybersecurity field. The large industry organizations cyberseek.org and isc2.org, conduct survey of job openings and salaries in cybersecurity. Over the course of the 2019 reporting year, in North Dakota alone, there were 701 distinct postings for cybersecurity jobs. During the same reporting year, there were 1,861 people employed in the field in the state, a situation in which the supply of educated workers is very small relative to demand. On the salary side, the U. S. Bureau of Labor Statistics reports that the median salary in North Dakota for cybersecurity analysts is \$98,350. There is also broad consensus that well-educated cybersecurity analytics need considerable hands on experience in laboratory environments, such as those established recently at NDSU, but improved space and infrastructure is needed.

¹ World Economic Forum. "Jobs of Tomorrow: Mapping Opportunity in the New Economy." 22 January 2020.

² 2019 North Dakota Workforce Innovation and Opportunity Act (WIOA) Unified State Workforce Plan.

³ U.S. Bureau of Labor Statistics Occupational Outlook Handbook and Project Central – State Occupational Projections

⁴ 2016-2019 NDSU Undergraduate Regional Employment Profile

⁵ Economic Policy Institute Updated Employment Multipliers for the U.S. Economy Report, J. Bivens, 1/23/19.

SCOPE OF WORK

The project will house engineering, computer science, and construction management teaching and research programs is critical to maintaining and advancing current programs at NDSU. It is also crucial to creating new, future-oriented programs in key areas such as cybersecurity, robotics, artificial intelligence, autonomous systems, machine learning, biomedical engineering, and environmental engineering. These programs are not only important in meeting the current needs of the state of North Dakota, but in addressing the future needs of industry and citizens.

In addition to these areas, space for Agricultural and Biosystems Engineering Department (ABEN) to continue with teaching, extension and research in four major areas:

1. Natural resource engineering with work related to soil, water, and other natural resources.
2. Machinery systems and precision agriculture that focuses on the use of machinery, powered equipment, technology, and computer systems to improve productivity and efficiency.
3. Bioprocess engineering that focuses on the processing and utilization of agricultural and biological materials to develop and improve food, feed, fiber and fuel products and processes.
4. Structures and environment that focuses on construction of structures and providing the appropriate and efficient environment for crop and livestock production, storage, handling and processing.

Enhanced, modern laboratory and fabrication space for this work is vital to enroll, retain and graduate students and enables us to make them more successful for entry into the workforce now and into the future.

Built during the 1950's and 1960's, the complex of buildings that makes up the College of Engineering was designed to accommodate an enrollment of roughly half the current student population. Over the past 50 years, minor expansions and renovations to these buildings have not adequately alleviated the challenges of increased student numbers and an expanding mission. The existing laboratories, which were designed primarily for teaching, now house graduate student and faculty research and student design projects, while continuing to be used for undergraduate education. Quality space availability is now critically low. The college lacks adequate teaching laboratory space, research space, and upper level teaching classrooms. Spaces originally planned to accommodate 20 students in a laboratory environment now have to serve four or five sections of 20 students per week. In addition, they are used for graduate student research projects and serve as the main laboratory for faculty research. In some cases, the college is leasing space off campus because of insufficient space on campus, creating inefficiencies and disruptions to programs.

Classrooms and laboratories have also become outdated for modern engineering and computer science instruction and research. Accreditation visits by the Accreditation Board for Engineering and Technology (ABET) as far back as 2013 have listed facilities as a concern. Accreditors noted that the low

quality and limited space in the college does not meet the current needs of students and their future employers, and that "If program growth continues, the ability of the program to provide an atmosphere conducive to learning will be compromised."

The existing engineering complex offers very limited gathering and work spaces for students. With industry placing greater emphasis on collaboration and teamwork, providing the space to facilitate these interactions is critical to our students' success. Having space for our senior design project teams, study groups, and student competition teams to work together within the engineering complex will help to build a greater sense of community and foster a higher level of interaction among our students. These are all well-established factors for high rates of student persistence, retention and graduation.

In our effort to meet the state's current and future workforce needs, growing enrollment has been identified as a key goal of our new strategic plan. Businesses around the state are continually seeking our engineering, computer science, and construction management graduates, and meeting those demands will require an investment in our infrastructure. By updating our facilities to better focus on key areas such as cybersecurity, artificial intelligence, and robotics, we can position North Dakota as a leader in educating the workforce of the future.

The college's research programs would also benefit from construction of a new state-of-the-art facility. These programs are a key resource for the entire state that create new knowledge, advance technology, and broaden North Dakota's economic base. Providing the space and technology needed to conduct cutting-edge research will allow our faculty to enhance their competitiveness for Federal and industry grants, allow our students the opportunity to be educated using current technologies used by industry, and provide our partners and stakeholders the tools and solutions they need to remain competitive in a global economy.

Our ability to recruit and retain top engineering and computer science students and faculty is also threatened by the lack of facilities. The College of Engineering worked with an outside architectural firm to create a College Master Plan in 2014. The firm examined all existing conditions and evaluated current space needs along with expected growth. The most immediate need identified was the construction of a new building. Since 2014, that need has increased significantly. To continue our success and remain a leader in engineering education, it is vital for us to modernize and expand our building space to meet the needs of our current students and to accommodate future growth. Without an investment in new space for the College, our facilities will continue to hinder our efforts to recruit and retain the next generation of engineering students and faculty and carry out our mission to educate undergraduate and graduate students.

The project will be designed to promote innovation, collaboration, and hands-on learning. Plans will include space for teaching and research labs, classrooms, interdisciplinary

work areas for senior design and student competition teams, and a multi-purpose innovation center aimed at growing entrepreneurial activities among students and faculty.

The innovation center model allows students to assemble, share ideas, learn new skills and prototype new products and technologies. We envision this space as a resource for the entire campus community that will set NDSU apart as a leader in entrepreneurship and innovation in the upper Midwest. By providing a collaborative environment, along with the equipment and training necessary, it will allow entrepreneurs to explore innovative concepts and have access to the tools required to bring their ideas to realization.

This project will also promote collaborative research and foster connections between programs across the college and across the campus. Interdisciplinary collaboration can help make our faculty more competitive in obtaining extramural funding.

Ensuring project spaces dedicated to the above areas would enhance the college, the university, the region, and the state of North Dakota, and would continue our success as a leader in engineering and computer science education and research. The proposed project will serve as the front door to the College of Engineering. With visually appealing architectural features, natural lighting, and modern finishes, and will be a central hub for students, faculty and staff. It will adjoin seamlessly with the other buildings in the complex, tying the college together into one community. In addition, the project will be designed to exemplify an “engineering on display” mentality, with large sightlines and windows into the laboratories, workspaces, and active learning spaces, providing even greater recruiting, outreach, and engagement potential. The innovative facilities will present an outward reflection of the reputation for excellence that our engineering programs have achieved.

Lab and facilities proposed for the building include the following:

- Interdisciplinary Innovation and Fabrication Studio (Makerspace) – flexible workspace for students, providing a showcase for the public to view engineering in action, assisting efforts to recruit the next generation of engineering students
- Advanced manufacturing facility (machine shop)
- Multidisciplinary research laboratories
- College-wide teaching laboratories
- Student-centered active learning and research support space
- Office/administrative/student support spaces
- Improved accessibility

As part of this project, the Engineering Administration Building will be razed. The deferred maintenance of this building exceeds the 65% threshold for demolition. Investigation is still underway for the exact location of the new facility, which could be where the razed building is currently located.

FUTURE OPERATING COSTS

The additional utility costs are estimated at \$125,000 annually.

FURNITURE, FIXTURES, AND EQUIPMENT

FF&E would be funded from various sources including private, grant, local and operating funds.

SHARED SERVICES / EFFICIENCIES / PHASING – PLANNING:

As indicated in the previous information, a new facility dedicated to the above areas would enhance the college, the university, the region, and the state of North Dakota, and would continue our success as a leader in engineering and computer science education and research. The project will also promote collaborative research and foster connections between programs across the college and across the campus. Interdisciplinary collaboration can help make our faculty more competitive in obtaining extramural funding. It would also allow us to relocate the Department of Agricultural and Biosystems Engineering (ABEN) into the main engineering complex. The proposed project will provide space to bring the students, faculty and staff from ABEN physically into the engineering complex, bringing together all six academic departments within the College of Engineering. This move will also allow us to better showcase the educational opportunities in ABEN to prospective students during campus visit events in situations where time has not previously allowed for movement between the engineering complex and the ABEN building.

Enrollment growth in the College of Engineering continues to flourish without a corresponding increase in necessary facility space. As indicated, the deferred maintenance cost for Engineering Administration and for ABEN exceeds the sixty-five percent replacement value threshold that warrants demolition. Therefore, all of Engineering Administration and ABEN were programmed into a new facility and the remaining ABEN functions were relocated to other spaces on campus.

A shortfall in the existing complex is accessibility. Since only two of the seven buildings have elevators, this proposed project was designed to attach to both EE and CIE to improve the accessibility of these buildings. Valuable program space would also be retained in the existing structures by having the elevator located in the new facilities.

REQUEST FOR AUTHORIZATION: MUSIC BUILDING ADDITION/RENOVATION

TOTAL PROJECT: \$20,000,000

PRIVATE DONATIONS: \$18,000,000

DEFERRED MAINTENANCE MATCHING FUNDS: \$2,000,000

BASED ON PERCENTAGE OF COST AS PER NDSU MASTER PLAN SECTION 3: PED: 85% DMP: 10% LSS: 5%



MASTER PLAN ALIGNMENT

Over the past 18 years, the Challey School of Music has become the destination program for music training in our region, offering degrees from bachelors through doctorates, serving a population of about 160 music majors. It provides the region with outstanding K-12 music teachers and the nation's universities with excellent professors in performance and conducting. While several of our regional competitors' music programs have diminished in size and scope, the Challey School of Music has grown, quadrupling the number of majors and greatly expanding the breadth of programs. Hundreds of students, faculty, and staff utilize the Reineke Fine Arts Center each day, and thousands of people attend campus and community events in the performance spaces each year.

The School and its continued growth are vital to the region and the nation because of these things; however, adequate space for rehearsals, classrooms, technology, and performances are a major challenge impeding this progress.

SCOPE OF WORK

Music building is a 96,886 square-foot building that was constructed in 1982. While the overall building is in good shape, many of the spaces lack adequate acoustical characteristics that are essential to the program. The building is deficient in other areas, as well:

- The band room is too small to hold the entire marching band simultaneously.
- Rehearsal spaces are inadequate in both size and quantity.
- Graduate student spaces, not previously designed in the original building, are in high demand.

This project will create an addition for spaces that aren't feasible in the current building. The exact size is yet to be determined but could be in the 12,000 square foot range. Some of the existing spaces will be repurposed, renovated or improved for the performance of the space. There are also plans to improve one of the entrances for better accessibility and as a more prominent feature.

Besides the programmatic improvements to the building, various deferred maintenance items will be addressed at the same time.



REQUEST FOR AUTHORIZATION: SUDRO HALL SMALL ANIMAL RESEARCH FACILITY EXPANSION AND RENOVATION

TOTAL PROJECT ESTIMATED COST: \$3,000,000

SPECIAL FUNDS: \$3,000,000 (100%)

BASED ON PERCENTAGE OF COST AS PER NDSU MASTER PLAN SECTION 3: PED: 90% DMP: 5% LSS: 5%

MASTER PLAN ALIGNMENT

The Department of Pharmaceutical Sciences' mission is to teach pharmacists how basic science is applied to the profession of pharmacy. In addition to teaching professional (Pharm.D.) students, the department has M.S., Ph.D., and Pharm.D./Ph.D. graduate programs and participates in a multidisciplinary Ph.D. program in Cellular and Molecular Biology. The department faculty are greatly contributing to the research mission of NDSU which recently was designated an R1 research institution by the Carnegie Classification of Institutions of Higher Education. Over the past five years, the College of Health Professions has procured a total of more than \$38.6M in highly competitive research grant funding from various federal sources. The long-term plan of the department is to continue to grow its research success to create new drug discoveries that improve human health and help NDSU sustain its prestigious Carnegie R1 national ranking. The future research success of the department, however, is heavily dependent on faculty access to a contemporary small animal research facility to conduct animal studies. Given the increased funding from NIH and potential for exponential growth in future research funding, the current small animal research facility in Sudro Hall is inadequate in size and scope to accommodate the anticipated research growth of the department. Without a major expansion of the current small animal research facility, the future growth of research within the department will be greatly hindered. We believe renovation and expansion of the Small Animal Research Facility located in Sudro Hall are warranted in order to conduct the biomedical research safely and effectively and accommodate the growing research needs of the pharmaceutical sciences department at NDSU.

Once Aldevron Tower was finished, space became available in Sudro for other activities. With space opening up, an opportunity presented itself to expand the small animal research facility. Although a minor renovation to the animal research facility in Sudro Hall was completed in 2016, an expansion is needed to help support research activities.

SCOPE OF WORK

The current animal facility will be upgraded to include more animal chambers, behavioral research rooms, surgical space with imaging equipment, animal breeding space, and additional support spaces. Mechanical, electrical, and other associated components of the current animal research facility will be addressed as needed.





NDSU NORTH DAKOTA STATE UNIVERSITY

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