NDSU NORTH DAKOTA STATE UNIVERSITY

2014 Campus Master Plan Revision

The purpose of a physical master plan is to provide guidelines for the physical development of the campus in order to support the unique academic mission of the institution. The physical master plan should be a physical reflection of the strategic direction being taken by the institution and, therefore, should follow the institution's mission and goals. The physical master plan should also reflect historic development and traditions and geographic and community setting

STUDENT FOCUSED LAND GRANT RESEARCH UNIVERSITY

2014 NDSU CAMPUS MASTER PLAN

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North Dakota State University

2014 Campus Master Plan Revision

North Dakota had been a state less than a year when Gov. John Miller signed a bill on March 8, 1890, designating a square mile of land adjoining Fargo as the site of the new campus and demonstration area under the name North Dakota Agricultural College and Agricultural Experiment Station.

North Dakota State University, the state's first land-grant institution, is well positioned to prepare graduates for the global marketplace and technologically oriented economy. Through a statewide network of centers and electronic technology, NDSU provides a growing capability for delivering education, cultural activities and information to schools and homes throughout North Dakota. North Dakota State University is a publicly supported comprehensive land-grant institution, with a strong agriculture and applied science tradition.

Act	Date	Established
Morrill Act	1862	Land Grant Universities
Hatch Act	1887	Ag Experiment Station
Smith-Lever Act	1914	Extension Service

Section I - Background

History of the institution that has shaped the educational and physical form of the campus and will influence its future

History of the Institution

On March 2, 1890, North Dakota Agricultural College (NDAC) was established as North Dakota's land-grant institution by the State's first legislative assembly under the provisions of the Morrill Act of July 2, 1862. Also that year, the Agricultural Experiment Station was organized in connection with NDAC. Discussion began on the location for an agricultural college as early as 1883, and in January 1889, the Constitutional Convention made the decision to locate the college in Fargo, North Dakota. The function of non-resident teaching, or Extension Service, was added to the college in 1914 with Congress' passage of the Smith-Lever Act.

Thirty students were enrolled in the first class – a winter short course in agriculture – held at NDAC in January, 1891. Studies in both agriculture and "traditional" courses then followed, and mechanic arts (engineering) and home economics were offered the following year. Five professors were hired to teach the courses. This first faculty group consisted of young professors who had gained notability in their respective fields and were hired from other land-grant institutions. They were: Dr. H. E. Stockbridge, the first president/director of the Experiment Station; C. B. Waldron, professor of arboriculture and the first professor to arrive at the college; H. L. Bolley, professor of botany and zoology; E. F. Ladd, professor of chemistry; and T. D. Hinebauch, professor of veterinary science.

The first classes were taught in a set of rented rooms in the basement and on the main floor of the Fargo College. By 1892, College Hall (the current "Old Main" administration building) provided the space for all academic activities. Located on the first floor of the building was the library, a botany-zoology laboratory, and the president's office – in the tower area as it is today. A chemistry laboratory occupied the basement level, and the uncompleted upper floor was used as a student/faculty gymnasium. In addition to College Hall, the campus included a heating plant, a greenhouse, and a farm consisting of a house and barns.

The Graduate School awarded its first degree in 1899 but master's degrees were not given regularly until 1921. Then, in 1959, the university received authorization to grant Ph.D. degrees in the areas of chemistry, pharmacy, plant science, animal science and entomology.

The institution was known as North Dakota Agricultural College until 1960 when a constitutional amendment, approved by the voters of North Dakota on November 8, changed the name to the university's present title – North Dakota State University of Agriculture and Applied Sciences, or NDSU. Today's campus consists of 100+ major buildings located on 41 city blocks. Over 14,000 students prepare for careers in more than 100 undergraduate and graduate programs of study within nine academic colleges. The same five graduate degrees that were offered in 1959 are offered yet today and are included with 44 doctoral programs, three professional doctoral programs, 66 master's programs, 16 certificate programs, and one specialist program.

Important Dates in NDSU History

March 8, 1890	State's first land-grant university established – North Dakota Agricultural College (NDAC)
October 15, 1890	NDAC organized for educational work
September 8, 1891	NDAC opened in rented rooms in Fargo College
June 25, 1895	First graduating class awarded Bachelor of Science degrees (five graduates)

Year	Event
1917	Newly organized schools added: *Agriculture, Chemistry and Pharmacy, Education, Home Economics, Mechanic Arts, Veterinary Medicine and Surgery;* group of applied sciences also added
1953	Graduate School established
1959	Ph.D. programs established: *Plant and Animal Science, Pharmacy, Entomology, and Chemistry*
1963	Bachelor of Arts and Master of Arts degrees offered; Doctor of Philosophy (Ph.D.) degrees awarded: *Agronomy and Entomology*
1965	Associate degrees granted
1967	Tri-College University established (NDSU, MSU-M, Concordia); Upper Great Plains Transportation Institute established
1971	Development Foundation created; NDSU-Bottineau Branch established (until 1996)
1983	Northern Crops Institute organized
1986	NDSU Research Foundation incorporated
1990	NDSU's centennial celebrated
2000	NDSU Research and Technology Park groundbreaking ceremony held
2004	Student enrollment exceeded 12,000 mark; NDSU Downtown Campus dedicated
2006	Ten year re-accreditation received (North Central Association of Colleges and Secondary Schools)
2012	Named to the elite "Research University/Very High Research" category by the Carnegie Commission on Higher Education.
2014	Captured NDSU's third consecutive (Back-to-Back-to-Back) FCS national football championship in January, ending a perfect season with a 15-0 record.

NDSU's Agricultural Research Extension Branch Centers were established in:

1903 Edgeley
1905 Dickinson
1907 Williston
1909 Hettinger, Langdon
1945 North Central (Minot)
1960 Carrington
1969 Edgeley station closed
1977 Central Grasslands (Streeter)

18,488 acres of Experiment Station land today

Purpose and Mission

The "First Annual Catalogue" of the university defined the character and design of the institution, as well as its objective at that time: ""The design of the institution is to afford practical instruction in agriculture and the natural sciences connected therewith, and also the sciences which bear directly upon all industrial arts and pursuits".... Further, "the object of this institution is not the making of farmers, but rather the making of men and women, and then so to equip them that, if their inclinations draw them toward the farm, their efforts there may be reasonably expected to be attended by success. It is not the intention, however, to limit or restrict the capabilities of students, and while the curriculum is made sufficiently rigid to enforce the principles on which the work of the institution is founded, abundant scope is given by means of electives for the display of individual preferences and the development of personal abilities." *(University Archives)*

Traditionally, land grant universities have three principal responsibilities:

Teaching: Instructional programs are designed to educate students in ways that equip them to become skilled practitioners as well as knowledgeable, analytical and concerned members of society.

Research: Both basic and applied research are conducted at NDSU, as well as creative activity in the arts and humanities. Scholarly inquiry in all units seeks to broaden basic knowledge.
Public Service: Through wide-ranging programs in Extension Service, continuing education, library services, cultural and entertainment programs, NDSU makes its resources available to a very large segment of the state's population. And finally, the University has a widely diversified state economy, one able to play a significant role within the regional, national and international marketplace.

NDSU's mission has evolved but still embodies the basic functions of education, research and extension/public service.

Mission

With energy and momentum, North Dakota State University addresses the needs and aspirations of people in a changing world by building on our land-grant foundation.

Vision

We envision a vibrant university that will be globally identified as a contemporary metropolitan land-grant institution.

Core Values

NDSU is guided by the following key values and principles:

Land-Grant

We reflect and serve geographically and culturally diverse populations. We share institutional success across the university. We anticipate and welcome growth and service that will occur in ways yet to be conceived. We embrace our unique complexities as a land-grant university on the Northern Great Plains. We remain committed to serving people globally.

People

We derive strength and vitality from each other and from the diverse communities we serve. We care about the current and future welfare of our students, staff, and faculty. We promote excellence through individuals participating in decisions and value cooperation for the common good.

(Added in 2009)
We envision an academic and social environment that is conducive to intellectual and personal development by promoting the safety and welfare of all members of the university community.

Scholarship

We are an engaged university and acknowledge and pursue scholarship of all forms, including discovery, teaching, integration and application. We uphold the rights and responsibilities of academic freedom.

Teaching and Learning

We provide a superior teaching and learning environment within and outside of the traditional classroom. We promote and value liberal, graduate and professional education in a collegial environment where divergent ideas can be shared. We foster an environment that promotes life-long learning with individually defined goals.

Ethics

We maintain our integrity through principled action and ethical decision-making.

Culture

We will be the land-grant university that we want to be by welcoming and respecting differences in people and ideas. We support the goals of the North Dakota University System and value collaboration with colleges and universities around the world. We foster accessibility to our programs and services.

Accountability

We have a special relationship with, and are accountable to the people of North Dakota. We actively strive to contribute to our region's economic prosperity and to improve the quality of life.

Campus Themes (2000 - 2011)

It's About People

North Dakota State University exists as a human endeavor, a means to accomplish a greater good. *It's*

About People, acknowledges the service we do for our fellow citizens, but also emphasizes the institutional commitment to the people of North Dakota State University and our desire to reward those whose efforts are serving the public's interests.

Students are Paramount

In recent years, NDSU has seen tremendous growth in the size of our student body from some 9,700 students in 1999 to our goal of more than 12,000 students. NDSU's growth is grounded in the strength of our existing programs and fueled by the strategic addition of new programs. Undergraduate education remains the foundation of our educational offerings while new graduate programs are retaining and keeping young people in the state. NDSU students are active partners in our institutional transformation.

Programs

In these past few years, we have successfully launched many new undergraduate and graduate programs. Total doctoral enrollment has risen from about 150 to 500 students. We have reinforced the integrity of NDSU's academic offerings by emphasizing our faculty's expertise in research and creative activities while maintaining our focus on teaching and learning.

Leveraging Support

NDSU's growth is a major contributor to the state's economy. The direct economic impacts of NDSU growth in Fiscal Year 2000 was about $14 million and by Fiscal Year 2005 grew to more than $105 million. Over the past five years, the State of North Dakota has increased state appropriated support of NDSU by $45.2 million. The University has leveraged those state resources by securing $433 million from other sources. Thus, for every additional dollar of state support, we have obtained roughly $9.60 of additional funds. In total, the impact of NDSU's growth over the last six years exceeds $1 billion.

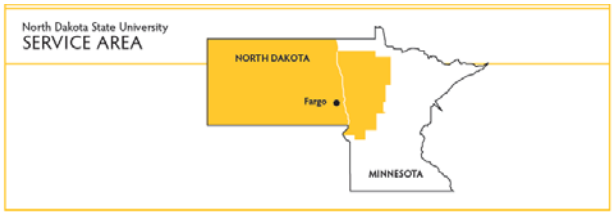
Leveraging Support (Updated in 2009)

NDSU has responded to the opportunities allowed by the Roundtable for Higher Education and the aspirations of the North Dakota University System. For example, for every dollar of state support, NDSU has obtained nearly $10 in other funds. The economic impact of just the university's growth during the past 10 years is nearly $1 billion. NDSU's transformation into a leading academic institution received significant acknowledgement, as recognized by Moody's *Economy. com* in describing NDSU as an important driver of the state's economy. A recent Moody's report stated, "In the longer term, (increased state) funding will provide better resources for students and thereby enhance ND's human capital."

Leveraging Support (Updated in 2014)

NDSU plays a significant role in the local economy and is a sound investment from multiple perspectives:

- Students benefit from improved lifestyles and increase earnings, enjoying an attractive 14.4% average rate of return on their NDSU educational investment, recovering all costs (including tuition, fees and foregone wages) in 10.6 years.
- Taypayers benefit from a larger economy and lower social costs, seeing a rate of return of 3.1% on their investment in NDSU.
- Finally, the community as a whole benefits from increased job and investment opportunities, higher business revenues, greater availability of public funds and an eased tax burden. The net added income generated by NDSU operations ($201.2 million) and the spending of non-local students ($25.1 million) and visitors ($2.9 million) contributes a total of **$229.2 million** in income to the NDSU Service Area economy each year.
- NDSU skills translate to higher earnings for students and increased output of businesses. The added regional income attributable to the productivity of NDSU'S students in the workforce amounts to around $655.4 million each year.



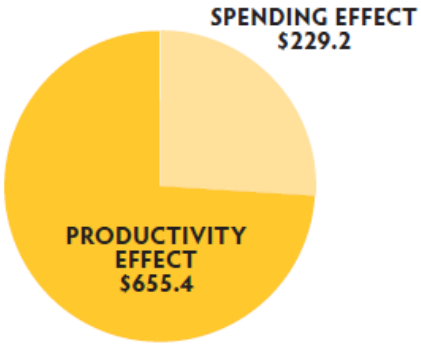
EMSI, November 2012

NDSU Economic Impact Analysis
AT A GLANCE

ADDED INCOME	
University operations effect	$201,175,960
Student spending effect	$25,079,370
Visitor spending effect	$2,925,400
Total spending effect	$229,180,750
Student productivity effect	$655,409,100
GRAND TOTAL	$884,589,840

Numbers may not add due to rounding.

Total Added Income in NDSU Service Area Due to NDSU ($ Millions)



EMSI, November 2012

Stature

NDSU is experiencing a period of remarkable success. Few universities have experienced our growth in enrollment, research expenditures, program expansion, or growth in campus infrastructure in such a short time. Our faculty, staff and students have seized upon an opportunity to be more and have catapulted this university forward. NDSU's institutional stature also is being increased through a very successful transition in intercollegiate athletics to Division I. We are increasing awareness of our state and representing North Dakota with pride and competitive excellence.

Student Focused/Land Grant/Research University (2011 -)

STUDENT FOCUSED | LAND GRANT | RESEARCH UNIVERSITY

North Dakota State University is a student-focused, land-grant, research university – an economic engine that educates students, conducts primary research, creates new knowledge and advances technology. The university provides affordable access to an excellent education at a top-ranked research institution that combines teaching and research in a rich learning environment, educating future leaders who will create solutions to national and global challenges that will shape a better world.

Student Focused

- Teaching and research engage and involve students in an immersive learning environment
- Academically rigorous programs set in rich diverse, supportive community
- Ninety-six percent of students full time, on campus
- Courses taught to highest standards by highly qualified faculty, researchers and national experts
- Faculty and staff focused on student success and on-time graduation
- Graduates compete successfully, nationally and globally
- Strong work ethic drives students, faculty and staff

Land Grant

- Combines access with affordability in academically rigorous, demanding environment
- Creates solutions to ever-changing real-world problems
- Attracts and retains intellectual capital that benefits state, nation and world
- Distributes knowledge into the community via Extension Service
- Forges meaningful, productive, collaborative relationships with business, industry, non-profits, government and local and regional communities

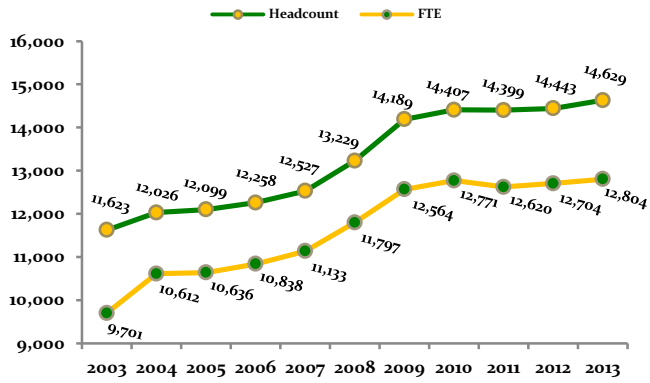
- Promotes faculty and student engagement in community service that enhances the public good
- Creates opportunity for advancement and success of state's citizens in the 21st century

Research University

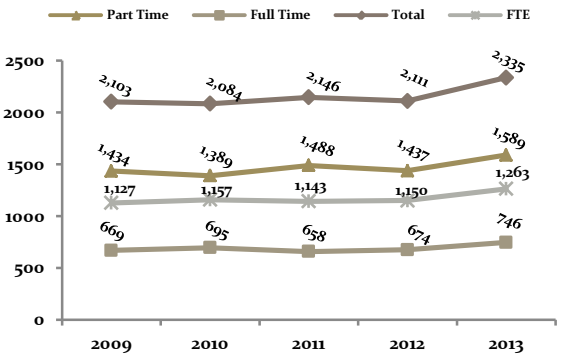
- Graduate and undergraduate students directly involved in world-class research
- Top researchers in their disciplines teach students
- Combines intellectual capital, resources and vision, where ideas become opportunities
- Attracts new undergraduate, graduate and doctoral students, researchers and revenue to state and region
- Creates intellectual property, which creates new business opportunity and jobs
- Broadens economic base of state and region

Enrollment Growth

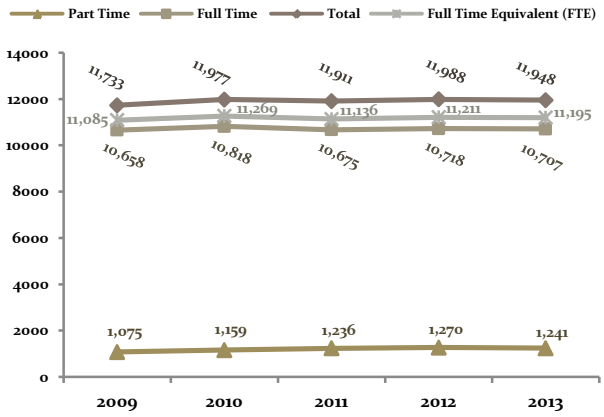
Total Enrollment (Headcount & FTE)



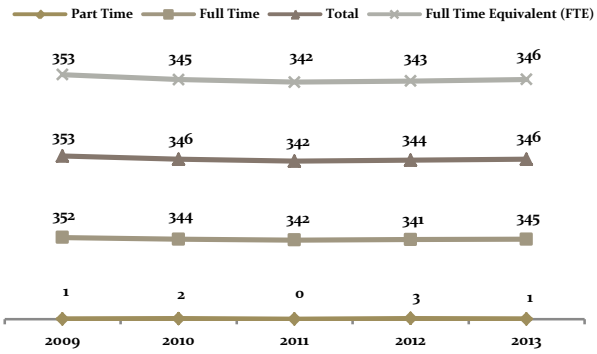
Graduate Enrollment (Headcount & FTE)



Undergraduate Enrollment (Headcount & FTE)



Professional Enrollment (Headcount & FTE)



On/Off-Campus Enrollment

Fall	2009	2010	2011	2012	2013
On-Campus	13,602	13,798	13,653	13,649	13,672
Off-Campus	587	609	746	794	957
Total	14,189	14,407	14,399	14,443	14,629

Vicinity

The university owns about 2,500 contiguous acres located north and west of the intersection of North University Drive and 12th Avenue North (the originating point of the original 640 acre land grant college). The present campus consists of 400 acres on the main campus and an adjacent 2,100 acres of the NDSU Agricultural Experiment Station. The 19th Avenue North boundary of the main campus is the site of the Fargo Dome, the NDSU Research and Technology Park and the south boundary of Hector

International Airport. The NDSU Agricultural Experiment Station acreage is bisected by Interstate Highway 29 and includes six interstate corners, four at the intersection of 19th Avenue and two at the intersection of Cass County Highway 20.

Nineteenth Avenue North and 12th Avenue North provide excellent access to the campus from Interstate 29. Access from south Fargo is via the one-way pair of 10th Street North and University Drive. The one-way pair tends to result in unwanted vehicular traffic and parking within the adjacent residential neighborhoods. Eighteenth Street North on the west edge of the campus, which connects 12th and 19th Avenues North, provides improved access from the west and diverts non-university traffic around the campus proper.

Undeveloped land at the interstate interchanges and along 19th Avenue provides opportunities for public/private partnerships which are mutually beneficial to area developers and the university community or public/public partnerships which are mutually beneficial to area governmental units and the university community. Stewardship of the perimeter campus resources requires adherence to planning principles, which are compatible with the long-term objectives of the university and the diverse scale of existing development including the Fargo Dome and University Village.

Public/private partnerships include the development of a commercial strip mall on 19th Avenue North between University Drive and 10th Street North, a Research and Technology Park along 18th Street between 17th and 19th Avenues North and, at one time, the purchase and renovation of a former K-Mart building north of 19th Avenue North for a Skills and Technology Training Center that is now owned by NDSCS Foundation.

The university expanded its traditional campus borders with the addition of three buildings in downtown Fargo. Renaissance Hall, the former Northern School Supply building, was dedicated in 2004 and houses the NDSU Visual Arts department and the offices of Tri-College University. In 2008, the former Lincoln Mutual Life and Casualty Insurance Company building was dedicated as Klai Hall and became the home to the Department of Architecture and Landscape Architecture. To complete the trio of buildings, Barry Hall (formerly the Pioneer Mutual Life Insurance Company building) was dedicated in 2009. Occupants of the facility include the College of Business, the department of Agribusiness and Applied Economics, the North Dakota Extension Service and the North Dakota Trade Office along with a small bookstore, an ITS Help Desk, Bison Connection, a coffee shop, and a reading lounge. The three buildings expanded NDSU's presence downtown, strengthened the town-and-gown relationship and provided the university with much needed classroom, lab and office spaces.

Master Planning Efforts

Previous master plans were prepared for campus development in:

1890 – A.W. Spaulding

1915, 1921, 1938, 1947 – Morell & Nichols

1964 – Harland Bartholomew & Associates

The North Dakota State Board of Higher Education recognized the need for a comprehensive study and campus master plan for the physical plants of the two universities and the six colleges in the system covering a ten-year period from 1962 to 1972. For this purpose, NDSU retained the firm of Harland Bartholomew and Associates of Washington, D.C. in October, 1962, to provide advice and counsel on the planning and development of the University.

Under the agreement, the Consultant would survey, study, and analyze existing data and facilities and prepare a master plan for campus development. More specifically, the Consultant would prepare a map of the existing campus, and record, analyze, and project data on enrollment, teaching loads, and research activities.

The University provided the Consultant with maps of the campus, plans of the existing buildings, an inventory of building space and space use, and teaching load statistics. A campus plan was then prepared based on projected enrollment, teaching loads, recommended standards, and future space needs.

According to the 1964 NDSU Campus Master Plan, the objectives of the report were to "develop, from the educational programs of the University, data concerning the building space and land required to serve as a basis for campus layout and for the architecture and engineering planning of the buildings and services [that] may be required for the instructional and research programs and administrative organization for the projected enrollment.....through 1972." The report contained detailed predictions for academic space needed by then and also estimated the space required for other functions, such as the library, general administration, physical plant services, and housing.

1978 – NDSU Faculty Senate: Plan for Campus Development

The Faculty Senate approved the *Principles and Guidelines for Campus Development* and the *Procedures and Committees for Campus Development* as a policy for "flexible, but orderly, development within an overall framework" for the campus on February 13, 1978. The group believed that the effectiveness and success of the policy depended on open and regular communication among officials and committees and on timely participation by the campus community as a whole.

The Senate's guiding principle was that the physical development of the campus depended upon the University's academic goals, objectives and policies as well as its public service activities. It should also take into consideration physical factors such as climate, topography and geographic relationships to the surrounding area, as well as respond to social/recreational/extra-curricular activities and traffic/parking needs.

The plan designated three committees to oversee campus development:

- Project Committee – charged with insuring that projects satisfied specific requirements of users and corresponded to the resources of the University. Members of the committee were appointed by the President to advise him for the duration of the planning and construction of each project and included the administrator(s) of the college(s), department(s), division(s) or agencies that would use the project; student(s) representing the academic, service or activity area; a member of the Campus Committee; the Vice President for Business and Finance (ex-officio); the superintendent of the Physical Plant (ex-officio); and representatives of related fields and relevant interests in the project.
- Campus Committee – charged with providing broad-based participation in decisions that related to the general interests of the University

community and the campus physical environment. Members were appointed by the Faculty Senate as prescribed by the Senate's constitution and bylaws.

- Physical Facilities Committee – advised the President on all matters of campus development and reviewed recommendations of the Project and the Campus Committees. Its membership was comprised of all University vice presidents, the chairman of the Campus Committee, the superintendent of the Physical Plant, and the chairman of the Department of Agriculture.

The Physical Facilities Committee and the Campus Committee were charged with the task of reviewing and updating the plan's development every fall of the odd-numbered calendar years.

1994 – Image Group Architecture & Interior Design, Richard Moorhead, Project Manager (Consultant) and NDSU Facility Master Plan Committee: Andy Keogh, School of Education, Committee Chair; Rurik Ekstrom, Architecture; Dennis Gilbertson, Physical Plant; Donald W. Hanson, Agricultural Experiment Station; Abel Moreno, College of Business Administration; Mark Puppe, Student; Herb Smith, Veterinary Science; Val Tareski, Electrical Engineering; Terry Wieland, Network Services

The planning effort for the document began with an in-depth analysis of the existing campus and its historic patterns of growth, as well as an analysis of campus master plans previously prepared for the University. This analysis was followed by an assessment of the University's needs and the opportunities that these needs represented for the future development of the campus. Instead of presenting specific solutions for particular needs, the planning committee elected to investigate a broad range of issues that could define principles for meeting a variety of planning objectives.

The objectives for and the principles of the plan were identified by a participatory process that included over 30 meetings and open campus forums, twice weekly meetings of the Facility Master Plan Committee, and solicited campus input from sources including the North Dakota State Census Data Center, NDSU Physical Plant, Housing, Athletics, and Administration.

While the NDSU Facility Master Plan included an "Illustrative Plan" that suggested one of many possible interpretations of the plan's objectives and principles, the committee felt that it was important for users to focus on the understanding of the plan's decision matrix process. The matrix was a summary of planning objectives and related planning principles for the elements of circulation, land use, and infrastructure. Planning decisions were to be evaluated by reviewing each proposed action to determine compliance with the planning objectives and principles from each area. Multiple correct choices were possible for each planning decision, with the best choice being determined by the campus planners on the basis of program, economic and political conditions at the time of implementation.

1996, 1998 – Revisions to the 1994 Campus Master Plan (NDSU Campus Planning Subcommittee): Dennis Colliton, Architecture/Landscape Architecture, Committee Chair; Thomas Buckhoff, College of Business Administration; Dennis Gilbertson, Physical Plant; Donald W. Hanson, Agricultural Experiment Station; Mort Sarabakhsh, Food & Nutrition; Beverly Trittin, Upper Great Plains Transportation Institute; Thomas Topero, Student

The same guiding principles and objectives used for the 1994 Facilities Master Plan were applied to the 1996 and 1998 revisions of the plan. The revisions removed references to projects already completed.

2000 – NDSU Faculty and Staff Task Force: Donald W. Hanson, Agricultural Experiment Station, Committee Chair; Richard L. Rayl, Vice President for Business & Finance; Virginia Lepage, Business & Finance; Cheryl Cicha, Physical Plant; Mark Dahl, Physical Plant; Gina Haugen, Business & Finance; Kilian Ottman, Physical Plant

2002, 2004, 2006 – Revisions to the 2000 Campus Master Plan (NDSU): Richard L. Rayl, Vice President for Business & Finance; Gina Haugen, Business & Finance; Cheryl Cicha, Physical Plant/Facilities Management; Mark Dahl, Physical Plant/Facilities Management; Bruce Frantz, Physical Plant/Facilities Management; Donald W. Hanson, Agricultural Experiment Station; Broc Lietz, Interim Vice President for Business & Finance; Kevin Matheson,

Agricultural Experiment Station; Killian Ottman, Physical Plant/Facilities Management; Trinka Rogne, Facilities Management

The 2000 Campus Master Plan and its 2002, 2004, and 2006 revisions incorporated the introductory information (Part 1 – Background) from the Master Plan prepared in 1994 as the goals and decision procedures for NDSU's long range campus planning. Each revision removed references to projects completed during the previous biennium and updated current pertinent information, such as campus maps, so that the plan would remain up to date. Each revision also incorporated information requested by the NDUS Office for consideration in the biennial budget process.

2008 – JLG Architects/Sasaki Strategies, Joel Davy, Project Coordinator (Consultants) in cooperation with: John C. Adams, Vice President for Finance & Administration; Gina Haugen, Finance & Administration; Bruce Frantz, Facilities Management; Mark Dahl, Facilities Management; Chris Hamre, Facilities Management; Bruce Bollinger, AES Budget Director; Kevin Matheson, Agricultural Experiment Station

The 2008 Campus Master Plan effort has been more extensive than in the past several years. More emphasis has been placed on visioning for the future of NDSU and how the University will meet space and other needs as it continues its journey to the "next level." The consultants, JLG Architects and Sasaki Strategies, were hired to develop concepts and guidelines for future growth and expansion of the campus to include future academic and research programs, space utilization, site analysis, facility and deferred maintenance inventories, etc. Representatives of the firms met, and will meet, with campus faculty, staff, administration and students, Research and Technology Park personnel, the City of Fargo Planning Commission and the Roosevelt Neighborhood Association to gather data for their report. In conjunction with the Campus Master Plan, Sasaki Strategies will complete a financial model for the University to help align the University's financial strategies with plans for program growth and realignment and capital improvements. This will allow NDSU to develop a fully integrated approach to master planning in the future.

2010 – Revisions to the 2008 Campus Master Plan (NDSU): NDSU President's Cabinet; John C. Adams, former Vice President for Finance & Administration; Bruce Bollinger, Vice President for Finance & Administration/AES Budget Director; Gina Haugen, Finance & Administration; Bruce Frantz, Facilities Management; Chris Hamre, Facilities Management; Kelly Summers, Facilities Management; Kevin Matheson, Agricultural Experiment Station

The 2010 Campus Master Plan effort updates information that changed since the 2008 Campus Master Plan and removes references to projects completed during the previous biennium. It also incorporates information requested by the NDUS Office for consideration in the biennial budget process. However, the same guiding principles and objectives used for the 2008 plan were applied to the 2010 revision.

2012 – Revisions to the 2010 Campus Master Plan (NDSU): NDSU President's Cabinet; Bruce Bollinger, Vice President for Finance & Administration; Gina Haugen, Finance & Administration; Michael Ellingson, Facilities Management; Chris Hamre, Facilities Management; Kevin Matheson, Agricultural Experiment Station

The 2012 Campus Master Plan effort updates information that changed since the 2010 Campus Master Plan and removes references to projects completed during the previous biennium. It also incorporates information requested by the NDUS Office for consideration in the biennial budget process. However, the same guiding principles and objectives used for the 2008 plan were applied to the 2012 revision.

2014 – Revisions to the 2014 Campus Master Plan (NDSU): NDSU President's Cabinet; Bruce Bollinger, Vice President for Finance & Administration; Gina Haugen, Finance & Administration; Michael Ellingson, Facilities Management; NDSU Planning Department; David Ruhland, Ag Budget Office, Kevin Matheson, Agricultural Experiment Station

NOTE: The NDUS, as part of the legislatively mandated system wide master plan process, hired an outside consultant to assist with the master planning process during CY2014. Therefore, the 2014 Campus Master Plan effort is being handled as an update instead of developing new plans. Development of a new master plan will wait until after recommendations and any corresponding changes in plan content and process have been received from the consultant, Paulien & Associates,

The 2014 Campus Master Plan effort updates information that changed since the 2012 Campus Master Plan and removes references to projects completed during the previous biennium. It also incorporates information requested by the NDUS Office for consideration in the biennial budget process. However, the same guiding principles and objectives used for the 2012 plan were applied to the 2010 revision.

Recent Accomplishments

2008

North Dakota State University has experienced almost unprecedented growth in many areas during the past few years. Enrollment has increased from approximately 9,000 students to over 12,500, resulting in seven consecutive years of record enrollment. Research expenditures have risen from $50 million in 2000 to $103.8 in 2006. Since fall of 2000, NDSU has added 22 new doctoral degrees and 14 new masters degrees contributing to the 68 Ph.D.'s granted to students from 24 departments at the May 2007 commencement. The $75 million Momentum Campaign ended in October 2007 with gifts and pledges totaling more than $108 million, culminating in $41 million for scholarships, $12 million for teaching, and another $12 million to support other campus needs.

NDSU has successfully risen to the challenge put forth by President Chapman when he became the 13th President of the University in 1999. He challenged the campus to become a national model of an engaged university, asking each campus unit to define a "next level" and move toward that goal. Throughout this period, campus facilities have also risen to the "next level".

The following projects were completed in the 2007-2009 biennium:

Major Capital Projects

- Wellness Center Addition
- Memorial Union Addition & Renovation
- Living Learning Center – West
- Material Handling Facility (Phase I)
- NCREC Agronomy Lab & Greenhouse
- Klai Hall
- R.H. Barry Hall
- CREC, HREC, NCREC Headquarter Additions
- Ceres Hall Renovation - Phase I
- AES Beef Research Facility

Major Infrastructure Repairs/Changes

- Miscellaneous Parking Lot Repairs
- Thompson/Sevrinson/Seim Hall Sprinkler Systems
- WDC/Residence Hall Chiller Replacement
- 17th Avenue Renovation
- Reinecke Fine Arts/Askanase Hall Safety Projects
- Underground Steam and Condensate Lines
- Miscellaneous Roof Repairs/Replacements
- Miscellaneous Classroom Lab Remodels/Upgrades

Other Major Accomplishments

- Center for Technology Enterprise - Research Park
- Dakota Coteau
- UGPTI Center for Transportation Studies
- NDAES Research Greenhouse Complex

2010

North Dakota State University has experienced almost unprecedented growth in many areas during the past few years. Enrollment has increased from approximately 9,000 students to over 14,100, resulting in nine consecutive years of record enrollment.

Research expenditures have risen from $50 million in 2000 to more than $115 million in 2008. For FY 2008, NDSU reported an estimated $115.5 million in research and development activities. The University

is listed in the top 100 of several National Science Foundation (NSF) annual research expenditure rankings in the areas of chemistry, physical sciences, agricultural sciences and social sciences (FY2007). NDSU ranks 41st out of 537 research universities without a medical school.

NDSU offers 44 doctoral programs, 63 master's programs, one Educational Specialist degree, and ten certificate programs that contributed to the 78 professional, 187 graduate and 998 undergraduate degrees granted to students at the May 2009 commencement. More and more of these graduates have been able to stay in North Dakota to build good careers. Seventy-three percent of those from North Dakota are employed in North Dakota, up from 66% from 2008. And thirty-eight percent of the Minnesota students that graduated from NDSU are also working in North Dakota.

NDSU has made a successful transition from Division II to Division I athletics, with seven teams competing in post-season play during the first year of eligibility. The women's volleyball team was the first team in NDSU history to advance to the NCAA Division I post-season play, and the women's softball team advanced the farthest – to the sweet 16 in their post season competition. The men's basketball team was the first to make it to the post season tournament in its first year of eligibility in 30 years, which has only happened twice in NCAA history.

R.H. Barry Hall was opened in August 2009, bringing students the opportunity to study at the home of the College of Business and the Department of Agribusiness and Applied Economics. It is also home to the Center for Global Initiatives and Leadership, which provides a broad range of interdisciplinary programming to educate students on matters of global importance and prepare them for global leadership. The ND Trade Office, also located in Barry Hall, fosters connections between NDSU students and faculty with private sector activity around the globe.

The following projects were completed in the 2009-2011 biennium:

<u>Major Capital Projects ($1,000,000+)</u>

- Niskanen Apartment Complex
- NDAES Beef Research Facility
- NDAES Research Greenhouse Complex - Phase I
- West Dining Center Addition / Renovation
- Student Health Services Expansion
- Telecomm Platform Upgrade
- NREC, LREC, WREC, DREC Headquarters Renovations/Additions

<u>Major Infrastructure Repairs/Changes</u>

- Old Main Repair & Remodel Projects
- Miscellaneous Classroom Renovations
- Miscellaneous Roof Repairs / Replacements
- Bentson Bunker Fieldhouse Bleacher Replacement
- Single Mode Fiber Optic - Phase II
- Heating Plant Emergency Generator

<u>Other Major Accomplishments</u>

- Klai Hall
- R.H. Barry Hall

2012

1. Named to the elite "Research University/Very High Research" category by the Carnegie Commission on Higher Education. The Carnegie Very High Research categorization represents the 108 most successful private and public universities in the country. NDSU is the first and only North Dakota institution to attain the status.
2. Ranked 40th among the nation's 572 research institutions without a medical school in the National Science Foundation's national survey for fiscal 2009.
3. Achieved another year of unprecedented growth in research productivity, from $114 million in NSF research expenditures in 2009 to $126 million this past year.
4. Continued increased demand by new students resulted in a record freshman enrollment again this fall for the 12th year in a row.
5. Led all 11 North Dakota University System campuses not only in terms of research productivity but also full-time student enrollment. The proportion of students

physically present in traditional classroom settings on the NDSU campus is 95 percent. No other university in the state comes close to matching that figure.

6. Commissioned officers in the top 25 of more than 5,000 candidates from the entire nation in the ROTC program the past three years. The program's overall GPA has stayed above a 3.0 and more than a third of a million dollars in scholarships come to NDSU through the ROTC. Overall, the program contributes more than a million dollars in associated expenditures to our local economy.
7. Reported student job placement in field of study at nearly 90% with graduates accepting employment in 34 states, Washington, D.C., and six foreign countries. Of these graduates, 55% accepted employment in North Dakota.
8. Provided impact to the North Dakota economy through the NDSU Research and Technology Park. The 19 businesses at the park account for nearly 900 on-site jobs and another 550 related off-site jobs. No other business incubator program in the state has such a substantial record of proven success.
9. Captured NDSU's first FCS national football championship in January, ending a successful season with a 14-1 record. Also advanced all five sports to postseason competition last fall, making NDSU one of only 13 schools in Division–I and the only FCS Division-I school in the country to do so. More than half of the student athletes earned a 3.0 or better, and 15 have perfect 4.0 GPAs.

The following projects have been or will be completed in the 2011-2013 biennium:

Major Capital Projects ($1,000,000+)

- Minard Hall Phase I, II, and III
- New Indoor Track Facility
- Performance Contract
- Center for Biopharmaceutical Practice
- ARRA Grants
- R1 Addition
- AES Research Greenhouse – Phase II

Major Infrastructure Repairs/Changes

- South Engineering Roof Replacement
- Sudro Hall Roof Replacement
- Bentson Bunker Fieldhouse Tuckpointing
- Water/Sewer Partial Replacement
- Parking Lot Reconstruction/Replacement (T-Lot and W Lot)
- Churchill Window Replacement
- Industrial Agriculture Communication Center (IACC) Electrical Upgrade

Other Major Accomplishment

- Heating Plant Car Hoe Replacement
- Material and Nanotechnology Fit-Up
- Geoscience Laboratory Renovation
- Steven's Hall (Gate City) Auditorium Renovation

2014

Recent Accomplishments

- North Dakota's top research university, the first and only institution in the state to be placed in the Carnegie Commission's elite category of "very high research" – the top 2 percent of all private and public universities in the nation
- National Science Foundation's ranking as the most productive research institution in North Dakota and the five state area to the west and south
- Standard & Poor's Rating Services credit rating upgrade from "A+" to "AA-" — the highest rating of North Dakota's universities
- New NDSU institute: Center for Life Sciences Research and Applications, with focus across life sciences (from agriculture to animal/plant sciences to biomedicine) conducting research with private partners, such as Sanford Research and the RJ Lee Group, Inc.

- Commodities Trading Room: A "real life" laboratory space for students to learn about marketing, logistics, trading and risk management. Developed in response to the importance of commodity trading to North Dakota, including agricultural, energy and transportation projects. Made possible by broad sponsorship from major agribusiness firms, the Richard Barry Foundation and a number of state commodity organizations

- World-renowned Chemistry research program in the area of new materials for optical sensing, photo limiting devices, photodynamic therapy for cancer and medical imaging

- Center for Computationally Assisted Science & Technology (CCAST): Largest super-computing facility in the state using computing power to simulate the sun as a means to study plasma flows associated with sunspot cycles. Utilized by industry, government and academic leaders to aid in development of clean energy technologies, smart-grid transmission systems, increased production in oil and gas fields, and methods to better predict wind farm production

- Third national (Back-to-Back-to-Back) NCAA Division 1-FCS football championship. For the past four years, ranked in the top100 in Men's sports programs for the Capital One Cup (tied for first place with Florida State and Notre Dame this year, #10, 15, and 58 respectively), which recognizes the best in Division 1 college athletics programs in the country

- North Dakota State has a remarkable history of academic and athletic success. Since the Academic All-America® program was initiated by the College Sports Information Directors of America (CoSIDA), the North Dakota State athletic programs have had 69 student-athletes earn 107 Academic All-America® awards. Excellence can also be found on the field, court, track and diamond at North Dakota State. The Bison have won 23 team national championships in football, men's cross country, wrestling, softball, women's indoor track and field, and women's basketball, plus numerous individual championships.

- PayScale, a salary analysis site, used salary data from alumni to rank colleges and universities based on post graduate earnings and the total cost to attend school. In North Dakota, NDSU came out on top with a 9.5 percent annual return on investment over 20 years. Return on investment from other regional schools in the report include University of Minnesota (9.1%), University of North Dakota (7.4%), and Minnesota State University Moorhead (5%).

-The Forum of Fargo-Moorhead (4/3/14)

Recent Accomplishments by College

ARTS, HUMANITIES & SOCIAL SCIENCES

Notable Accomplishments since March 2012

- Established the NDSU School of Music in September 2012, making it one of only 49 in the nation accredited by the National Association of Schools of Music (NASM, reflecting its far-reaching mission and broad-based curriculum, which includes professional doctoral programs in performance and conducting.

- Significantly increased the amount of sponsored research engaged in by AHSS faculty, as revealed by the 242% growth in the number of grants and contracts they have garnered since July of 2012.
- Since March of 2012, AHSS faculty members have notably increased their overall level of scholarly productivity, particularly as measured by

presentations, performances, exhibitions, and research grants. The college has also increased its student credit hour production, FTE production, number of graduate students, and number of undergraduate and graduate degrees conferred.

- Since January of 2013, AHSS faculty and staff have been selected for twelve prestigious university awards, including the the Faculty Lectureship Award, the Odney Award for Teaching Excellence, the Peltier Award for Teaching Innovation, the Outstanding Academic Advising Award, the Chamber of Commerce Distinguished Faculty Service Award, the Hogoboom Presidential Professorship, two Green and Golden Globe Awards, and four Tapestry of Diverse Talents Awards.

BUSINESS

- In the past year, the College of Business gained approval for two new Centers and one new Institute: Center for Leadership Practice, Center for Professional Selling and Sales Technology, and the Fraud Education and Research Institute. These three initiatives will positively affect enrollment, enhance career prospects for students and impact some physical dimensions of Barry Hall as special space needs are addressed.

ENGINEERING

- Completed a successful ABET visit for all eight college engineering degree programs and initiated the ABET Assessment Coordinator positions in departments to assist with continuous improvement efforts in all departments.
- The number of patent filings and patents have increased and continue to demonstrate the creativity and commercial potential of research completed by faculty and graduate students.
- One new company start-up in 2013-14 brings college start-ups to four within the last five years.
- Established Center for Quality, Reliability, and Maintainability Engineering (CQRME) to work with industry on improving product and process quality. Provide direct support for company quality initiatives and provide a common place for conversation and best practice comparisons
- Completed State II Biomedical Engineering Master's and PhD program proposal to be submitted to State Board of Higher Education in spring 2014, a collaborative effort with UND. NDSU will also introduce a new undergraduate minor in Biomedical Engineering
- Graduate student enrollments reached a new record for engineering; undergraduate growth down to 1% after several years of rapid growth

HUMAN DEVELOPMENT & EDUCATION

- Completed fundraising goals for the renovation of the Food Productive Laboratory; construction is planned for the summer of 2014.
- Increased enrollment of full time graduate students

LIBRARIES

- Received grants and funding totaling $173,000+ (including wireless screen-sharing technology and flat-screen monitors in library study-room, whiteboards and graphing calculators, study room furniture replacement, digitization of North Dakota Farm Research, 3D printers [4], Learning Lab renovation in Barry Hall library, Renaissance Hall "Thinking Space").
- Revamped curriculum for UNIV 189, designed and published 20 new tutorials, broadened information literacy presence on library website, and expanded outreach and hands-on instruction for faculty, students, Advocates for Student Success, and TRIO.
- In the process of moving the heretofore North Dakota Fiction books from the closed stacks at the NDSU Archives to the circulating stacks in the Main Library, showcasing authors from North Dakota and fiction taking place in North Dakota.

PHARMACY, NURSING & ALLIED SCIENCES

- Held a series of successful meetings with Sanford Health executives which lead to the signing of an MOU between NDSU and Sanford Health resulting in Sanford Health transferring to NDSU the ownership and management of the Sanford College of Nursing in Bismarck. The new NDSU Nursing Program at Sanford Health in Bismarck has an implementation date targeted for July 1, 2014.
- Created a funding model and justification for a major expansion of the BSN nursing program on NDSU campus (from 64 students per year to 128 students per year) including developing and

signing of an MOU with local clinical affiliates for providing the necessary sites, preceptors, and clinical rotations for students needed to support the enrollment increase. Gained approval from the North Dakota Board of Higher Education for this nursing program expansion including an increase in student differential tuition to address program quality improvements. Expansion will begin with the 2014 Fall Semester.

- Hired an outside architect to develop preliminary designs and cost estimates for a 85,000-100,000 sq. ft. new building addition to Sudro Hall to address current pharmacy program accreditation concerns on space and to accommodate the current and future growth of our professional programs.
- Relocated the Sudro Hall Library to the West Building, a leased off-campus facility that houses other NDSU archives, and developed plans and funding to remodel this space to support nursing program expansion at NDSU including construction of a new nursing simulation laboratory.
- Submitted and gained approval from the State Board of Higher Education for a new American Indian Public Health Resource Center. This will require additional space in the future to accommodate the Center.
- Conducted a feasibility study to assess need, demand, and justification for NDSU to offer a new Master of Health Administration (MHA) degree program.
- Developed future plans for expanding the nursing program's graduate MS Nurse Educator enrollment to up to 50 students through global international partnerships.
- Worked with Sanford Health executives to explore the interest and feasibility of NDSU offering a new genetic counselor's program within our nursing program to support Sanford's new Imagenetics initiative.
- Successfully completed a $11.5 million COBRE grant application to establish a "Center for Diagnostic and Therapeutic Strategies for Pancreatic Cancer. If funded (and we believe it will be), it would require a major expansion of our research infrastructure within Sudro Hall, including additional research space, faculty, equipment, and graduate students.
- To address current accreditation standards, developed new courses with emphasis in interprofessional training of students in pharmacy, nursing, allied sciences, dietetics, physical therapy, and social work. Additional space and faculty will be needed in the future to adequately address this curriculum requirement for our professional programs.
- Developing plans to expand distance delivery of coursework to allow faculty, students, and courses the ability for two-way instruction between Bismarck and NDSU's two nursing campus locations. This will require additional larger classrooms in Sudro Hall that are IVN ready with the latest advances in instructional technology.
- In only the second year of existence, our 2013 MPH program enrollment is at an all-time high (i.e. currently 35 students and was initially anticipated to be only 20). As a result, MPH had to expand to different areas on campus on a temporary basis. Program growth continues to increase so the department is now looking to lease space off campus to accommodate it. Therefore, our MPH program will need a long-term space solution to accommodate the current and future expansion (explosion) of this program.
- During 2013, our pharmacy program initiated the first ever on campus "iPad initiative for students and faculty" requiring students to use iPads to enhance their learning experience. This sustainability initiative uses instructional technology to eliminate waste and reduce costs associated with printers and printed instructional materials. While this iPad initiative is going well, we have discovered that the University and Sudro Hall do not have sufficient wireless capabilities to meet peak demand periods to support this kind of high tech approach to student instruction. We will need additional technology infrastructure (i.e. enhancement of wireless capabilities) within Sudro Hall and across campus to support future students and faculty use of iPad instructional technology on this large of scale.

RESEARCH & CREATIVE ACTIVITY

- According to latest data (FY2011) released this past year from the National Science Foundation, NDSU is the highest ranked institution in the five-state area (Idaho, Montana, North Dakota, South Dakota, and Wyoming) in research expenditures.
- When comparing doctorate-granting institutions within the same five-state region, NDSU topped

the list in major science and engineering fields of study with **87 doctorates conferred**.

- NDSU also topped institutions in the five states in licensing income from research discoveries for FY2011, the most recent comparison available from a survey by the Association of University Technology Managers.
- Achieved continued growth in NSF research expenditures, reporting $150M for 2013.

2014 – Research 1 Addition Completed

- Located in the NDSU Research and Technology Park, the 35,000 sq. ft. addition is comprised of mainly wet/chemistry labs for advanced materials R&D, with supporting office spaces. The $9M project was funded by the State of ND Economic Development Centers of Excellence enhancement program ($5M) and the National Institute of Standards and Technology ($4M).
- The R1 Addition provides a platform for increased public-private sector collaborations. Research conducted will advance technologies developed at NDSU with private sector partners interested in commercializing products that may result from NDSU's research.

SCIENCE & MATHEMATICS

- The college has greatly expanded its learning assistants (LA) program. LA's are undergraduate students who have taken a given course and garnered a grade of B or higher, receive a positive recommendation from the course instructor, and are willing to participate in the program. They assist the instructor of that course in multiple ways, but primarily by facilitating in class discussions, group-work, problem-solving etc. in large enrollment courses where such high-impact teaching practices would be all but impossible without the assistance of LA's. This program is having a very positive impact on student learning in gateway courses.
- The college has completed planning for the installation of a math emporium or active learning laboratory and expects to open the emporium in fall 2015. This facility will be used to transform the way pre-calculus algebra and geometry (MATH 103, 105, 107) are taught. Students will have one lecture per week and the rest of their "class" time will be spent in the emporium where they will work through problems in a computer laboratory setting and undergraduate and graduate teaching assistants and instructors will be available to provide personalized assistance when students need it. Similar laboratories at other land-grant universities have greatly improved student success rates not only in the pre-calculus courses taught in the laboratory, but also in subsequent courses (e.g., the calculus sequence) because of the confidence students acquire in the emporium.
- Subsequent to participation in the SENCER (Science Education for New Civic Engagement and Responsibilities) institute during the summer of 2013, the team of professors that teach the UNIV150 "Foundations of Science" has completely transformed this interdisciplinary (Chemistry, Biology, Earth Science, Physics, Psychology) general education science course by making it more integrated and engaging, as well as by implementing active learning pedagogies and using a "wicked problems" approach. Wicked problems are complex, multi-faceted problems facing society that require a multi-/inter-disciplinary approach and defy simple solutions. Examples would be world hunger or the nexus of energy and the environment. We feel that this course could serve as a model for transformation of many of our general education science courses.
- College of Science and Mathematics (CSM) faculty have garnered an impressive array of national or international honors and recognitions in the past two years. During the 2013-2014 academic year, Dr. Kendall Nygard, Professor of Computer Science, has been assisting the U.S. State Department with science and technology issues as a prestigious Jefferson Fellow. Dr. Stuart Haring (Assistant Professor of Chemistry & Biochemistry), Dr. Hyunsook Do (Associate Professor of Computer Science), and Dr. Kendra Greenlee (Assistant Professor of Biological Sciences) are all current recipients of CAREER grants from the National Science Foundation. These are awarded to only a small proportion of early-career scientists nationally. Dr. Svetlana Kilina, Assistant Professor of Chemistry & Biochemistry, was named a 2014 Alfred P. Sloan research Fellow. Dr. Dean Webster, Professor of Coatings and Polymeric Materials, received the 2013 Matiello Memorial Lecture Award and the 2012 Roon Foundation Award from the American Coatings Association. Dr. Gordon Bierwagen, Professor of Coatings and Polymeric Materials, received the 2013 Roy W. Tess Award from the American Chemical Society. Dr. Alexander

Wagner, Associate Professor of Physics, was named editor of the Computational Physics section of the journal *Physical Review E*.

- CSM faculty have also received a number of local awards. Dr. Mukund Sibi, Professor of Chemistry & Biochemistry, received the 2014 NDSU Chamber of Commerce Distinguished Faculty Service Award. Drs. Wengfang Sun, Professor of Chemistry & Biochemistry, and Siva Jayaraman, Associate Professor of Chemistry & Biochemistry, received the 2011-2012 NDSU Waldron Award and the 2011-2012 NDSU Peltier Award, respectively. Dr. Victoria Gelling, Associate Professor of Coatings and Polymeric Materials was named the 2013 Walter F. and Verna Gehrts Presidential Professor.
- Over the past two years, ten faculty members from the Department of Biological Sciences and one from the Department of Chemistry & Biochemistry have been named National Academies Education Fellows in the Life Sciences. These faculty are: Jenni Momsen, Angela Hodgson, Wendy Reed, Lisa Montplaisir, Erika Offerdahl, Julia Bowsher, Katie Reindl, Erin Gillam, Steve Travers, Ned Dochtermann
- Dr. Mukund Sibi and collaborators secured a $4.9 million Phase III renewal of their NIH COBRE grant that funds the Center for Protease Research. In addition, Dr. Mark McCourt, Professor of Psychology, and colleagues are nearing the end of their multi-million dollar Phase II NIH COBRE that funds the Center for Cognitive and Visual Neuroscience. Together, these groups have brought a total of $24M of NIH COBRE funding to NDSU.
- The number of total degree completions (Bachelor's, Master's and Doctorate) in the college increased 14.5% in 2011-2012 and 22% in 2012-2013 over that in 2010-2011.

The following projects have been or will be completed in the 2013-2015 biennium:

Major Capital Projects

(new construction, additions major remodeling)

- Shelly Ellig Indoor Track Facility & Field Facility
- Sanford Health Athletic Complex (formerly Bison Sports Arena - beginning April 2014 through October 2016)
- Minard Hall
- Memorial Union Food Court
- Auxiliary Enterprise Building Renovation
- West Building Renovation
- Research 1 Addition

Major Infrastructure Repairs/Changes

- Ceres Hall Re-Roof Project
- Parking Lot Repairs/Replacements
- Low Rise Lavatories Renovation – Phase I, Phase II, and Phase III
- Water/Sewer Replacements
- Center for Computationally Assisted Science and Technology (CCAST)

A. Landscape & Grounds

- Map 4 Green Space
- Map 5 Irrigation System
- Map 6 Outdoor Athletic Fields & Recreation Areas
- Map 7 Amenities (Monuments, Sculptures, Walking Bridges, Etc.)
- Map 8 Exterior Lighting

B. Buildings

- Map 9 Facility Functional Nature
- Map 10 University Facility Identification
- Building Condition Report

C. Circulation

- Map 11 Vehicle Access
- Map 12 Mass Transit Information (A, B, C)
- Map 13 Vehicle Circulation
- Map 14 Road Conditions
- Map 15 Pedestrian Circulation
- Map 16 Parking Facility Allocation
- Map 17 Parking Facility Condition
- Parking Lot Capacity Allotment

D. Infrastructure

- Map 18 Steam Distribution
- Map 19 Water Distribution System
- Map 20 Sanitary Sewer System
- Map 21 Storm Sewer System
- Map 22 Electrical Distribution System
- Map 23 Telecommunications

NOTE: Many water and sewer lines on campus are close to 100 years old. NDSU has contracted with an engineering firm to review the lines and develop a future plan for replacement. The plan won't be completed until the end of summer. The cost may be significant and will likely require a future capital project request.

Section II – Existing Conditions

Comprehensive analysis of the existing dimensions, physical characteristics and condition of the campus

A. Future Academic Program

B. Academic Facilities

C. Support Facilities

D. Auxiliary Facilities

E. Athletic & Recreational

F. Parking

G. Infrastructure

H. Land Acquisition/Disposition Projections

Section III – Future Campus Requirements

Future facility requirements needed to support campus development for anticipated changes in academic, research and public service programs and enrollment

2014

A. Future Academic Program

Program Growth in Five Years – NDSU Colleges

AGRICULTURE, FOOD SYSTEMS & NATURAL RESOURCES

Projected Enrollment Changes

Enrollment in the college is expected to increase from the current 1,777+ to over 2,000 in the next three to five years.

ARTS, HUMANITIES & SOCIAL SCIENCES

Program Growth

The College of Arts, Humanities and Social Sciences will be guided by the following strategic goals over the next 3-5 years:

- Increase the quality and distinction of its academic programs
- Increase faculty scholarship (refereed publications) by 5-10%
- Continue to enhance faculty involvement in sponsored research
- Create and revitalize key centers for research, innovation, and community engagement (e.g., the Center for Social Research, the Center for Heritage Renewal, the Center for Social Engagement and Entrepreneurship, the Center for Disaster Studies, and the Center for Critical and Applied Heritage Engagement)
- Expand the number of graduate students and graduate programs in the college

New Programs & Initiatives

New programs are being considered in the following areas:

Department	Type	# of	Comments
Communication	Program Expansion/Restructuring	1	Strategic Communication – Merger of previous programs in Agricultural Communication, Advertising & Public Relations, and Health Communications
Performing Arts	New Programs	7	Theater (3); Music (4)
	New Institute	1	Division of Performing Arts
	Program Expansion	2	Theater & Music
English	New Project	1	Red River Valley Writing Project: Establishment as Regional Site of National Writing Project highly likely to be accepted
History, Philosophy & Religious Studies	Program Expansion	3	History (B.A.; M.A.; Ph.D.)
Indigenous Tribal Studies	New Program	1	New Minor with plans to expand to a Major within next five years
Modern Languages	Program Expansion	3	
Sociology & Anthropology	New Programs	2	M.A.; Ph.D.
	Program Expansion	1	Sociology (M.A.)
Visual Arts	New Programs	3	BS/BFA (2); MA/MFA (1)

Projected Enrollment Changes

Communication

- Undergraduate & Graduate enrollment increased from 295 in 2010 to 404 in fall 2013
- Modest growth projections of 25 students per year for the next five years would show student enrollment headcount of 529 undergraduate and graduate students.
- Does not account for anticipated enrollment increase when Strategic Communication major is launched (as soon as 2015) and School of Communications is created (as soon as 2017)

Division of Performing Arts

- Approximately 275 majors in five years, if resources allow
- Enrollment increases dependent on additional personnel, fiscal resources and additional facilities
  - Music on-campus enrollment is at capacity and demand exceeds capacity
  - Theater on-campus enrollment expected to grow by additional 20 students and remain at that level unless/until additional fiscal and facilities resources are available
- Off-campus (distance and hybrid-class) Music Education enrollment will increase as program becomes nationally known
- New General Education classes as well as non-major student enrollment in ensembles and shops may increase student credit hours
- Additional students if Theatre M.A. is implemented

English

- If application for status as a National Writing Project is accepted, will also likely increase number of high school English teachers taking graduate credits from NDSU

History, Philosophy & Religious Studies

- Anticipate incremental but steady growth in number of students in program expansion areas (Public History, World History)
- Growth in graduate students will increase, pressing need for more office space

Indigenous Tribal Studies

- Anticipated 20-40 students to be enrolled in the new minor program (Indigenous Tribal Studies) within next 3-to-5 years

Modern Languages

- Anticipated steady increase in three considered program expansions (Arabic Language & Studies; Spanish; Intensive English Language Program [IELP])
- IELP program particularly likely to expand and could double or triple in size in next five years; already beyond capacity in classroom and office space

Sociology & Anthropology

- Development of M.A. program (Cultural Heritage & Management Studies, along with formation of Center for Applied and Critical Heritage Engagement) initially offered online could be attractive on regional, national and international basis

Visual Arts

- Anticipated increase from current 80 UG student majors to 140 student majors in 2017 and graduate students from 10 in 2016 to 15 in 2017

BUSINESS

Program Growth

- In the past year, the College of Business gained approval for two new Centers and one new Institute: Center for Leadership Practice, Center for Professional Selling and Sales Technology, and the Fraud Education and Research Institute. These three initiatives will positively affect enrollment, enhance career prospects for students and impact some physical dimensions of Barry Hall as special space needs are addressed.

ENGINEERING

Program Growth and Project Enrollment Changes

- New Master's and PhD in Biomedical Engineering research and laboratory space. Biomedical Engineering is the top growth area of engineering in the U.S. Some estimates of growth show nearly 170% increase in past decade. Anticipated enrollments should exceed 25-30 students in 3 years at NDSU. If additional faculty resources are available, the number could increase to 40-50 in the same timeframe.
- Environmental Engineering currently offers a Master's degree and the college plans on adding a PhD to compliment this growing area of importance to North Dakota as well as the nation.
- Interdisciplinary programs continue to be attractive to students in engineering. To address this interest, minors in reliability engineering, energy engineering, and biomedical engineering are in various stages of development. These new minors are expected to be available in 2015. Increased undergraduate enrollment can be anticipated as these minors are put in place. In addition to their primary majors, students will have the opportunity to develop critical design skills in these cross-disciplinary minors.
- Undergraduate and graduate enrollments will increase if additional facilities can be obtained to allow for this growth. Current facilities are

beyond normal capacity so some courses are not meeting students' educational needs due to lack of sufficient lab space.
- The college is currently leasing space off campus because of insufficient space on campus. This creates inefficiencies and disruptions to the program.

HUMAN DEVELOPMENT & EDUCATION

Program Growth
- Ph.D. in Couple and Family Therapy beginning in Fall 2015.
- Expectation of increase in technology usage via specialized computer programs for Apparel Textiles, Interior Design, and Hospitality and Tourism Management. Software programs will need to be loaded onto dedicated servers/computers.
- Growth of the Emily Reynolds Costume Collection and increased use for collaborations and outreach.
- Growth of full time doctoral students in all of our programs. There is very limited space for graduate student offices in EML, FLC and BBFH.
- As new faculty are hired, there will be additional needs for dedicated research space.
- As grant success increases, we will need space that can be used for conducting the grants. Although some of these will be in research labs, some space is needed for administration and grant management.

Projected Enrollment Changes
- Increase in online offerings via DCE programs.
- Increase in enrollment of full time doctoral students.
- Continued increase in enrollment of undergraduate programs.

PHARMACY, NURSING & ALLIED SCIENCES

Program Growth
- Implementation target date of July 1, 2014, for new NDSU Nursing Program at Sanford Health in Bismarck; MOU between NDSU and Sanford Health will result in the ownership and management of the Sanford College of Nursing in Bismarck transferring to NDSU
- Expansion of distance delivery of coursework to allow the ability for two-way instruction between Bismarck and NDSU's two nursing campus locations; requires additional larger, IVN ready classrooms in Sudro Hall with latest advances in instructional technology
- Major expansion of the BSN Nursing Program on NDSU campus (from 64 students to 128 students per year) beginning with 2014 Fall Semester
- Masters of Public Health (MPH) Program's new American Indian Public Health Resource Center requires additional space for current enrollment; leasing space off-campus is not financially reasonable and compromises educational opportunity of its students but is the only short term viable option; Sudro expansion needed to allow this program to co-exist with other similar programs in Pharmacy, Nursing and Allied Sciences
- Sudro library materials being moved off campus was undesirable but less critical than renovating its former space for current laboratory needs in the building; returning library to new Sudro expansion is high priority and better aligns with needs of the students
- Addition of new Master of Health Administration (MHA) degree program
- Expansion of nursing program's graduate MS Nurse Educator enrollment (to up to 50 students) through global international partnerships
- Addition of new genetic counselor's program within current Nursing program to support Sanford's new Imagenetics initiative
- Anticipated establishment of Center for Diagnostic and Therapeutic Strategies for Pancreatic Center; would require major expansion of research infrastructure in Sudro Hall, including additional research space, faculty, equipment and graduate students
- Development of new courses with emphasis in interprofessional training of students in pharmacy, nursing, allied sciences, dietetics, physical therapy, and social work to address current accreditation standards; additional space and faculty needed in future to carry out this curriculum requirement

Projected Enrollment Changes

Addition of:
- 192 BSN nursing students on NDSU Campus
- 240 BSN nursing students as result of Sanford College of Nursing transfer to NDSU
- 50 graduate students in nursing from global international partnerships with NDSU Nursing MS Nurse Educator program
- 35 graduate students have been added with new MPH program

- 30 graduate students with new proposed MHA degree program
- 20 students with new genetics nurse counselor's program

Total 567 additional students will be added to PNAS as result of the new programs

SCIENCE & MATHEMATICS

Program Growth & Projected Enrollment Changes

- Having great difficulty managing the growth in enrollments occurring over past five years. Future growth in student numbers severely constrained by quantity and quality of space available for all departments and by insufficient funding for faculty lines in every department
- Nevertheless, expecting additional growth of approximately 20-25% over the next five years, i.e., an increase from over 1,800 to between 2,160 to 2,250+ of enrollments in our majors
- Plan to increase relative proportion of graduate students, especially PhD's. PhD student education in the sciences is very space-intensive, so increase in enrollment will place great additional pressures on current facilities
- Expect enrollment increase by at least 15-20% in our general education and support/service courses as well as enrollments increase across the university.
    - For example, planned increases in enrollment in Nursing program in the College of Pharmacy, Nursing and Allied Sciences will impact College of Science and Mathematics as Nursing students are required to take a number of our courses such as BIOL 220/221 (Human Anatomy and Physiology I/II), CHEM 117 (Chemistry Concepts and Applications), CHEM260 (Elements of Biochemistry), and PSYC250 (Developmental Psychology).
- Plan to develop some primarily on-line, professional master's-style programs in addition to above-referenced growth; however, these programs will place less pressure on physical space as majority of course-work would be off-campus.
- Major goal of the college is to increase its research output; again, current space restrictions place very severe limits on what can be accomplished without new/renovated facilities.

B. Academic Facilities

There are three queues of continuous project needs within the academic areas at NDSU. Those queues are maintenance, renovation and new academic space/capital projects. NDSU's academic facilities require projects in all three areas. The 2013 STEM building will help alleviate the deficient number of classrooms and teaching laboratories on campus. However, there are many more space requirements still needing to be addressed for this campus to maintain an adequate and complete learning environment for student needs and to also continue to grow the research requests so vital to the University. This will be reflected in the major capital project requests for NDSU (see Section IV.)

The following projects will necessitate focus:

AGRICULTURE, FOOD SYSTEMS & NATURAL RESOURCES

- **Harris Hall (new facility)** - needed to replace facility that is outdated, antiquated, and is in dire need of infrastructure upgrades such that a new building would probably be less expensive due to reduced deferred maintenance. This facility would encompass cereal chemistry activities, food science, and food security programs. May also involve meats quality programs.
- **Replacement of Waldron Hall** – This facility was initially built in the 1950's with an addition in the 1960's and is used as field laboratory space for plant-based research programs. When built, there were less than a dozen field related programs involving plant based research; today, there are more than 13 breeding programs, as many pathology programs, and several soils programs that occupy the space. It is poorly designed for 21st Century Agricultural Sciences, and the numerous programs make it very cramped, resulting in great inefficiencies. There is no adequate long-term seed storage space for breeding and pathology programs – close proximity of field labs to short, mid, and long-term seed storage is critical for efficiency. Also, seed drying and cleaning facilities that provide for worker safety and improved efficiencies is critical.
- **Ag & Biosystems Building** – having a new facility (or an expansion of the current Pilot Plant/Service Center building) will allow ABEN to

house many of its scientists in one facility – currently, the department has offices in three buildings and labs in three other buildings. Current space in ABEN in not conducive to today's research needs – laboratories are nonexistent, the building does not "flow" properly, and it is located in the center of campus, thereby minimizing the opportunities for large agricultural equipment to be used in teaching/research settings.

- Similarly, the Ag Experiment Station research portfolio continues to expand – as such, new "support" facilities for Ag research are needed. These include a new potato research facility with appropriate cold storage; a new corn research facility to handle all of the corn breeding and testing activities, including long-term cold storage; a field research lab for Ag and Biosystems Engineering to carry out research in precision Ag, including UAS activities; and a new Vet Diagnostic lab (on the SBARE list as a high priority).

ARTS, HUMANITIES & SOCIAL SCIENCE

Communication

Given the department's motivation for becoming North Dakota's only School of Communication, a new or renovated facility is needed based on anticipated (modest) enrollment projections. Conceivably, the space would include:

- Classrooms, mass lecture auditorium, faculty/staff/conference and office spaces
- Multi-use design and creative space for use by students involved in the department's Public Relations Student Society of America (PRSSA) chapter, Advertising Club, Society for Professional Journalists (SPJ) chapter, Lincoln Speech & Debate chapter and Lamda Pi Eta (student honorary)
- Area for housing students and professional staff of the Spectrum, NDSU's student newspaper
- Rooms to house the department's Interactive Media Lab, Communication Research & Training Center, the Center for the Study of Cultural Diversity and research lab
- TV studio, control room and offices for housing SUTV and its faculty, engineers and Bison Information Network student leaders

Performing Arts

Critical needs:

- Substantial renovation of Askanase Hall or new building for Theatre
- Renovation and mechanical/electrical upgrades for Reineke
- Exclusive use of Askanase and Reineke for DPA

Additional needs:

- An additional flexible theatre space, either an addition or in the auditorium footprint
- More accessible teaching and performance spaces
- Better lighting in Theatre spaces, refurbishment of shops and technical area
- Additional teaching, studio, and office spaces for Music faculty, lecturers, adjuncts, and graduate students
- Dance studio spaces for instruction and rehearsal, and offices for dance faculty
- Storage spaces to free teaching/lab space (Theatre: makeup room, costume shop, backstage, shop office; convert Askanase basement to storage. Music: Welk Room, FCH shops)
- Renovation of public approaches (facade, lobbies, landscaping) to increase community participation and improve audience experience.

English

- Space for the RRVWP/National Writing Project library and desk for an administrative assistant/student intern. Both could probably be located in a single office but two offices would be more ideal.

History, Philosophy and Religious Studies

- Seven (7) new offices for faculty members and graduate TAs in the next five years.
- Small digital lab for public history students.

Indigenous Tribal Studies

- Office space for the Director who will be hired this spring and begin in fall 2014.

Modern Languages

- Six-to-ten additional office spaces, particularly for IELP instructors, as well as additional classroom spaces to accommodate rapidly growing IELP enrollments.

Sociology and Anthropology

- Office space for three-to-five new faculty hires

Visual Arts

- Space for a digital laboratory, which will house and expand the digital output lab, create a classroom for both Design and Photography and

provide the necessary monitor interfaces as the department transitions into a "laptop program." This program will require incoming students to acquire an appropriate laptop computer which they can plug into expanded peripherals.

- A "maker's space" (for casting and concrete work) to be shared with the Department of Architecture and Landscape Architecture. This space will promote shared resources in three-dimensional rendering, laser facility, and digital dimensional output. The development of this space will require an estimated budget or $200,000, which includes revamping of some existing facility.

BUSINESS

The needs and plans for the immediate future of the College of Business consist of:

- Re-purpose the "quiet study room" on the first floor of Barry Hall to a new multi-purpose, flexible learning space that will become another show piece on the first floor of the classroom wing
- Relocate quiet study space to a room in the lower level in close proximity to the library
- Integrate library and quiet study area to allow for movement of more business books and resources to library in Barry Hall
- Provide sales laboratory space for the new Center for Professional Selling and Sales Technology, enabling student to practice, record and review sales process interactions
- Address space requirements for the Fraud Education and Research Institute and the recent addition of a graduate component to leadership offerings in the College of Business

ENGINEERING

The College of Engineering has not had any significant improvements to its facilities since they were completed in the late 1960's. At that time, the programs were generally dedicated to undergraduate education. Today, the same space now houses more than 2,100 undergraduate students and nearly 350 graduate students. Space availability is critically low.

- The college lacks office space for new faculty, staff, graduate students, teaching laboratory space, and research space. Spaces originally planned to have 20 students in a laboratory environment now serve four or five sections of 20 students per week, provide space for graduate student research projects, and are the main laboratory for faculty research. The result is unsatisfactory research spaces and reduced capability and quality teaching spaces. However, resilient faculty and students have not compromised the educational mission and engineering students still continue to be in high demand due to their excellent preparation. New facilities would enable education and research to continue to deliver high quality results over the next decade or two.
- Remodeling the Architecture building in conjunction with remodeling of Ehly Hall can address some of the college teaching space and laboratory space issues. The planned space remodeling will add research space into Ehly Hall and some into the former Architecture building. This will alleviate some of the graduate student research and faculty research in a number of college labs that were initially designed for undergraduate teaching spaces and permit future remodeling in those spaces to bring them into state-of-the-art facilities for engineering education.
- The improvements created by the remodeling of former Architecture and Ehly Hall will improve only a few of the lab spaces in engineering that are in critical need of separation between undergraduate teaching and research functions. New space is needed that also provides for increased undergraduate study space, computer facilities, and special function classrooms (innovation spaces, team meeting spaces, student project space).
- Faculty office spaces are in critical need. Insufficient space exists in all departments of the college for future hires. Future faculty hires also require research laboratory spaces and graduate student spaces. Our ability to recruit, hire, and retain top engineering faculty is threatened by the lack of facilities in engineering. The College of Engineering worked with an outside architectural firm to create a College Master Plan. The firm examined all existing conditions and evaluated current space needs along with expected growth. The resulting plan proposes a phased approach to accommodate the pronounced need for new space and renovation of existing space. The most immediate need identified is the construction of a new 67,000 (approximate) square foot building that would enable separation of the many multifunction (combination classroom/research/office) spaces

in the current Engineering complex. This change would allow additional graduate students to enroll and additional faculty to be hired in the College.

- Completion of new facilities would allow temporary movement of departments to new facilities to allow for current spaces to be totally remodeled and brought to current standards.

LIBRARIES

NDSU Knowledge Center

The NDSU Main Library was constructed in 1949-1950, when enrollment at the University was just under 2,500 students. In May of 1980, an addition was added to the Library, when enrollment was approximately 8,250. As of the fall of 2013, NDSU enrollment was approximately 14,400, an increase of 6,100+ students (or 75%) over the last 34 years. There has been no addition to the Main Library during that time.

In the introduction to the last major study of the NDSU Libraries, in October 2007 (enrollment at 11,550), it was noted that:

- The NDSU Library has failed to keep pace with recent growth of the University and its increased emphasis on academics and research. This failure is largely due to limits placed on the current library facility. While the University has grown up around it, the Library has not kept up with the evolving demands placed upon it. The existing structure does not allow the Library to achieve its vision, mission, and core values. In order for NDSU to have a library worthy of the University it serves, the existing building must be expanded or a new library structure must be constructed.
- The NDSU Library lags behind peer institutions by almost all measures. To correct this imbalance, the NDSU Library should expand the facility. The current facility lacks a sense of entry; has little space to properly house, maintain, and display materials; is beyond its capacity to house additional materials; and holds no inspiring spaces that attract the campus community to the Library. (Meyer, Scherer & Rockcastle, LTD, Final Report, North Dakota State University Library Feasibility Study, October 23, 2007)
- The NDSU Libraries staff strives to provide the most extensive and comprehensive services to the students and faculty that we can, but we are hindered by an insufficient facility, small staff, and limited resources.

HUMAN DEVELOPMENT & EDUCATION

- There is a need for designated computer/studio space to accommodate dedicated software/server, and increased enrollment will create the need for increased space in computer teaching lab.
- In the short term, the listed project for the Athletic Training/Exercise Science Laboratory Classroom in Bentson/Bunker Fieldhouse (BBFH) is needed. The program increases in enrollment each year and our students describe the space as one of the "worst" on campus. All of the classrooms and teaching labs in the "garden level" of BBFH need extensive updates and a new/renovated HVAC system.
- We are completely out of space for faculty offices, graduate student offices, and classrooms in EML and FLC. Our Couple and Family Therapy programs, and Counseling programs are housed (with their clinics and teaching labs) at the Stop-n-Go Center. The offices and classrooms in BBFH are in desperate need of update and expansion.

PHARMACY, NURSING & ALLIED SCIENCES

The future academic and facilities needs and plans for the College of Pharmacy, Nursing & Allied Sciences (PNAS) are: New building addition to Sudro Hall or a new building (as per recommendations from architects) to address ACPE accreditation concerns regarding space, and to also address program expansion and growth in nursing, MPH, two-way distance education between Bismarck and NDSU, new training requirements in interprofessional education, and new programs being planned in MHA, international nursing partnerships (MS educator), and nursing genetic counseling.

- Long-term space solution for the NDSU Nursing Program at Sanford Health in Bismarck. Currently, NDSU will be signing a temporary three-year lease with Sanford for NDSU to lease Sanford's existing facility in Bismarck; however, we anticipate that Sanford will eventually want to use this space to accommodate future growth at Sanford.
- Sudro Hall will require significant future renovations to the facility to address the items listed in Section I of this plan concerning the 2013

PNAS Accomplishments and also the major expansion of the College's research program in pharmaceutical sciences to successfully execute an anticipated $11.5 million COBRE grant to establish a "Center for Diagnostic and Therapeutic Strategies for Pancreatic Cancer.

SCIENCE & MATHEMATICS

Renovation and expansion of existing Ladd/Dunbar complex:

- The current state of Ladd/Dunbar is an urgent life, safety, and health issue.
- Moreover, the Department of Chemistry & Biochemistry has completely outgrown current space in Ladd/Dunbar, and the biochemistry portion of the department is isolated from the rest in Quentin Burdick Building (where there are also issues with the adequacy of space in terms of both quantity and quality.)
- The new Dunbar II would address the life, safety, and health issues by allowing the current Dunbar activities to move into a property fit-up space with adequate infrastructure. This project would also facilitate past and future growth in the research and educational programs in the department and would bring the entire department together under one roof, with all the efficiencies and synergies that this would bring.
- Finally, in the future, the Geoscience Building could be removed and an addition to the new Dunbar II building could take its place. This facility would allow the Department of Coatings and Polymeric Materials to move to the campus from the Research and Technology Park. Occupying the same complex with Chemistry & Biochemistry would permit considerable collaboration among these two departments and greatly strengthen a key university research area in Sustainable Materials Science (SMS).
- Department of Geosciences currently occupies ancient and inadequate facilities in both Geoscience Hall and Stevens Hall. Geoscience Hall is not ADA-compliant and some of the space is not up to the standard required for a modern geoscience department.

Renovation of Stevens Hall:

- Stevens Hall is a 70's-era building that currently houses both the Department of Biological Sciences and the Department of Geosciences. The building was constructed at a time before either of these disciplines required modern research and teaching laboratory facilities such as hoods, autoclaves, wet chemical bench space, etc.
- In addition, the current animal care and greenhouse facilities are rapidly becoming inadequate and a severe constraint on research and education activities. Several laboratories have undergone renovation since the building was completed, but this has been piecemeal and many of these "renovated" laboratories are out of date.
- The building cannot accommodate any more additions of hoods and the temperature control is inadequate, largely because the air handlers are already at or beyond design capacity.
- There have been some recent building-wide renovations such as installation of new windows and asbestos abatement, but major additional renovations are necessary to accommodate current activities and allow for the growth we expect in both research and educational programs.

Note: The new STEM classroom building is a very welcome addition and will relieve some pressure on existing facilities, primarily for some of our lower-division undergraduate courses. However, this new building will have no research or graduate education facilities and cannot accommodate our needs for upper-division undergraduate courses or even all our needs for lower-division undergraduate courses.

C. Support Facilities

Whether new or refurbished, today's support facilities are establishing themselves as a hub, anchor, crossroads or an "important campus place" to institutions. Current and future students and their parents have a certain expectation for the look, feel and quality of the facilities utilized for their education purposes and campus buildings are evolving as a result. Technology will continue to change the types of services offered to customers, too, with the growth of mobile devices and applications driving new services offered by universities.

Some of the support facilities proposed for beyond 2015-17 and beyond are:

- Center for Integrated Learning
- Ceres Hall – Phase II Renovation
- Archives Building

- Engineering Complex (several phases)

D. Auxiliary Facilities

Today's student is accustomed to certain amenities and options when it comes to his/her lifestyle – 24/7 technology access, comfortable and spacious surroundings, apartment-style accommodations that offer privacy, continuous dining selection and arrangements to accommodate their busy academic and personal schedules. In order to keep in step with these requirements, it will be necessary for NDSU to maintain, update and improve many of its current auxiliary facilities while proactively planning for the future growth of the university.

NDSU has three projects being requested for the 2015-17 biennium that are categorized in the "Non-State Funded" (auxiliary, local) category. They are: 1) the Union Dining Center Expansion and Accessibility; 2) the Residence Dining Center Kitchen Remodel and Roof Replacement; and 3) the Low Rise Lavatory Remodel – Phases IV & V projects. These projects are discussed in more detail in **Section IV** of this plan.

Beyond 2015-17, the following auxiliary facilities projects will need to be addressed:

- University Village – Phase I & II
- Churchill Hall Renovation
- Low Rise Lavatory Remodeling – Phases VI through X
- Residence Life Sprinkler Systems Installations (several phases)

E. Athletic and Recreational

Athletics and recreation are important factors in a student's post-secondary experience. Besides the academic components for those students majoring in these areas, students benefit from the social (teammates), physical (exercise), emotional (support system), educational, and professional (time management, discipline, communication skills) aspects that athletics and recreation provide. They also provide a respite option from classwork and studying for those students not participating in an organized sport.

NDSU has one project being requested for the 2015-17 biennium and that is a lifetime recreational and physical wellness facility categorized in the Non-State Funded (revenue bond) category – the Aquatic Center, a student vote/funded initiative. Other recreational and athletic facilities listed below will be included in future Campus Master Plans. The Intramural Fields is a project that would need to be student initiated and funded, while the remaining projects are necessary to provide much needed upgrades to current campus program facilities.

- Intramural Fields
- Softball Complex Renovation
- Volleyball Renovation

F. Parking

As the University continues to experience a growth in its population, we continue to employ strategies to accommodate increased demand for parking facilities. The parking and transportation systems on campus are reviewed annually and appropriate adjustments are made, based on customer demand, user input, budget constraints and available options for improvement. We continue to leverage one large park and ride option near campus, via annual agreement, as a surface parking option, to serve the needs of the staff, students and faculty.

NDSU Parking continues to rebuild existing surface parking lots with concrete as the preferred replacement material based on cost. These lot reconstructions have and continue to result in improved lighting, aesthetics, better traffic flow and access and space maximization of the area. As the University continues to experience growth in population, which conversely may cause a loss in surface parking, a parking ramp facility continues to be discussed as an option in the future due to limited available land opportunities for additional surface parking lots.

Students continue to have the ability and flexibility to park in multiple lot locations with their permit, based on areas that the specific permit allows. Campus housing and commuters have additional space in some lots due to the relocation of fleet vehicles,

infrequently used vehicles and club based trailers being relocated to designated storage areas.

Student parking permits have been adjusted to allow flexibility in multiple locations. Campus housing parking lots and commuter parking lots have been combined to allow additional flexibility for snow removal and event parking. Storage areas are being identified for fleet vehicles and other infrequently used equipment. As parking lots are reconstructed, they are designed for better traffic flow and maximum use of area for parking purposes. Design and materials focus on increasing aesthetics and longevity.

G. Infrastructure

Roofing and tuckpointing projects continue to be a priority for Facilities Management as are water and sewer line replacements, installation/replacement of outdated fire alarms and building envelope issues such as windows, doors and/or weather stripping. Extra-ordinary repair and operating funds have been used to cover the costs of these projects and operating dollars have also been used to upgrade many academic elevators on campus. NDSU has dedicated the current 2013 one-time deferred maintenance dollars towards two projects: 1) water and sewer replacement, and 2) a new heating plant.

Over the years, NDSU has discussed the need for a new heating plant. Boiler #1, a 1978 duel fuel natural gas/fuel oil unit, has become unreliable over the past few years. This is the largest capacity boiler of the four on campus and is critical in the dependable operations of the heating plant during the winter months. An engineer was recently hired to help design and complete a probable cost estimate for a replacement boiler. With lead times out to 26 weeks and knowing that the campus needs this boiler to be reliable, the plan is to try and limit use through one more winter before the unit is replaced. The big challenge, however, is funding and the amount to replace it will determine NDSU's options.

H. Land Acquisition/Disposition Projections

There are no plans at the present time for land acquisition or disposition projects.

Summary of Future Projects

NDSU Main Campus

Major State Funded Capital Projects $1,000,000 or greater:

1.	Dunbar II	$45,900,000
2.	Accreditation Projects:	$59,900,000
	o Pharmacy, Nursing & Allied Sciences	
	o Engineering	
3.	Crop Quality Food Science Facility	$32,000,000

Non-State Funded Capital Projects:

Revenue Bond Funding

1.	Aquatic Center	$11,000,000

Auxiliary, Local Funding

1.	Union Dining Center Expansion & Accessibility	$1,000,000
2.	Residence Dining Center Kitchen Remodel & Roof Replacement	$2,000,000
3.	Low Rise Lavatories – Phases IV & V	$2,327,775

Section IV: Future Capital Projects Requiring Legislative Approval

Future capital projects requiring legislative approval

Summary of Future Projects *and* Legislative Requests for the New Biennium (Main Campus)

Major State Funded Capital Projects ($1,000,000 or greater)

FUTURE MAJOR CAPITAL PROJECTS REQUIRING LEGISLATIVE APPROVAL
STATE FUNDS (General Fund or State Bonding)

Institution NORTH DAKOTA STATE UNIVERSITY
New construction, addition and major remodeling projects for which the campus is requesting state funds, which meet or exceed the following dollar amounts by campus
$1,000,000 (NDSU)

Priority 1/	Project Title	Total Project Cost Estimate	Total Funding Request			FF&E Included in Total Request	Deferred Maint. Amount 3/
			State	Other 2/	Total Request		
2015-17 Biennium							
1	Dunbar II	$45,900,000	$45,900,000	$0	$45,900,000	$2,800,000	$3,020,000
2	Accreditation Projects (Pharmacy, Engineering)	$59,900,000	$59,900,000	$0	$59,900,000	$10,045,000	$300,000
3	Crop Quality Food Science Facility (Harris Hall replacement)	$32,000,000	$32,000,000	$0	$32,000,000	$1,725,000	$1,980,000
Future Projects Under Consideration (Beyond 2015-17), In Priority Order							
	Ladd Hall Renovation	$11,000,000	$11,000,000	$0	$11,000,000	$550,000	$5,010,000
	Engineering Projects 2-7	$138,000,000	$138,000,000	$0	$138,000,000	$8,070,000	$4,000,000
	Center for Integrated Learning	$16,000,000	$16,000,000	$0	$16,000,000	$1,000,000	$3,500,000
	Parking Ramp	$10,000,000	$10,000,000	$0	$10,000,000	$0	$0
	Ceres Hall Renovation	$8,500,000	$8,500,000	$0	$8,500,000	$500,000	$2,500,000
	Heating Plant	$40,000,000	$40,000,000		$40,000,000		

Project Name	***NEW DUNBAR REPLACEMENT BUILDING***

Project Description *including potential cost of lost opportunities (both financial and non-financial) of not proceeding with the project. (Examples could include lost grants, partnership opportunities, impacts on student learning environment, etc.)*	Construction of a new six-story building (referred to as Dunbar II elsewhere in this document) to replace the current Dunbar Hall and the subsequent demolition of the original building. The new building would be situated on the north side of the current Ladd/Dunbar complex and would be completed first to allow operations to move out of Dunbar before demolishing that building. This project would significantly upgrade out-of-date and potentially hazardous facilities in the current Dunbar building, accommodate past and future growth of the Department of Chemistry & Biochemistry, and result in the consolidation of Chemistry & Biochemistry into one building complex. The Department of Geosciences has also been programmed into this building due to existing synergies, thereby enabling the consolidation of the Department of Geosciences into a single space with room for growth and allowing the department to move completely out of Stevens Hall (it is currently distributed between Stevens and Geosciences Hall). The move of Geosciences from Stevens would create additional room for the Department of Biological Sciences, which also is very constrained for space. Finally, the new building will be critical for accommodating shared core laboratories for the Center for Protease Research (a center established via NIH COBRE grants) and for materials graduate and undergraduate education and research. The additional square footage provided is needed to improve the education experience of graduate students and undergraduate opportunities along with fostering the needs of PhD programs.
Project Phases *If project will be built in phases, outline additional future phases, including brief description, estimated cost and estimated biennial request date*	The project will be divided into phases: • The first phase will be the construction of a new building to replace Dunbar Hall. Once built, the current Dunbar building would be demolished. • In a future phase, Ladd Hall will be renovated. • Remaining will be the construction of a new building to be located in the footprint of the original Dunbar facility.
New Construction and Additions *If project consists of new construction and additions to existing facilities, include cost of renovating existing facilities that are made necessary by addition or new construction.*	The majority of Dunbar Hall is laboratory-based. NDSU does not have any other campus facilities that contain the infrastructure needed to accommodate a temporary move while the building is being renovated. The 2012 Campus Master Plan proposed moving the Dunbar activities into Ladd on a temporary basis while renovations were underway as the most viable option at that time. However, the architect hired for the plan indicated that NDSU would spend up to $250 per square foot to fit up Ladd, resulting in limitations based on the physical size of Ladd, the duct chases locations, the lack of infrastructure and the bearing walls internal to the building. These limitations influenced the decision to build a new building and to move the activities. Building a new facility (or annex) was also consistent with a 2009 federal grant request that was not successful.
Funding Source Description & Detail	NDSU is requesting state appropriated funds for this project.
Deferred Maintenance *that will be addressed*	In 2008, the deferred maintenance calculated by Sasaki/JGLG was just under $2.3M. This list has grown since then, as has inflation. The facility condition assessment for Dunbar lists it as one of the top three deficient major academic buildings on campus. This plan will significantly address deferred maintenance in Dunbar with the construction of a new facility.
Operating Costs/Funding Source *Estimated change in operating costs (personnel, utilities, maintenance) and anticipated funding source for those costs*	The additional maintenance staff needed (one full time custodian and a portion of an electrician, HVAC/plumber and carpenter) are estimated at $70,000. An engineer estimates utility costs at $1/square foot for updating the current space and $5/square foot for the additional new space for a total utility increase of $375,400. NDSU is requesting appropriated dollars to cover the needs for this academic and research building.

Purpose or Support for the Project	It is inefficient to have the Department of Chemistry & Biochemistry spread throughout the campus. This is also true for the Department of Geosciences. Locating both of these departments in one facility will allow for the sharing of equipment, storage, rooms and other spaces that cannot be accomplished with the existing arrangement. The Department of Chemistry & Biochemistry is at its maximum for graduate students based on space and the space limitations for hiring additional faculty. Additional faculty would not have any space to complete the research that their jobs require and the existing labs are at below normal standards for fire and safety codes.
Project is: (SBHE Policy 902.1, section 3)	____ a. Major renovations to existing facilities; _ __ b. Major renovations to existing infrastructure, including technology upgrading; _X__ c. New construction and additions to existing facilities
Changes to Project *Reasons for change in size, scope and/or use of project since its initial appearance in the campus master plan*	The space shortage on campus has hindered the department's ability for further growth and the College is at a point where it needs more space, as confirmed by an architectural firm hired to update the master plan. In past plans, the intent was simply to renovate the existing Ladd/Dunbar complex. Renovating, however, no longer meets the needs of the Department of Chemistry & Biochemistry's academic and research programs that have outgrown Ladd/Dunbar. Moreover, the Biochemistry portion of the department is housed in another building, the Quentin Burdick Building (formerly IACC). That space is inadequate in terms of square footage and quality of space (insufficient wet chemical facilities and HVAC), severely constraining the current needs and the future growth of the department. Construction of a new building, combined with a future renovation of Ladd, would allow Biochemistry to move into the new complex and rejoin Chemistry as an integral part of the department. This would also open up space in the Quentin Burdick Building to accommodate the needs of the College of Agriculture, Food Science, & Natural Resources. In addition, construction of a new building would allow other complementary programs to occupy the same facility, resulting in long term savings and benefits. For example, Geosciences is also located in different buildings on campus that were not intended as modern science facilities. Relocating the department to Dunbar II would permit sharing of equipment and methods with Chemistry & Biochemistry, vastly improving educational opportunities for students. The Department of Biological Science is also experiencing constraints in hiring more faculty and in accepting additional graduate students because of the limitations of space in Stevens Hall. The new Dunbar II facility will allow more overall opportunities for current and future graduate students in the programs and the resulting research afforded by these opportunities.
Project Phases *Reasons the project CAN or CANNOT be completed in phases*	In theory, this project could be completed as three separate modules: Module 1 – erection of a new six-story building at the site of the parking lot between Dunbar and Geosciences Halls; the existing Dunbar would be demolished once everything in it is relocated; Module 2 – renovation of Ladd Hall; and Module 3 – possible demolition of Geosciences Hall or the construction of a new building in the footprint of the current Dunbar facility. (However, a significant delay between the modules would result in space shortages with the expected growth in graduate and undergraduate programs as outlined in previous portions of the 2014 Campus Master Plan.) Disruption of current operations could be greatly reduced with a judicious but close sequencing of the three modules. If, for example, Module 1 was implemented first, this would allow temporary accommodation of educational and research programs that are ongoing in Ladd/Dunbar Hall and, possibly, Geosciences Hall while the implementation of the other two modules proceeds. Because space is very limited on campus, especially for wet-chemical lab facilities, if Module 1 cannot be implemented first, some educational

	and research programs would have to be put on hold while renovations are made to the existing Ladd/Dunbar complex.
Criteria that the SBHE shall use to determine a rank order of projects, outlined in SBHE Policy 902.1, section 7:	
Project addresses current life, health and safety issues	The HVAC system in Dunbar is past its useful life and capacity for current operations. Malfunctions have become more frequent and have occasionally led to the need to evacuate the building. Well-functioning hoods are crucial to teaching and research in chemistry and related fields. In addition, the Department of Chemistry & Biochemistry has a very strong group of synthetic organic chemists that has been highly successful in training graduate students, obtaining external grants, and publishing its work. Graduate education and research in synthetic organic chemistry require the use of flammable solvents. This education and research are currently conducted primarily in Dunbar Hall. Fire and safety codes have continued to evolve since Dunbar was designed such that current codes make it increasingly difficult to conduct research and graduate education in synthetic organic chemistry in facilities with outdated specifications. The current configuration of the facility has all offices situated on the outer wall of the building. This creates health and safety concerns as anyone accessing those offices must walk through the labs to reach faculty and/or graduate students.
Project addresses compliance with local, state or federal law or other requirements	See above vis-à-vis solvent usage.
Project corrects significant deferred maintenance	All deferred maintenance will be addressed.
Project addresses a critical maintenance need defined by situations which must be addressed, and which, if neglected, could result in substantial damage to the structural integrity of the building	N/A
Project meets a compelling programmatic or accreditation justification consistent with campus mission and strategic goals	Having insufficient space in order to hire additional faculty is a programmatic issue. The lack of additional faculty and adequate space restricts the ability for departments to train new graduate students and for current students to continue in their programs. The physical separation of faculty in these departments also significantly diminishes what can be accomplished in advancing the education and resulting research of, by, and for the students.
Project has been partially funded by the legislature in a previous biennium, but is not yet complete	N/A
Project is supported by significant outside funding	Only state funding is being requested. However, the departments of Chemistry & Biochemistry and Geosciences have been instrumental in securing grant funds to help support their equipment needs but grant funds don't support building needs.
Space will be used to advance a specific program or activity that is a high priority of the state	The science field is important to North Dakota. Chemistry & Biochemistry and Geosciences, in particular, are important disciplines for the energy, biomedical, and high-technology manufacturing industries in the state.
Project addresses an urgent infrastructure need	There is definitely an urgent need from the standpoint of health and life safety, opportunity cost in research and education, and the ability to accommodate current operations and future growth.

Project is consistent with campus master plan and is highly rated by the campus	This project is the institution's number one priority in its master plan.
Project is necessary based on clearly demonstrated condition of existing space	Based on the outdated design of the building, students must walk through laboratories in order to access faculty and graduate student offices/areas, creating an unnecessary potential risk to both the students and the research being done in the labs. Malfunctions have become more frequent and have occasionally led to the need to evacuate rooms, and in some cases, the building due to the outdated and beyond-useful-life infrastructure.
Project fosters the consolidation of services or enhances operating efficiencies	See discussion of synergies elsewhere in this document.
Project enables the institution to remove obsolete or unnecessary facilities	The completion of the project would allow the removal of Dunbar Hall and possibly Geosciences Hall, replacing them with a modern facility. Currently, Geosciences Hall is not ADA-compliant. Moreover, it lacks the basic infrastructure to accommodate the additional modern laboratory space that Geosciences requires.
Total Project Costs *including cost of construction, demolition and equipment and furnishings. Identify source of cost estimates.*	The total project cost, including the demolition of Dunbar Hall, is $45,900,000. This includes $2,800,000 for FF&E. An architect was hired to help derive the estimate and to fine tune a space program for the project.

Project Name	***ACCREDITATON PROJECTS – PHARMACY, NURSING & ALLIED SCIENCES (SUDRO HALL ADDITION)***

Project Description *including potential cost of lost opportunities (both financial and non-financial) of not proceeding with the project. (Examples could include lost grants, partnership opportunities, impacts on student learning environment, etc.)*	The proposed 93,000 square foot (approximate) building addition to Sudro Hall will be critical to maintaining the future quality of education to pharmacy, nursing, and allied sciences students and will also be necessary in meeting and maintaining current accreditation standards for its health professions programs. The College of Pharmacy, Nursing, & Allied Sciences has recently experienced unprecedented growth. Since its inception as a College of Pharmacy, it has added nursing, allied sciences, and public health disciplines with significant increases in student enrollment, faculty, and staff. Since the mid 1990's, the College has progressively grown from 650 students and 40 faculty and staff to currently having approximately 2,000 students and 156 faculty and staff with only modest changes to its physical facilities. Over the past two years alone (2013 and 2014), the College has increased in size by approximately 467 additional professional students and 40 new faculty. Recent on-site evaluations from accrediting bodies in nursing and pharmacy have cited both programs for a lack of sufficient space which are currently impacting the programs ability to address important quality improvements needed to meet current accreditation standards. Not proceeding with the Sudro Hall building addition will place our health profession programs at risk of a possible negative accreditation action. Not proceeding with this project will also negatively impact our ability to continue the current (and anticipated future) growth of our research programs and funding. And most importantly, not proceeding with this project may jeopardize the future quality of education and training for our health professions students and prevent them from receiving the latest advances in technology and contemporary practice training currently needed to compete in the marketplace.
Project Phases *If project will be built in phases, outline additional future phases, including brief description, estimated cost and estimated biennial request date*	With the limited available space to add on, this five-to-six story building will be completed in one phase.
New Construction and Additions *If project consists of new construction and additions to existing facilities, include cost of renovating existing facilities that are made necessary by addition or new construction.*	The project consists of building an approximately 93,000 square feet addition to Sudro Hall and renovating parts of the existing facility once the new space is built.
Funding Source Description & Detail	State funds are being requested for this project.
Deferred Maintenance *that will be addressed*	There is not much deferred maintenance addressed in this project as the real need is additional space and repurposing some existing space.
Operating Costs/Funding Source *Estimated change in operating costs (personnel, utilities, maintenance) and anticipated funding source for those costs*	Three custodians and approximately three quarters time for a trade's staff person will be needed for additional maintenance staff. This is roughly $161,000. Utility costs would be estimated at $140,000 per year. Total operating costs would equal $301,000.

Purpose or Support for the Project	The purpose of the proposed Sudro Hall building addition is to expand the quality and quantity of space for students, faculty, and staff in pharmacy, nursing, allied sciences, and public health disciplines including offices, classrooms, research and clinical laboratories, student study and library space, and technology to address the rapid growth of programs, to make needed quality improvements to education and training of students, and to meet current accreditation standards regarding facilities. Building a new facility would be ideal but the general location of Sudro Hall and knowing the building is in reasonable shape led the decision making into renovating and adding an addition on to the current building. More specifically, the new building addition is needed to address ACPE accreditation concerns regarding space for the pharmacy program, and to also address program expansion and growth in nursing, MPH, two-way nursing distance education between Bismarck and NDSU, new training requirements in interprofessional education, and new programs being planned in MHA, international nursing partnerships (MS educator), and nursing genetic counseling as identified in Section I – PNAS Program Growth and Projected Enrollment Changes – of this master plan revision.
Project is: (SBHE Policy 902.1, section 3)	__X__ a. Major renovations to existing facilities; ____ b. Major renovations to existing infrastructure, including technology upgrading; __X__ c. New construction and additions to existing facilities
Changes to Project *Reasons for change in size, scope and/or use of project since its initial appearance in the campus master plan*	In previous master plans, renovations were listed for Sudro Hall but only for a few specific labs. The growth of and demand for the College, along with accreditation concerns, have led to a master plan for the program and a more comprehensive plan is being proposed to address these concerns. In addition, it is critical to get all components back into Sudro that have been moved to leased facilities due to a lack of space.
Project Phases *Reasons the project CAN or CANNOT be completed in phases*	The proposed new addition and current footprint of the building necessitate the project being completed in one phase.
Criteria that the SBHE shall use to determine a rank order of projects, outlined in SBHE Policy 902.1, section 7:	
Project addresses current life, health and safety issues	Having adequate space for teaching and research labs in the medical field is important for life, health and safety protocols.
Project addresses compliance with local, state or federal law or <u>other</u> requirements	N/A
Project corrects significant deferred maintenance	N/A
Project addresses a critical maintenance need defined by <u>situations</u> which must be addressed, and which, if neglected, could result in substantial damage to the structural integrity of the building	N/A
Project meets a compelling programmatic or accreditation justification consistent with campus mission and strategic goals	The pharmacy program recently had an accreditation visit and was found to be fully compliant with all ACPE accreditation standards except one, Standard 27: Physical Facilities. As a result, the pharmacy program accrediting body has served notice to NDSU that they are currently monitoring NDSU's progress in bringing this standard into full compliance with current ACPE accreditation standards and they are expecting a progress report from NDSU within two years regarding the status of the proposed Sudro Hall Building Addition. Failure to comply in bringing NDSU physical facilities into full

	compliance with ACPE's current accreditation standards could result in a negative accreditation action against the pharmacy program. In addition, the North Dakota Board of Nursing expects our nursing program to make quality improvements in the program, which include providing appropriate space to accommodate simulation education in order to satisfy Board of Nursing standards and criteria for continued program approval.
Project has been partially funded by the legislature in a previous biennium, but is not yet complete	N/A
Project is supported by significant outside funding	N/A
Space will be used to advance a specific program or activity that is a high priority of the state	NDSU has the only pharmacy education program in the state, which supplies approximately 90% of the current practicing pharmacists in North Dakota who serve the health care needs of the citizens of the state. In addition, 70-85% of NDSU nursing graduates stay in North Dakota to practice nursing.
Project addresses an urgent infrastructure need	N/A
Project is consistent with campus master plan and is highly rated by the campus	The NDSU pharmacy program was established in 1902 and has evolved over the years to become a major interprofessional healthcare education program serving our state, region, and nation. The College of Pharmacy, Nursing, and Allied Sciences (PNAS) has been a center of excellence at NDSU for more than 100 years. The College, a major academic unit of North Dakota State University, serves the state, region, and nation through its programs in pharmacy, nursing, and allied sciences providing education, research, patient care, and public service. Through its mission, the NDSU College of PNAS advances health care through research and scholarship and prepares students to become competent, caring, ethical, professionals and citizens, committed to lifelong learning. In addition, through its people and programs, the College places an emphasis and value on people; quality; professionalism and ethics; knowledge, teaching, and learning; research and scholarship; patient-focused care; and interprofessional education. On the average, between 30-35 percent of pharmacy graduates and 70+ percent of nursing graduates each year stay in North Dakota to practice in their respective disciplines. The College exemplifies the three principal responsibilities of a land grant university: Teaching, Research and Public Service and this project has been rated as one of the top three requests for the 2014 NDSU Campus Master Plan revision.
Project is necessary based on clearly demonstrated condition of existing space	The Health Science Branch Library materials have been moved to a leased space off-campus because of space shortages and current academic needs within Sudro Hall. This creates educational challenges for the College. The College is also investigating options for renting/leasing additional space for the new American Indian Public Health Resource Center, for the current major growth in the Master of Public Health (MPH) program and for the future anticipated growth of the Master of Health Administration (MHA) degree program. There is no current space in Sudro Hall for any of these items.
Project fosters the consolidation of services or enhances operating efficiencies	The project incorporates all components into one area and facility, thereby, creating efficiencies and providing a better opportunity for education within the College of Pharmacy, Nursing and Allied Sciences in, and around, one complex.
Project enables the institution to remove obsolete or unnecessary facilities	N/A

Total Project Costs *including cost of construction, demolition and equipment and furnishings. Identify source of cost estimates.*	Total project costs are $32,700,000 and that includes partially renovating, updating and repurposing sections of the existing Sudro Hall. This includes $8,600,000 for FF&E.

Project Name	***ACCREDITATION PROJECTS – ENGINEERING (PROJECT 1)***

Project Description *including potential cost of lost opportunities (both financial and non-financial) of not proceeding with the project. (Examples could include lost grants, partnership opportunities, impacts on student learning environment, etc.)*	This project is to upgrade, modernize and expand the current facilities primarily occupied and used by the College of Engineering. The current facilities were generally completed in the late 1960's with only the addition of Ehly Hall for Architecture added in 1998. Classrooms are outdated for modern engineering instruction, laboratory experiences, and computer (technology) applications. Recent accreditations have commented about the low quality and limited space in the college that does not meet the current needs of undergraduate students in an engineering college. Teaching, research, and graduate student projects are presently all housed in the same rooms and facilities that were designed for a smaller college serving undergraduate students and only a few Master's students. Today, the college houses more than 2,100 undergraduate students and supports 350 graduate students in Master's and PhD programs. Faculty office space availability is non-existent and conversion of smaller classrooms to create new offices is not possible due to classroom availability issues on campus. There are courses that would best be taught with a companion laboratory class but no space is available. Lack of quality laboratory spaces has impacted our ability to provide faculty with the space they need to be competitive in research and attract the best graduate students. Recruiting the best faculty is also impaired by the lack of adequate laboratory spaces. Our ability to upgrade our current programs or add new programs is being limited by space available for modern teaching laboratories housing state of the art equipment for student experimentation. The new STEM building on campus will impact our students when taking courses in their first two years. However, most engineering didactic courses are taught to juniors and seniors. New engineering classrooms housing state of the art systems are needed to engage and improve course quality. Faculty do not engage students in some learning activities due to the type of space they teach in being inadequate or inappropriate for new learning techniques. All of these things have a direct impact on the quality of education being offered students, including the inability to hire the best faculty possible to guide and mentor these students. This proposed project is targeted to improve the quality and content of undergraduate education, enhance research capabilities, and provide the space necessary for a strong and growing engineering college.
Project Phases *If project will be built in phases, outline additional future phases, including brief description, estimated cost and estimated biennial request date*	See next section
New Construction and Additions *If project consists of new construction and additions to existing facilities, include cost of renovating existing facilities that are made necessary by addition or new construction.*	Project 1 will have a project cost of $27,200,000. Future projects include: Project 2 (new construction) - $35,000,000 Project 3 (new construction) - $14,000,000 Project 4 (renovation) - $22,000,000 Project 5 (renovation and new construction) - $6,000,000 Project 6 (new construction) - $40,000,000 Project 7 (new construction) - $31,000,000
Funding Source Description & Detail	NDSU is requesting State Appropriated funds for Project 1.
Deferred Maintenance *that will be addressed*	Dolve (1951), Electrical Engineering (1965), Architecture (1965), Civil and Industrial Engineering (1965), Engineering Administration (1965), Construction Management Engineering (1981) and Ehly (2000) all have a long list of deferred maintenance needs.

	These facilities have not received any major renovations in their lifetimes and the infrastructure needed today is quite different than was needed in the 1960's. The projects will address all deferred maintenance.
Operating Costs/Funding Source *Estimated change in operating costs (personnel, utilities, maintenance) and anticipated funding source for those costs*	The renovated spaces will not require any more maintenance than what is currently provided and should actually decrease. The utilities will increase slightly once the spaces are properly fit up for the College's needs, and additional ventilation equipment will be required to bring the buildings up to code. The new additional spaces will require additional utilities, custodial support and a fractional financial need for maintenance personnel. NDSU will seek appropriation dollars for the operating costs.
Purpose or Support for the Project	The College of Engineering has not had any significant improvements to its facilities since they were completed in the late 1960's. At that time, the programs were generally dedicated to undergraduate education. Today, the same space now houses more than 2,100 undergraduate students and nearly 350 graduate students. Space availability is critically low. The college lacks office space for new faculty, staff, and graduate students and also lacks adequate teaching laboratory space, research space and teaching classrooms. Spaces originally planned to have 20 students in a laboratory environment now serve four or five sections of 20 students per week, provide space for graduate student research projects, and are the main laboratory for faculty research. The college has even had to install 24 hour card access to allow students time to complete their work due to the lack of space. Asking students to conduct laboratory or classroom work during late or early hours (10 p.m. to 7 a.m.) due to lack of space is not conducive to the high quality education that students deserve. However, resilient faculty and students have not compromised the educational mission, and engineering students still continue to be in high demand due to their excellent preparation. New facilities and renovating existing buildings will enable education and research to continue to deliver high quality results over the next decade or two.
Project is: (SBHE Policy 902.1, section 3)	__x__ a. Major renovations to existing facilities; __x__ b. Major renovations to existing infrastructure, including technology upgrading; __x__ c. New construction and additions to existing facilities
Changes to Project *Reasons for change in size, scope and/or use of project since its initial appearance in the campus master plan*	Different buildings in the Engineering complex have appeared in the campus master plan over the last few biennia. However, each project focused on a specific field instead of the College as a whole. To ensure that the College remains as the premier engineering school, an architect was secured to create a plan to maximize efficiencies, offer new ideas for additional opportunities, and determine additional space needs, utilizing a multiple project approach in adding new space and renovating current facilities.
Project Phases *Reasons the project CAN or CANNOT be completed in phases*	The project has been divided into multiple projects that allow for swing space and to meet today's dire need of additional new space.
Criteria that the SBHE shall use to determine a rank order of projects, outlined in SBHE Policy 902.1, section 7:	
Project addresses current life, health and safety issues	The proposed renovations will eliminate all current life, health and safety issues and will include the addition of adequate infrastructure to handle the current needs. The new additional square footage will eliminate many multifunctional areas (e.g., a research lab also operating as classroom and/or graduate student offices) that are creating health and safety issues. Much of the research and specialty equipment will be better served in new space rather than trying to make existing space fit the need.
Project addresses compliance with local, state or federal law or <u>other</u> requirements	The renovations will bring the buildings up to current code. All new additional square footage will meet the current codes.
Project corrects significant deferred maintenance	In 2008, the report by Sasaki Strategies indicated that the deferred maintenance for the facilities was in excess of $34,000,000. That list has continued to grow.

Project addresses a critical maintenance need defined by situations which must be addressed, and which, if neglected, could result in substantial damage to the structural integrity of the building	n/a
Project meets a compelling programmatic or accreditation justification consistent with campus mission and strategic goals	This project addresses critical needs in maintaining future accreditation of engineering and construction management programs. Space is inadequate and outdated for modern engineering instruction, laboratory experiences, and computer (technology) applications. Recent accreditations have commented about the low quality and limited space in the college that does not meet current needs for undergraduate students in an engineering college. Teaching, research, and graduate student projects are presently all housed in the same rooms and facilities that were designed for a smaller college serving undergraduate students and only a few Master's students. Today, the college houses more than 2,100 undergraduate students and supports 350 graduate students in Master's and PhD programs. The lack of space and the current conditions have a direct bearing on faculty recruitment, as well as providing students with what could be construed as an incomplete education due to lack of appropriate space to meet academic needs. The next general accreditation in the college is slated for 2018, allowing time to initiate and implement a program of work to meet the accreditation needs through 2024 and beyond.
Project has been partially funded by the legislature in a previous biennium, but is not yet complete	n/a
Project is supported by significant outside funding	NDSU is seeking state funding for Project 1. NDSU will use a combination of state and private funding for future Projects beyond 1.
Space will be used to advance a specific program or activity that is a high priority of the state	Engineering is a critical need within the state. Engineering firms in the state are continually asking how to increase the number of graduates from NDSU. Infrastructure needs, expanding technology corridor activities, and new start-up companies are seeking high quality graduates from NDSU.
Project addresses an urgent infrastructure need	The College has limitations for academic success with the current conditions. Adequate infrastructure is needed.
Project is consistent with campus master plan and is highly rated by the campus	This project has been listed in previous master plans and has been placed in the top three project needs for the current 2014 master plan revision.
Project is necessary based on clearly demonstrated condition of existing space	Space is inadequate and outdated for modern engineering instruction, laboratory experiences, and computer (technology) applications. Recent accreditations have commented about the low quality and limited space in the college that does not meet current needs for undergraduate students in an engineering college. Teaching, research, and graduate student projects are presently all housed in the same rooms and facilities that were designed for a smaller college serving undergraduate students and only a few Master's students. Today, the college houses more than 2,100 undergraduate students and supports 350 graduate students in Master's and PhD programs. The lack of space and the current conditions have a direct bearing on faculty recruitment, as well as providing students with what could be construed as an incomplete education due to lack of appropriate space to meet academic needs. In addition, the College is leasing 5,000 square feet off campus due to lack of space.

Project fosters the consolidation of services or enhances operating efficiencies	The recently completed College of Engineering master plan was initiated to develop program needs for the College but it also identified numerous efficiency needs within its areas. These efficiency needs were in classrooms, storage, office space, student spaces and labs. If the plan is followed, these efficiencies will be achieved.
Project enables the institution to remove obsolete or unnecessary facilities	Part of the Engineering Administration building will be removed and the remaining building will be renovated with some demo needed to create a more efficient complex.
Total Project Costs *including cost of construction, demolition and equipment and furnishings. Identify source of cost estimates.*	The total project cost is $27,200,000. This includes a new building/addition that will hold teaching labs, research labs, offices, storage, lab support areas, classrooms and student spaces.

Project Name	***CROP QUALITY AND FOOD SCIENCE FACILITY (HARRIS HALL REPLACEMENT)***

Project Description *including potential cost of lost opportunities (both financial and non-financial) of not proceeding with the project. (Examples could include lost grants, partnership opportunities, impacts on student learning environment, etc.)*	**Rationale:** Construction of a new facility that will house the crop quality, food science, and food safety teaching and research agendas is critical to the cereal chemistry/cereal quality, food science, food safety, and food security programs that exist at NDSU. The cereal chemistry/cereal quality areas are critical to the development and evaluation of new cereal (wheat, durum wheat, and barley) varieties that are developed and released for use in the state and region. Further, these cutting edge programs are involved in determining the quality of the specific crop produced in any given year; these "quality surveys" are necessary and critical to the milling, baking, and brewing industries in the U.S. and globally. The ability of North Dakota to continue producing and marketing superior commodities worldwide is the mainstay of the agricultural industry in the state. Similarly, the food science industries for food grade crop commodities, such as soybean dry bean, pulses, corn, and other commodities, rely on research programs to provide similar quality analyses. The Food Safety and Food Security programs are far-reaching in their academic and research agendas; both program areas rely on food science-based research to ensure a safe and nourishing food supply. Reducing Food Safety concerns throughout the agricultural and food supply network is in concert with the Food Safety Modernization Act approved by Congress and signed into law in 2011. These academic, research, and outreach programs involve both undergraduate and graduate education. The cereal chemistry/cereal quality program is only one of two in the nation; the Food Safety program is the only one in the nation that offers certificate, B.S., M.S., and Ph.D. degrees. The Food Security program that is under development will provide science-based decisions on food security issues throughout the world. **Project Description:** A new facility would address health, safety and code issues of the current building (Harris Hall): • Appropriate HVAC is lacking, resulting in recirculation of grain dust generated by milling samples of wheat and durum wheat. This poses a health risk, as well as creating conditions conducive to explosion and fire. This building is not equipped with an adequate fire system. • The facility is in, or near, violation for lack of appropriate eyewash stations, emergency showers in laboratory areas, and other worker safety-related issues. One such eyewash station is in the middle of a corridor. • Lack of sufficient electrical supply can result in an overloaded system, resulting in fire. The current building uses a fuse box rather than the circuit breaker system that is now an electrical code. In some areas of the current building, employees need to determine whether to use a computer, lights, or AC; using all three simultaneously blows a circuit. • The electrical system is lacking the proper voltage and power for certain equipment. NDSU has received expensive donated equipment but can't run the equipment because of the electrical system in place. • There is a problem with the close proximity of teaching and research laboratory spaces. These spaces should be separate. Research labs are equipped with grant funds or with contributions from commodity groups that pay for the research. Undergraduate students should never use this equipment as part of their general teaching lab activities. • The laboratories need distilled and/or purified water for research. However, most of the water lines are corroded so there are instances when researchers must carry water in to holding tanks for use. One of the men's bathrooms still has an adequate

	water supply, so a distilling system has been installed in it to help with this need. • The sewer lines are in as dire of condition as the water lines. In some cases, researchers must carry waste out with pails due to plugged sewage lines. Additionally, with enhanced technologies occurring in wheat and other crops, the need to evaluate transgenic materials for quality traits will require separate HVAC systems. This will prevent unintended presence of transgenic materials in conventionally developed crops and will allow larger and focused collaborations with industry. If an adequate facility isn't built, NDSU and the state can, and will, lose out on these research opportunities. Constructing a state-of-the-art facility will allow our researchers to enhance their competitiveness for Federal and industry grants, will allow our students the opportunity to be educated using current technologies, and will provide our stakeholders with critical and timely information to remain competitive in a global economy. This project is to replace the existing Harris Hall with a state-of-the-art facility that will carry out teaching and research in Cereal Quality, Cereal Chemistry, Food Safety, Food Science, and related areas. The current facility is in very poor condition and does not meet the space, functionality, and infrastructure needs for 21st Century science. A new facility dedicated to the above areas would enhance the university's ability to obtain competitive grants, partner with Federal and State agencies, and partner with industry. Undergraduate and graduate students would benefit from improved teaching and research space, and provide greater opportunities for undergraduate research programs. This project does include demolishing the North Lord & Burnham greenhouse.
Project Phases *If project will be built in phases, outline additional future phases, including brief description, estimated cost and estimated biennial request date*	This facility cannot be constructed in phases.
New Construction and Additions *If project consists of new construction and additions to existing facilities, include cost of renovating existing facilities that are made necessary by addition or new construction.*	Based on NDSU's Building Condition Report, Harris Hall is one of the two academic buildings on campus in the poorest condition. Renovation of the existing facility is cost prohibitive and there is no financially viable option to temporarily move the milling equipment elsewhere while a renovation is happening.
Funding Source Description & Detail	NDSU is requesting that the funds, including FF&E, be funded from State Capital funds (state appropriations).
Deferred Maintenance *that will be addressed*	Based on NDSU's Building Condition Report, Harris Hall is one of the top two poorest academic buildings on campus containing classrooms and laboratories. This project will correct deferred maintenance on plumbing and electrical issues that reduce the effectiveness of the current Harris Hall as a research facility.
Operating Costs/Funding Source *Estimated change in operating costs (personnel, utilities, maintenance) and anticipated funding source for those costs*	Current custodial support will transfer to the new building and one additional custodian will need to be hired at a salary of $40,000 (total including benefits.) Another $20,000 in salaries to cover electrical, HVAC, plumbing and carpentry will be included. The utilities will increase by $100,000. Total additional operating costs requested are $160,000.
Purpose or Support for the Project	Agriculture is the leading industry in the state and building a new facility to accommodate the food science and crops is crucial for NDSU and the State of ND. State Board of Agriculture Research and Education (SBARE) endorses this project. State Crop commodity groups are also strongly supportive of this project.

Project is: (SBHE Policy 902.1, section 3)	____ a. Major renovations to existing facilities; ____ b. Major renovations to existing infrastructure, including technology upgrading; __X__ c. New construction and additions to existing facilities
Changes to Project *Reasons for change in size, scope and/or use of project since its initial appearance in the campus master plan*	When originally proposed, thorough evaluation of the need for separate space for transgenic research, food science teaching and research, and food security teaching and research needs were not completely explored and matched with faculty needs.
Project Phases *Reasons the project CAN or CANNOT be completed in phases*	The proposed facility is an integration of core research and teaching laboratories, milling rooms, seed and food storage rooms, freezers, coolers, kitchens, and sensory laboratories associated with support labs for analytical lab work. Due to the intricacies of the various laboratories and support areas, this project cannot be constructed in phases.
Criteria that the SBHE shall use to determine a rank order of projects, outlined in SBHE Policy 902.1, section 7:	
Project addresses current life, health and safety issues	The construction project would provide better ventilation and effectively reduce exposure to dust during the milling of seed samples. The water lines are in extremely poor condition; there are lines that have been abandoned due to non-usability. Plumbing is inadequate to provide eyewash stations with sufficient water pressure that can be used in the event of chemical spills affecting lab workers' eyes. Lack of a sufficient electrical supply presents a fire hazard as fuses continue to blow because circuits are overloaded. In some areas of the building, air handling units, lights, and computers cannot be run simultaneously. Asbestos in floors and ceilings represents a health hazard, particularly the peeling paint often seen on ceilings.
Project addresses compliance with local, state or federal law or <u>other</u> requirements	Laboratories preparing food products for sensory evaluation will need to meet state laws for food service. Research laboratories where research will be conducted using regulated traits will need to meet federal guidelines. Nearly all of the current food grade labs do not meet current ND Department of Health standards in these areas. This is a significant deficiency in the current building.
Project corrects significant deferred maintenance	See previous comments on deferred maintenance issues.
Project addresses a critical maintenance need defined by <u>situations</u> which must be addressed, and which, if neglected, could result in substantial damage to the structural integrity of the building	The ventilation issues and lack of fire protection in the building poses a serious fire hazard. Harris Hall is connected to the Northern Crops Institute building, which would be jeopardized if a fire or similar hazard would occur.
Project meets a compelling programmatic or accreditation justification consistent with campus mission and strategic goals	The Food Science academic program requires national accreditation.
Project has been partially funded by the legislature in a previous biennium, but is not yet complete	N/A
Project is supported by significant outside funding	N/A

Space will be used to advance a specific program or activity that is a high priority of the state	Harris Hall houses the quality laboratories for spring wheat, winter wheat, durum wheat, barley, pulses, corn, and flax. Except for corn and winter wheat, North Dakota is the leading state in production for these crops. All of the labs provide research and outreach to end users of each of the crops. These programs are crucial to allowing for the development and release of crop varieties that are critically important to the state's economy. On-farm value of the ND wheat, corn, and soybean crop exceeded $8 billion in both 2012 and 2013.
Project addresses an urgent infrastructure need	See previous comments on insufficient water pressure, electrical service, fire protection and ventilation. It does not meet the GMO needs and NDSU lacks industry needs in this field.
Project is consistent with campus master plan and is highly rated by the campus	North Dakota State University is a "Land Grant Research" university, and the activities in Harris Hall are consistent with its teaching, research and public service responsibilities, especially in regards to agriculture. Agriculture aligns with the needs and core values of North Dakota. Improving research, along with providing quality classroom space and supporting agricultural needs, is consistent with the Master Plan.
Project is necessary based on clearly demonstrated condition of existing space	See previous comments on insufficient water pressure, electrical service, and ventilation.
Project fosters the consolidation of services or enhances operating efficiencies	The current facility was built in the 1950s to house quality laboratories for wheat, barley, and durum. A new facility would house quality laboratories for many more crops and would foster collaborative research and interactions between scientists. The new facility would also house shared analytical laboratories with expensive state-of-the-art analytical equipment that could be used by multiple users. This, in turn, would make our scientists more competitive in obtaining extramural funding.
Project enables the institution to remove obsolete or unnecessary facilities	The activities in Harris Hall operate year round, which would create challenges for renovating the building. In addition, there will be a cost to move sensitive research equipment to allow for renovations, so moving it once to a new facility will ultimately save money. Based on the overall condition of this building and the lack of ceiling height to accommodate adequate ventilation, it has been determined that the best option is to build a new facility and tear Harris down. This project will provide a facility that meets the current standards of a research facility in terms of electrical power required to operate modern equipment and instruments, plumbing for both potable and distilled water and ventilation hoods for safety, thereby improving the effectiveness of the researchers currently residing in Harris Hall. Additionally, a sensory laboratory that provides food products for evaluation will need to meet state laws for food service.
Total Project Costs *including cost of construction, demolition and equipment and furnishings. Identify source of cost estimates.*	The total project cost is $32,000,000. This includes $1,725,000 for FF&E. NDSU will completely remove all abatement of Harris Hall once vacant and will consider demolishing this building in a future request. This project does include removing the North Lord & Burnam Greenhouse complex, the leading site location for the new facility. An architect was hired to help solidify the costs.

Non-State Funded Capital Projects (Revenue Bond, Private, Grant Funding)

FUTURE MAJOR CAPITAL PROJECTS REQUIRING LEGISLATIVE APPROVAL

NON-STATE FUNDS (revenue bond, private, grant)

Institution NORTH DAKOTA STATE UNIVERSITY

New construction, addition and major remodeling projects for which the campus is requesting legislative approval to issue revenue bonds or to expend private/grant funds > $385,000

Priority 1/	Project Title	Total Project Cost Estimate	Total Funding Request 2/	FF&E Included in Total Request	Deferred Maint. Amount 3/
2015-17 Biennium					
1	Aquatic Center	$11,000,000	Bond/Local	$275,000	N/A
Future Projects Under Consideration (Beyond 2015-17), In Priority Order					
	Churchill Hall	$15,000,000	Bond	$600,000	$3,530,000
	University Village-Phases I & II	$18,000,000	Bond	$750,000	$5,300,000
	Softball Field Renovations	$3,000,000	Private	$0	$0

Aquatic Center ($11,000,000)

Project would expand Wellness Center facilities on campus with the inclusion of an aquatic center. Swimming/aquatic activity is a lifetime recreational activity and is a component of physical wellness that NDSU cannot currently offer because it does not have a functional swimming pool on campus.

Non-State Funded Capital Projects (Auxiliary, Local Funding)

FUTURE MAJOR CAPITAL PROJECTS
NON-STATE FUNDS (auxiliary, local)

Institution: NORTH DAKOTA STATE UNIVERSITY
New construction, addition and major remodeling projects for which the campus is using auxiliary, local funds which meet or exceed the following dollar amounts: $1,000,000 (NDSU)

Priority 1/	Project Title	Total Project Cost Estimate	Total Funding Request 2/	FF&E (NOT Included in Total Request)	Deferred Maint. Amount 3/
2015-17 Biennium					
1	Memorial Union Dining Center Expansion & Accessibility	$1,000,000	Local	$100,000	$0
2	Residence Dining Center Kitchen Remodel & Roof Replacement	$2,000,000	Local	$550,000	$300,000
3	Low Rise Lavatories-Phases IV & V	$2,327,775	Local	$0	$1,582,500
Future Projects Under Consideration (Beyond 2015-17), In Priority Order					
	Low Rise Lavatories-Phase VI	$1,249,050	Local	$0	$849,000
	Low Rise Lavatories-Phase VII	$1,305,825	Local	$0	$887,500
	Low Rise Lavatories-Phase VIII	$1,362,600	Local	$0	$926,000
	Low Rise Lavatories-Phase IX	$1,419,375	Local	$0	$964,500
	Low Rise Lavatories-Phase X	$1,476,150	Local	$0	$1,003,000
	Residence Life Sprinkler Systems Installations (several phases)	$2,600,000	Local	$0	$0

Memorial Union Dining Center Expansion and Accessibility ($1,000,000)

The project consists of expanding the space for more seating and accessibility in the Union Dining Center in the Memorial Union. There has been a general 18% increase in traffic, serving 1,000 students during lunchtime and with an average of 1,900 per day. Due to the consistent rush-hour of users, the rising number of people would be better served by increasing the amount of tables and seating. Dining currently serves various persons with disabilities. Specific tables are reserved to accommodate their needs. However, due to the lack of space, these tables are adjacent to the serving lines. The additional traffic aforementioned has created a hardship for these individuals to sit with their meal companions.

Residence Dining Center Kitchen Remodel and Roof Replacement ($2,000,000)

The project consists of remodeling the kitchen and replacing the roof. The remodel will replace piping stacks and mechanical including improved ventilation for ovens and grilles as well as increasing the utilization of space for prepping and cooking meals. Existing coolers and freezers will be moved and expanded for ease of storing food. The mechanical work will create additional penetrations to a roof that will need to be replaced because of existing tears around the edges of the membrane. Addressing both projects at one time will be more cost effective and offer greater protection for the facility.

Low Rise Lavatory Renovation-Phase IV ($1,135,000) & Phase V ($1,192,275)

The project consists of remodeling the low-rise residence halls bathrooms by replacing the piping stacks, mechanical (including improved ventilation) and more private areas for showers, sinks and lavatories. This project would be completed in five phases, beginning with the residence hall with the most damaged stacks. The residence halls included in this project include: Reed and Johnson Halls, North and South Weible, and Burgum. Energy conservation will be utilized along with long lasting and sustainable finishes.

Summary of Future Projects

North Dakota Agricultural Experiment Station

Major State Funded Capital Projects $1,000,000 or greater:

1. Veterinary Diagnostic Lab (Main Station) $18,000,000
2. Meats Lab Facility (Main Station) $7,600,000
3. Seed Cleaning Facilities (CREC, LREC, NCREC, WREC) $5,250,000

Summary of Future Projects *and* Legislative Requests for the New Biennium

Major State Funded Capital Projects ($1,000,000 or greater)

(All proposed projects will be from General Funds unless otherwise stated)

Project Name	***#1. VETERINARY DIAGNOSTIC LAB ($18,000,000)***

Project Description *including potential cost of lost opportunities (both financial and non-financial) of not proceeding with the project. (Examples could include lost grants, partnership opportunities, impacts on student learning environment, etc.)*	The NDAES Veterinary Diagnostic Lab (VDL) may lose accreditation because it does not meet modern laboratory standards. Loss of accreditation would affect North Dakota veterinarians and livestock producers relying on the facility for test results; would affect affiliation with the National Animal Health Laboratory Network (subsequently affecting funds for diagnostic equipment, proficiency testing for regulatory diseases, partial salary support for an IT position, and would prevent competition for surveillance testing contracts); would restrict access to Federal funds for bioterrorism preparedness and partial funding of technical support; inhibits the ability to conduct regulatory testing for animals crossing state and international borders; restricts surveillance of diseases of human health significance, such as rabies, anthrax, and West Nile virus; and affects the ability of the VDL to participate in the Veterinary Laboratory Response network for toxicology testing. Veterinary clinics often require the use of an accredited veterinary diagnostic lab for biopsies and bacterial culture. The loss of accreditation would result in significantly higher costs for animal health and regulatory testing for North Dakota livestock producers, veterinarians, and the public. The state would be unable to respond to animal health emergencies in a timely fashion. A new and modern facility to house the veterinary diagnostic laboratory (VDL) at North Dakota State University should be a minimum of 20,000 square feet (current facility is approximately 8,000 square feet) and be designed to allow cost effective addition of laboratory space, as needed, to meet future testing demands (e.g., meat testing, analysis of feed and animal samples for petroleum residues, international export testing). The facility should include adequate laboratory and office space for sample receiving, toxicology, serology, information technology, administration, clinical pathology, gross pathology, histology, quality assurance, bacteriology/mycology, virology and molecular diagnostic sections. In addition, space to house a library and conference/meeting room that can accommodate presentations for producer groups, veterinary groups and student groups should be included. Since the future of carcass rendering is uncertain, it is necessary to install a tissue digester to insure safe and adequate carcass disposal capacity. A new VDL needs to have dedicated Biosafety Level 3 necropsy/laboratory space (including the ability to capture effluent) to safely address current and future public health threats

	and potential introductions of foreign animal diseases. This facility should have a biosecure visitor's entry with dedicated bathrooms. Adequate parking space, semi-truck and trailer access and a radiology room are needed. An enclosed receiving area that will allow for off-loading of animal carcasses, as well as live animals that may require euthanasia is required. Appropriate storage for archiving records and data storage is necessary. Adequate freezer space for individual labs and lockup of samples involved in litigation cases is important. The post mortem laboratory should have access points that allow shower-in/shower-out capability for personnel as well biosecure entry and exit points to safely contain animal and human pathogens. The entire building must be sufficiently secure with electronic card key access to individual laboratories. An alarm system including monitoring of major equipment and a back-up power source are necessary as well. Building surveillance cameras are suggested.
Project Phases *If project will be built in phases, outline additional future phases, including brief description, estimated cost and estimated biennial request date*	N/A
New Construction and Additions *If project consists of new construction and additions to existing facilities, include cost of renovating existing facilities that are made necessary by addition or new construction.*	N/A
Funding Source Description & Detail	General Funds
Deferred Maintenance *that will be addressed*	N/A
Operating Costs/Funding Source *Estimated change in operating costs (personnel, utilities, maintenance) and anticipated funding source for those costs*	Annual operating cost is estimated at $120,000/year
Purpose or Support for the Project	The NDAES Veterinary Diagnostic Lab (VDL) may lose accreditation because it does not meet modern laboratory standards. Loss of accreditation would affect North Dakota veterinarians and livestock producers relying on the facility for test results; would affect affiliation with the National Animal Health Laboratory Network (subsequently affecting funds for diagnostic equipment, proficiency testing for regulatory diseases, partial salary support for an IT position, and would prevent competition for surveillance testing contracts); would restrict access to Federal funds for bioterrorism preparedness and partial funding of technical support; inhibits the ability to conduct regulatory testing for animals crossing state and international borders; restricts surveillance of diseases of human health significance, such as rabies, anthrax, and West Nile virus; affects the ability of the VDL to participate in the Veterinary Laboratory Response network for toxicology testing. Veterinary clinics often require the use of an accredited veterinary diagnostic lab for biopsies and bacterial culture. The loss of accreditation would

	result in significantly higher costs for animal health and regulatory testing for North Dakota livestock producers, veterinarians, and the public. The state would be unable to respond to animal health emergencies in a timely fashion. This project is ranked #1 by State Board for Agricultural Research and Education (SBARE)
Project is: (SBHE Policy 902.1, section 3)	____ a. Major renovations to existing facilities; ____ b. Major renovations to existing infrastructure, including technology upgrading; __X__ c. New construction and additions to existing facilities
Changes to Project *Reasons for change in size, scope and/or use of project since its initial appearance in the campus master plan*	N/A
Project Phases *Reasons the project CAN or CANNOT be completed in phases*	
~~Criteria that the SBHE shall use to determine a rank order of projects, outlined in SBHE Policy 902.1, section 7:~~ **Additional Information:**	
Project addresses current life, health and safety issues	Current facility is inadequate.
Project addresses compliance with local, state or federal law or <u>other</u> requirements	The NDAES Veterinary Diagnostic Lab (VDL) may lose accreditation because it does not meet modern laboratory standards. Loss of accreditation would affect North Dakota veterinarians and livestock producers relying on the facility for test results; would affect affiliation with the National Animal Health Laboratory Network (subsequently affecting funds for diagnostic equipment, proficiency testing for regulatory diseases, partial salary support for an IT position, and would prevent competition for surveillance testing contracts); would restrict access to Federal funds for bioterrorism preparedness and partial funding of technical support; inhibits the ability to conduct regulatory testing for animals crossing state and international borders; restricts surveillance of diseases of human health significance, such as rabies, anthrax, and West Nile virus; affects the ability of the VDL to participate in the Veterinary Laboratory Response network for toxicology testing. Veterinary clinics often require the use of an accredited veterinary diagnostic lab for biopsies and bacterial culture. The loss of accreditation would result in significantly higher costs for animal health and regulatory testing for North Dakota livestock producers, veterinarians, and the public. The state would be unable to respond to animal health emergencies in a timely fashion.
Project corrects significant deferred maintenance	There are no identified deferred maintenance items that this project will address
Project addresses a critical maintenance need defined by <u>situations</u> which must be addressed, and which, if neglected, could result in substantial damage to the structural integrity of the building	There are no critical maintenance issues with the existing building which could compromise the structural integrity of the building.
Project meets a compelling programmatic or accreditation justification consistent with	A new and modern facility to house the veterinary diagnostic laboratory (VDL) at North Dakota State University should be a minimum of 20,000 square feet (current facility is approximately 8,000 square feet) and be designed to allow cost effective

campus mission and strategic goals	addition of laboratory space, as needed, to meet future testing demands (e.g, meat testing, analysis of feed and animal samples for petroleum residues, international export testing). The facility should include adequate laboratory and office space for sample receiving, toxicology, serology, information technology, administration, clinical pathology, gross pathology, histology, quality assurance, bacteriology/mycology, virology and molecular diagnostic sections. In addition, space to house a library and conference/meeting room that can accommodate presentations for producer groups, veterinary groups and student groups should be included. Since the future of carcass rendering is uncertain, it is necessary to install a tissue digester to insure safe and adequate carcass disposal capacity. A new VDL needs to have dedicated Biosafety Level 3 necropsy/laboratory space (including the ability to capture effluent) to safely address current and future public health threats and potential introductions of foreign animal diseases. This facility should have a biosecure visitor's entry with dedicated bathrooms. Adequate parking space, semi-truck and trailer access and a radiology room are needed. An enclosed receiving area that will allow for off-loading of animal carcasses, as well as live animals that may require euthanasia is required. Appropriate storage for archiving records and data storage is necessary. Adequate freezer space for individual labs and lockup of samples involved in litigation cases is important. The post mortem laboratory should have access points that allow shower-in/shower-out capability for personnel as well biosecure entry and exit points to safely contain animal and human pathogens. The entire building must be sufficiently secure with electronic card key access to individual laboratories. An alarm system including monitoring of major equipment and a back-up power source are necessary as well. Building surveillance cameras are suggested.
Project has been partially funded by the legislature in a previous biennium, but is not yet complete	There has been no previous funding for this project.
Project is supported by significant outside funding	There is no outside funding in place for this project.
Space will be used to advance a specific program or activity that is a high priority of the state	The NDAES Veterinary Diagnostic Lab (VDL) may lose accreditation because it does not meet modern laboratory standards. Loss of accreditation would affect North Dakota veterinarians and livestock producers relying on the facility for test results; would affect affiliation with the National Animal Health Laboratory Network (subsequently affecting funds for diagnostic equipment, proficiency testing for regulatory diseases, partial salary support for an IT position, and would prevent competition for surveillance testing contracts); would restrict access to Federal funds for bioterrorism preparedness and partial funding of technical support; inhibits the ability to conduct regulatory testing for animals crossing state and international borders; restricts surveillance of diseases of human health significance, such as rabies, anthrax, and West Nile virus; affects the ability of the VDL to participate in the Veterinary Laboratory Response network for toxicology testing. Veterinary clinics often require the use of an accredited veterinary diagnostic lab for biopsies and bacterial culture. The loss of accreditation would result in significantly higher costs for animal health and regulatory testing for North Dakota livestock producers, veterinarians, and the public. The state would be unable to respond to animal health emergencies in a timely fashion.
Project addresses an urgent infrastructure need	This is an entire new building and not an infrastructure request.

Project is consistent with campus master plan and is highly rated by the campus	YES – Project is ranked #1 need by State Board of Agricultural Research and Education (SBARE)
Project is necessary based on clearly demonstrated condition of existing space	The use of the existing space risks losing accreditation because it does not meet modern laboratory standards.
Project fosters the consolidation of services or enhances operating efficiencies	This is a stand-alone project with no consolidation of services.
Project enables the institution to remove obsolete or unnecessary facilities	The existing space will be repurposed for other needs to be determined in the future.
Total Project Costs *including cost of construction, demolition and equipment and furnishings. Identify source of cost estimates.*	**TOTAL** $18,000,000 This estimate prepared by State Board of Agricultural Research and Education (SBARE).

Project Name	***#2. MEATS LAB FACILITY ($7,600,000)***

Project Description *including potential cost of lost opportunities (both financial and non-financial) of not proceeding with the project. (Examples could include lost grants, partnership opportunities, impacts on student learning environment, etc.)*	A new/upgraded facility is urgently needed. The current Meats Lab is approximately 7,500 sq. ft. and was built in the 1950's and no longer serves the needs of modern meat science research. Annual repair and maintenance costs to the current facility continue to increase. Additionally, the Lab continues to struggle to meet the U.S. Department of Agriculture inspection requirements for safe meat handling and processing. A new facility is necessary because opportunities to grow the state's livestock industries are tied to the knowledge of the end product and how that product meets the needs of national and international consumers. Design features of a 19,000 sq. ft. facility would include animal holding and handling areas, an abattoir, processing and fabrication rooms, research labs, walk-in coolers and freezers, sensory evaluation labs, preparation kitchens, conference rooms, and other miscellaneous support, storage, and equipment rooms.
Project Phases *If project will be built in phases, outline additional future phases, including brief description, estimated cost and estimated biennial request date*	N/A
New Construction and Additions *If project consists of new construction and additions to existing facilities, include cost of renovating existing facilities that are made necessary by addition or new construction.*	N/A
Funding Source Description & Detail	General Fund
Deferred Maintenance *that will be addressed*	No deferred maintenance will be addressed from the AES master plan, but, approximately $500,000 in deferred maintenance will be eliminated from the NDSU campus master plan.
Operating Costs/Funding Source *Estimated change in operating costs (personnel, utilities, maintenance) and anticipated funding source for those costs*	Estimated future operating cost is $57,000/year, from general funds
Purpose or Support for the Project	A new/upgraded facility is urgently needed. The current Meats Lab is approximately 7,500 sq. ft. and was built in the 1950's and no longer serves the needs of modern meat science research. Annual repair and maintenance costs to the current facility continue to increase. Additionally, the Lab continues to struggle to meet the U.S. Department of Agriculture inspection requirements for safe meat handling and processing. A new facility is necessary because opportunities to grow the state's livestock industries are tied to the knowledge of the end product and how that product meets the needs of national and international consumers. Design features of a 19,000 sq. ft. facility would include animal holding and handling areas, an abattoir, processing and fabrication rooms, research labs, walk-in coolers and freezers, sensory evaluation labs, preparation kitchens, conference rooms, and other miscellaneous support, storage, and equipment rooms.

	This project is ranked #2 by State Board of Agricultural Research and Education (SBARE)
Project is: (SBHE Policy 902.1, section 3)	____ a. Major renovations to existing facilities; ____ b. Major renovations to existing infrastructure, including technology upgrading; __X__ c. New construction and additions to existing facilities
Changes to Project *Reasons for change in size, scope and/or use of project since its initial appearance in the campus master plan*	N/A
Project Phases *Reasons the project CAN or CANNOT be completed in phases*	
~~Criteria that the SBHE shall use to determine a rank order of projects, outlined in SBHE Policy 902.1, section 7:~~ **Additional Information:**	
Project addresses current life, health and safety issues	There are currently safety issues with the live animal handling that would be addressed with the new facility.
Project addresses compliance with local, state or federal law or other requirements	The Lab continues to struggle to meet the U.S. Department of Agriculture inspection requirements for safe meat handling and processing. All state and local and federal laws will be adhered to with this new facility.
Project corrects significant deferred maintenance	$500,000 in deferred maintenance would be eliminated from main campus deferred maintenance list.
Project addresses a critical maintenance need defined by situations which must be addressed, and which, if neglected, could result in substantial damage to the structural integrity of the building	There are no building maintenance issues that impact structural integrity of the current building.
Project meets a compelling programmatic or accreditation justification consistent with campus mission and strategic goals	The existing lab continues to struggle to meet the U.S. Department of Agriculture inspection requirements for safe meat handling and processing. A new facility is necessary because opportunities to grow the state's livestock industries are tied to the knowledge of the end product and how that product meets the needs of national and international consumers.
Project has been partially funded by the legislature in a previous biennium, but is not yet complete	There has been no previous funding of this project.
Project is supported by significant outside funding	There is no outside funding for this project
Space will be used to advance a specific program or activity that is a high priority of the state	A new facility is necessary because opportunities to grow the state's livestock industries are tied to the knowledge of the end product and how that product meets the needs of national and international consumers.
Project addresses an urgent infrastructure need	This project is a building project and no infrastructure issues will be addressed.

Project is consistent with campus master plan and is highly rated by the campus	Yes, is included in the AES master plan and is ranked #2 by (SBARE)
Project is necessary based on clearly demonstrated condition of existing space	The existing lab continues to struggle to meet the U.S. Department of Agriculture inspection requirements for safe meat handling and processing. A new facility is necessary because opportunities to grow the state's livestock industries are tied to the knowledge of the end product and how that product meets the needs of national and international consumers.
Project fosters the consolidation of services or enhances operating efficiencies	There is no consolidation of services or enhanced operating efficiencies with this project.
Project enables the institution to remove obsolete or unnecessary facilities	The existing facilities will be repurposed for other uses to be determined at a later date.
Total Project Costs *including cost of construction, demolition and equipment and furnishings. Identify source of cost estimates.*	**TOTAL** $7,600,000 Estimate by State Board of Agricultural Research and Education (SBARE)

Project Name	***#3. SEED CLEANING FACILITIES AT CARRINGTON, LANGDON, NORTH CENTRAL, AND WILLISTON RESEARCH EXTENSION CENTERS ($5,250,000)***

Project Description *including potential cost of lost opportunities (both financial and non-financial) of not proceeding with the project. (Examples could include lost grants, partnership opportunities, impacts on student learning environment, etc.)*	Seed cleaning facilities at CREC, LREC, NCREC, and WREC need to be replaced. Current facilities are antiquated, lack reliable capability to ensure high quality seed, are slow, and inefficient. These facilities were designed to handle cereal crops and have limited/no capability of cleaning pulse crops and other fragile seed that are in high demand. Also, the existing facilities pose considerable worker safety issues. The request is for four portable mills and building facility for the mill. Each Center will have one mill, with appropriate air screen cleaner, indent mill and gravity mill, augers, conveyors, and cyclone dust cleaning system. The capacity would be approximately 300 bu/hr, depending on type of crop being cleaned. The facility will have the appropriate electrical, ventilation, and heating necessary for electric eye separators (at CREC, NCREC, and WREC) to ensure a high quality product.
Project Phases *If project will be built in phases, outline additional future phases, including brief description, estimated cost and estimated biennial request date*	N/A
New Construction and Additions *If project consists of new construction and additions to existing facilities, include cost of renovating existing facilities that are made necessary by addition or new construction.*	N/A
Funding Source Description & Detail	General Fund
Deferred Maintenance *that will be addressed*	N/A
Operating Costs/Funding Source *Estimated change in operating costs (personnel, utilities, maintenance) and anticipated funding source for those costs*	Operating costs are estimated at $10,000/year at each location. Source is special funds.
Purpose or Support for the Project	Each Center will have one mill, with appropriate air screen cleaner, indent mill and gravity mill, augers, conveyors, and cyclone dust cleaning system. The capacity would be approximately 300 bu/hr, depending on type of crop being cleaned. The facility will have the appropriate electrical, ventilation, and heating necessary for electric eye separators (at CREC, NCREC, and WREC) to ensure a high quality product. This project is ranked #3 by the State Board of Agricultural Research and Education (SBARE)
Project is: (SBHE Policy 902.1, section 3)	____ a. Major renovations to existing facilities; ____ b. Major renovations to existing infrastructure, including technology upgrading; __X__ c. New construction and additions to existing facilities

Changes to Project *Reasons for change in size, scope and/or use of project since its initial appearance in the campus master plan*	N/A
Project Phases *Reasons the project CAN or CANNOT be completed in phases*	
~~Criteria that the SBHE shall use to determine a rank order of projects, outlined in SBHE Policy 902.1, section 7:~~ **Additional Information:**	
Project addresses current life, health and safety issues	Yes, there are air quality-related health and safety issues due to poor air exchange and dust control in the existing facilities now in use for seed cleaning.
Project addresses compliance with local, state or federal law or other requirements	There are no local, state or federal laws that are requiring this project, but local, state and federal building codes will be followed.
Project corrects significant deferred maintenance	Yes $250,000 in deferred maintenance will be eliminated with these projects
Project addresses a critical maintenance need defined by situations which must be addressed, and which, if neglected, could result in substantial damage to the structural integrity of the building	There are no critical maintenance needs which must be addressed, and which, if neglected, could result in substantial damage to the structural integrity of the building
Project meets a compelling programmatic or accreditation justification consistent with campus mission and strategic goals	Foundation seedstocks program processes a large volume and a diverse number of crops and crop varieties annually. The seedstocks program is a major part of the broader NDSU Foundation Seedstocks project.
Project has been partially funded by the legislature in a previous biennium, but is not yet complete	There has been no partial funding of this project in the previous biennium.
Project is supported by significant outside funding	There is no outside funding for this project.
Space will be used to advance a specific program or activity that is a high priority of the state	Foundation seedstocks program processes a large volume and a diverse number of crops and crop varieties annually. The seedstocks program is a major part of the broader NDSU Foundation Seedstocks project.
Project addresses an urgent infrastructure need	This project is not addressing infrastructure needs.
Project is consistent with campus master plan and is highly rated by the campus	This project has been listed in the Ag master plan for several years and is ranked #3 by SBARE
Project is necessary based on clearly demonstrated condition of existing space	The current foundation seed facilities at the four sites were constructed in 1960s and utilize the same equipment. They are outdated, unsafe, inefficient, and very slow and need to be modernized to support a foundation seed system demanded by the region's producers.

Project fosters the consolidation of services or enhances operating efficiencies	This project enhances operating efficiencies at each of the sites, but will not foster the consolidation of services.
Project enables the institution to remove obsolete or unnecessary facilities	The existing facilities will be repurposed for other uses to be determined at a future date.
Total Project Costs *including cost of construction, demolition and equipment and furnishings. Identify source of cost estimates.*	**TOTAL** $5,250,000 The cost estimate was by State Board of Agricultural Research and Education (SBARE).

North Dakota Agricultural Experiment Station

2014 Major State Funded Capital Projects $1,000,000 or greater:

1. Veterinary Diagnostic Lab (Main Station) $18,000,000
2. Meats Lab Facility (Main Station) $7,600,000
3. Seed Cleaning Facilities (CREC, LREC, NCREC, WREC) $5,250,000

(All proposed projects will be from General Funds unless otherwise indicated.)

Veterinary Diagnostic Lab (Priority #1) $18,000,000

The NDAES Veterinary Diagnostic Lab (VDL) may lose accreditation because it does not meet modern laboratory standards. Loss of accreditation would affect North Dakota veterinarians and livestock producers relying on the facility for test results; would affect affiliation with the National Animal Health Laboratory Network (subsequently affecting funds for diagnostic equipment, proficiency testing for regulatory diseases, partial salary support for an IT position, and would prevent competition for surveillance testing contracts); would restrict access to Federal funds for bioterrorism preparedness and partial funding of technical support; inhibits the ability to conduct regulatory testing for animals crossing state and international borders; restricts surveillance of diseases of human health significance, such as rabies, anthrax, and West Nile virus; affects the ability of the VDL to participate in the Veterinary Laboratory Response network for toxicology testing. Veterinary clinics often require the use of an accredited veterinary diagnostic lab for biopsies and bacterial culture. The loss of accreditation would result in significantly higher costs for animal health and regulatory testing for North Dakota livestock producers, veterinarians, and the public. The state would be unable to respond to animal health emergencies in a timely fashion.

A new and modern facility to house the veterinary diagnostic laboratory (VDL) at North Dakota State University should be a minimum of 20,000 square feet (current facility is approximately 8,000 square feet) and be designed to allow cost effective addition of laboratory space, as needed, to meet future testing demands (e.g, meat testing, analysis of feed and animal samples for petroleum residues, international export testing). The facility should include adequate laboratory and office space for sample receiving, toxicology, serology, information technology, administration, clinical pathology, gross pathology, histology, quality assurance, bacteriology/mycology, virology and molecular diagnostic sections. In addition, space to house a library and conference/meeting room that can accommodate presentations for producer groups, veterinary groups and student groups should be included. Since the future of carcass rendering is uncertain, it is necessary to install a tissue digester to insure safe and adequate carcass disposal capacity. A new VDL needs to have dedicated Biosafety Level 3 necropsy/laboratory space (including the ability to capture effluent) to safely address current and future public health threats and potential introductions of foreign animal diseases. This facility should have a biosecure visitor's entry with dedicated bathrooms. Adequate parking space, semi-truck and trailer access and a radiology room are needed. An enclosed receiving area that will allow for off-loading of animal carcasses, as well as live animals that may require euthanasia, is required. Appropriate storage for archiving records and data storage is necessary. Adequate freezer space for individual labs and lockup of samples involved in litigation cases is important. The post mortem laboratory should have access points that allow shower-in/shower-out capability for personnel as well biosecure entry and exit points to safely contain animal and human pathogens. The entire building must be sufficiently secure with electronic card key access to individual laboratories. An alarm system including monitoring of major equipment, and a back-up power source are necessary as well. Building surveillance cameras are suggested.

Meats Lab Facility (Priority #2) $7,600,000

A new/upgraded facility urgently needed. The current Meats Lab is approximately 7,500 sq. ft. and was built in the 1950's and no longer serves the needs of modern meat science research. Annual repair and maintenance costs to the current facility continue to increase. Additionally, the Lab continues to struggle to meet the U.S. Department of

Agriculture inspection requirements for safe meat handling and processing. A new facility is necessary because opportunities to grow the state's livestock industries are tied to the knowledge of the end product and how that product meets the needs of national and international consumers. Design features of a 19,000 sq. ft. facility would include animal holding and handling areas, an abattoir, processing and fabrication rooms, research labs, walk-in coolers and freezers, sensory evaluation labs, preparation kitchens, conference rooms, and other miscellaneous support, storage, and equipment rooms.

Seed Cleaning Facilities (Priority #3) $5,250,000

Seed cleaning facilities at CREC, LREC, NCREC, and WREC need to be replaced. Current facilities are antiquated, lack reliable capability to ensure high quality seed, are slow, and inefficient. These facilities were designed to handle cereal crops and have limited/no capability of cleaning pulse crops and other fragile seed that are in high demand. Also, the existing facilities pose considerable worker safety issues. The request is for four portable mills and building facility for the mill. Each Center will have one mill, with appropriate air screen cleaner, indent mill and gravity mill, augers, conveyors, and cyclone dust cleaning system. The capacity would be approximately 300 bu/hr, depending on type of crop being cleaned. The facility will have the appropriate electrical, ventilation, and heating necessary for electric eye separators (at CREC, NCREC, and WREC) to ensure a high quality product.

The CREC's foundation seedstocks program processes a large volume and a diverse number of crops and crop varieties annually. The seedstocks program is a major part of the broader NDSU Foundation Seedstocks project. The current seed plant was constructed in 1963 and is seriously out of date. The current plant is not designed to readily accommodate air exchange and dust control mechanical features that are necessary to address worker safety concerns. The present building is too small to retro-fit with larger capacity seed conditioning equipment. A self-contained (portable) conditioning mill, steel storage building and necessary ancillary improvements are needed. The self-contained mill includes an air screen, an indent mill, a gravity mill and associated legs. A color sorter with the required ancillary features will require a heated storage building to allow operation.

The LREC produces 15,000 to 20,000 bushels of foundation grade seed each year. This program is essential to make available the newest and best varieties of NDSU crop varieties to the region's producers. The current foundation seed facility at the LREC was constructed in 1962 and utilizes the same equipment. It is outdated, unsafe, inefficient, and very slow and needs to be modernized to support a foundation seed system demanded by the region's producers. The condition of the seed cleaning plant was cited as the number one safety hazard on the grounds of the LREC. Since there is no room for a renovation, such as adding another leg, a new seed cleaning facility would need to be constructed. Approximately $65,000 would be saved by not performing the extraordinary repairs for the old plant. Funded with General Fund Dollars.

The NCREC foundation seedstocks program is a strategic part of the NDSU Foundation Seedstocks project and it produces, conditions and distributes a large volume and diverse number of crops and crop varieties annually. The present facility, originally built in 1949 and added on in 1982, is too small, inefficient and is a worker health and safety hazard due to inadequate air exchange and dust handling capabilities. A new Foundation grade seed conditioning system capable of gently handling pulse crops, oil seeds, and cereal crops is needed. A portion of the building needs to be heated to house electronic eye, seed sorting equipment. A self-contained (portable) conditioning mill including a storage building, air screen cleaner, indent mill, gravity table, color sorter, pure-seed conveyors, legs, and necessary ancillary improvements are needed.

The WREC's current building used to house the foundation seed conditioning equipment was built in 1955. The area designated to unload trucks can only accommodate a small single axle truck and does not have sufficient unloading capacity. Grain legs that move the dirty and clean grain are all too small for efficient movement of grain. The grain bins are worn out. We had two companies give bids to replace the grain legs. Neither would supply a bid because they had to place the legs through four floor levels and found it to be very difficult and also not cost effective. We are limited to cleaning a maximum of 35 bushels per hour by the current grain leg size. Equipment for the distribution and conditioning of grain is currently located on five different floor levels in the building, creating worker safety issues and problems associated with constant stair climbing. The conditioning plant is cleaned

thoroughly at every level between each crop variety that is conditioned in order to insure seed purity for Foundation Seed production. This means that in 2013-2014 the conditioning plant will need to be hand cleaned about 18 times, a task that now takes two people approximately ten hours to complete. Clean down time could be cut by 50-60% in a new one story building. Cleaning capacity would be increased from 35 bushels/hour to 200 bushels/hour (50% capacity), with new equipment and seed plant. A color sorter is also becoming a necessity and that has to be housed in a climate controlled environment.

Seed conditioning season runs from November through February and sometimes into March. This building would be needed to house a mobile grain cleaning mill also, if that option is chosen since conditioning grain outside in cold weather is very undesirable and in wintery conditions not possible. Humidity also has a varying effect on cleaning conditions.

Other Unranked Projects

Main Station

Agronomic, Pathology, and Soils Field Lab facility (Waldron Hall replacement) $39,000,000

Waldron Hall was built in the 1950's to house the field laboratories for the wheat breeding programs in the Department of Agronomy. An addition was built in the mid-1960's to house approximately another 16 scientists from the Departments of Agronomy and Plant Pathology. Total gross square footage is approximately 68,000. The building now houses field labs and wet labs for nearly 40 scientists at the Main Station involving a number of disciplines. Many of these labs are shared and the seed drying, cleaning, and storage facilities needed by our scientists are now grossly insufficient and pose a health hazard to anyone working in the facility. A new facility, of approximately 130,000 sq. ft., is needed to provide our scientists a safe environment to conduct their research, as well as processing, cleaning, and storing seed. The facility would house field labs for breeding, pathology, weeds, and soils research programs, common space for cleaning, threshing, drying, processing, and storing seed, as well as common work space for sorting, packing, and handling small and medium-large amounts of seed and research material.

Equipment Storage Shed $306,250

Purchasing and/or leasing expensive field equipment is an investment that the AES needs to protect. Storing expensive research plot equipment, such as tractors and combines, outdoors reduces the life of the machines and can compromise the sophisticated electronics typically found on field plot equipment. Shed would be approximately 140 x 60 in size with a concrete floor.

Precision Ag/ABEN Facility $5,500,000

A field lab with large indoor space and accessibility to perform research, demonstration and field testing of Ag equipment and technology. Additional infrastructure would include a 100-ft long soil bin to test soil-tool interaction of tillage equipment and a high speed wind tunnel to test nozzles for spray drift and droplet size distribution of active ingredients under various weather conditions. The facility would be critical in conducting research and training on agricultural technologies such as unmanned aerial surveillance, variable rate application systems, precision planting, and other technology used in crop and livestock systems

Agricultural Product Quality and Development Complex To be Determined

Overcrowding and inadequate infrastructure in Harris, Waldron, and Walster Halls, and Shepperd Arena can be eliminated with the construction of a new facility, provisionally called the Agricultural Product Quality and Development Center (APQDC). The APQDC would house faculty and staff working on crop quality, crop breeding, weed science, plant pathology, and meat science and quality. The CPQDC would house faculty and their respective laboratories in individual units attached to a central core facility. The individual units would be crop quality, plant breeding, crop protection, and meat science/quality. This state-of-the-art facility would enhance collaboration and ensure efficient use of facilities for quality evaluation of ND products.

Seed Storage Facility **$2,800,000**

The North Dakota Agricultural Experiment Station is a repository for a world-class collection of breeding seed. This collection is used extensively by plant scientists in cross breeding agronomic plants to develop new varieties of disease-free, high yield crops for North Dakota farmers.

The Experiment Station presently has approximately 9,800 square feet of crowded storage space in three locations at the Main Research Station. These three sites vary in the quality of climate control and security and are inadequate for near future requirements. As the need for additional seed storage with improved climate control becomes apparent, a new facility is warranted. This project would include the construction of a 16,000 square foot building to house this breeding seed collection in a climate-controlled condition. It will also include small laboratory spaces for seed work. The existing vacated seed storage space would then be renovated for crop research.

Animal Nutrition and Physiology (ANPC) Barn #2 **$ 485,000**

To meet expanding research needs, an addition to the Animal Nutrition and Physiology (ANPC) Barn No. 2 is requested. The addition would be attached to the east end of ANPC Barn No. 2 and be 100' long and 44' wide. The building would be heated, with a concrete floor equipped with a chain drag waste system. Penning within the barn would be designed for small ruminants (sheep) with maximum flexibility to accommodate multiple research needs. Current research facilities for small ruminants are being used at capacity and constraining existing research programs. In addition, the recent hire of a new Sheep Extension Specialist with a strong research component will also increase demands on limited research space.

Farm Shop Facility **$ 400,000**

Repair and maintenance is necessary to extend the useful life of farm equipment, and with the size of today's equipment increasing, the existing farm shop is too small to accomplish this task. A heated shop (50' X 80') is needed to facilitate repair and storage of equipment in winter months. This facility would also be equipped with large overhead doors to accommodate larger equipment.

Ag. Service Center Shop **$ 980,000**

The current Ag. Service Center is located on campus and with the growth of NDSU, it is becoming more difficult to excess this location with the larger farm equipment used today. This building would be a new shop facility. The existing shop would be converted to a much needed hydraulic lab for Ag and Bio Systems Engineering. This is phase I of this project; phase II would be to add offices and support area for the Ag Service Center.

Geothermal Well Field Expansion at AES Research Greenhouse **$1,142,000**

Funding for the AES Research Greenhouse allowed for only a portion of the needed geothermal wells for heating and cooling of the building. An additional 200 wells are needed to supplement the existing system and help reduce high utility costs.

Carrington Research Extension Center

Multi Use Feedlot Research Support Facilities and Additional Pens **$1,100,000**

Feedlot Research Support Facility

Construction of a multi-use "Feedlot Research Support Facility" at the Livestock Unit would improve feedlot research operational capability, assist in sustaining IAUAC compliance, attain worker protection standards, and reduce maintenance costs for equipment. The CREC has a critical need for a facility at the livestock unit that would have combined functions of: dispensary for processing and storage of pharmaceuticals and animal health supplies; laboratory space for feeds, blood, and tissue processing; office space for technical staff with computer friendly environment and records storage; inside tempered storage for daily use feeding equipment; and shop area for tools, equipment and space for equipment maintenance and minor repairs. This facility has been a longtime priority project for the CREC. The livestock program at the CREC is the primary outstate program for beef feedlot research and evaluation of feeds and feedstuffs for beef production. The previously stated critical need for the facility should

not be underestimated. The current building where these functions are performed is the polar opposite of the CREC beef research program that is broadly recognized for excellence.

Description of Facility (size, scope, cost, location): The feedlot research support facility would be a wood frame – steel clad building with a projected size of 88ft. wide and 50ft. deep. The structure would include rooms or spaces to support the following functions: dispensary for processing and storage of animal health supplies; heated shop for storage and maintenance of feeding equipment (feed trucks, loaders, etc.); office and sleeping room for livestock technicians; small laboratory for processing blood, tissue and other samples; restroom; mechanical room; and storage room. This structure would be built to attach to the main livestock working barn where cattle are processed to record research data and provided meds and other types of health care. The feedlot research support facility would all be built onto the east side of the existing main livestock working and care building. This location is within the main yard of the CREC's livestock unit.

Feedlot Pen Expansion with Waste Containment
Meeting the expanding demands for feedlot research is partially limited by available pens. Current pens are fully utilized. The CREC is continually challenged to do more livestock nutrition research; however, feedlot pen availability is a clear limitation. The addition of a minimum of twelve pens that would hold 240 head of cattle would allow the CREC to conduct at least one additional experiment per feedout period. Further, the additional pens will allow more treatments and replications within other feedlot studies which would improve statistical confidence and precision. Any feedlot pen expansion must include the associated waste containment facilities to remain compliant with state law. The livestock program at the CREC is the primary outstate program with the mission for beef feedlot research and evaluation of feeds and feedstuffs for beef production. Beyond the ability to conduct additional experiments or evaluate more treatments with greater replication, the additional feedlot pens would be developed to expand the depth and speed of the department's ability to evaluate other factors that impact feeding livestock in North Dakota. These factors include minimizing animal stress, mitigating winter stress, management influences on environmental concerns, beef animal efficiency and other issues that ultimately impact the viability of beef cattle production and feeding in the state.

Description of Facility (size, scope, cost, location): The feedlot pen expansion includes the construction of a minimum of 12 pens in which eight (8) would be traditional outside pens and four (4) would be placed within a hoop barn. The anticipated pen size of each individual outside pen would be 24ft x 60ft. The hoop barn would be 120ft wide x 44ft deep. Four pens would be constructed within the hoop barn, each 30ft x 44ft. The waste containment requirements of the eight (8) outside pens would be achieved by expanding the capacity of the existing runoff lagoons. These pens would all be placed southeast of the west set of the CREC's feedlot pens along the existing feed lane.

Equipment Storage Shed $306,250
Purchasing and/or leasing expensive field equipment is an investment that the AES needs to protect. Storing expensive research plot equipment, such as tractors and combines, outdoors reduces the life of the machines and can compromise the sophisticated electronics typically found on field plot equipment. Shed would be approximately 140 x 60 in size with a concrete floor.

Large Equipment Shop $ 350,000
A new shop of sufficient size is required so that center staff may perform repair and maintenance on the department's larger equipment. The existing shop is far too small for a majority of the department's equipment and typically can only accommodate smaller equipment repair projects. Current facilities were constructed in 1960 and are not of sufficient size to accommodate modern equipment size. Additionally, the current equipment shop makes it extremely difficult to comply with worker safety standards. Current facility limitations force most equipment repairs to be completed by implement dealers which increase costs. Projected dimensions of the shop are 60ft by 90ft.

Central Grasslands Research Extension Center

Livestock Research Facilities **$1,868,000**

The CGREC livestock facilities are in dire need of replacement. The existing space used as a support lab is small and inadequate to handle, prepare, and test blood and tissue samples, particularly as the research portfolio at this center has increased recently. This proposed facility would complement the research activities that will be carried out in the new Agronomy laboratory, thereby enhancing the two major research foci of this Center. Livestock holding pens and sheds also are inadequate to address the research and outreach needs for the Coteau region of the state. Specifically, the development of replicated drylot research pens would allow scientists to answer a broader range of questions relating to beef cow and calf management; a Feed Handling facility would improve the Center's ability to ensure diet accuracy and improve overall feed management; and a Nutrient Management/Waste Water Containment system is lacking at the Center and is needed to address possible health and pollution issues.

Equipment Storage Shed **$306,250**

Purchasing and/or leasing expensive field equipment is an investment that the AES needs to protect. Storing expensive research plot equipment, such as tractors and combines, outdoors reduces the life of the machines and can compromise the sophisticated electronics typically found on field plot equipment. Shed would be approximately 140 x 60 in size with a concrete floor.

Directors Residence **$313,000**

The current director is living in the house that should be for the center herdsman. A new house will need to be built to supply the need for housing for personal that need to be on site for day to day operations.

Dickinson Research Extension Center

Shop and Equipment Storage Building **$750,000**

A new shop of sufficient size is required so that center staff may perform repair and maintenance on department equipment. The existing shop is too small for a majority of the department's equipment and typically can only accommodate smaller equipment repair projects. Current facilities are not of sufficient size to accommodate modern equipment size. The proposed multi-purpose building would also include an area for equipment storage. Numerous valuable pieces of equipment currently are stored outdoors and exposed to the elements which reduces longevity and increased maintenance costs. Projected dimensions of Shop and Equipment Storage Building are 60'X140'. Shop portion estimated at 60'X40' would be insulated and heated.

Multipurpose Arena and Cattle Working Facility Renovation and Addition **$500,000**

Currently, the main public use and cattle working facility at the ranch is in need of updating and expansion as a result of the lack of deferred maintenance dollars. The DREC Manning Multipurpose Arena building, located at the Dickinson Research Extension Center's ranch south of Manning, is a Butler brand metal building approximately 60'X90' constructed circa the 1940's. The original roof is now over 40 years old and has been leaking for many years. The roof is a deeply corrugated panel that has structural spanning properties. A wood furring system is attached to the inside face of the panels with 1" rigid insulation and an insulated finish panel has been applied over this.

The facility needs to cover the existing roof with plywood sheathing then install a new standing seam roof system over the top of the existing panels. In order to do this, a structural analysis of the existing structural system would need to be done. Typically, engineered metal buildings do not have extra loading capabilities and must have additional support added. To accomplish this, the insulation would need to be removed and new insulation installed that would provide a vapor barrier and meet the energy code.

The Center is in need of additional space at the south end of the Arena. The addition proposed would be a 30' x 60' pre-engineered insulated metal building system with a concrete floor, liner panels, three overhead doors, a pedestrian door and a restroom.

Bio-Secure Animal Facility **$5,500,000**

Construction of a bio-secure livestock handling facility is needed. This facility will consist of livestock handling, processing and wet lab facilities with attached technology center, classroom and offices. This facility would aid in upgrading the capacity of North Dakota to meet a terrorist threat to the bio-security of the United States food supply.

Livestock Working Facility with built in handling systems **$1,500,000**

A general facility, 60'X140', is needed at the ranch unit to work cattle efficiently and safely. With the addition of this building, climate can be controlled, thereby reducing stress, increasing overall herd management ability and worker efficiency. The proposed working facility would also include an area for handling and sorting pens. Temporary housing of sorted cattle would be included, allowing for increased flexibility when yearlong cattle handling is required. Projected dimensions of Livestock Working Facility with built in handling systems would be 60'X140' with an estimated space of 60'X60' would be insulated and heated.

Community Ag Center **$15,000,000**

The Community Agriculture Center will be a bridge between our rural and urban populations as they examine nutrition, agricultural science and food marketing opportunities at the hands-on learning facility.

Hettinger Research Extension Center

Livestock Processing and Research Support Facility **$1,311,000**

The HREC Southwest Feeder feedlot cattle and sheep feedlot has provided significant research and outreach to support the livestock industry in the state and region. A multi-species processing and research support facility would greatly enhance the livestock research conducted at the HREC and expand the research capabilities of the AES on beef cattle and lamb feedlot nutrition and management. The current feedlot has a small (512 square foot) facility that does not support current research or outreach activities. The facility does not provide: 1) a secure area to store and administer veterinary supplies; 2) an area for sorting animals into treatments and pens; 3) an area to hold animals indoors for observation and sample collection; 4) office space for the herdsman, and has no restroom facilities.

Size: 7,224 sq. ft. (includes a 60' x 100' livestock process area and a 18' x 68' attached addition including a veterinary room, mechanical room, men and women's restrooms, and conference room; facility would service the Southwest Feeders Feedlot, a lamb finishing and calf backgrounding research feedlot).

Equipment Storage Shed **$306,250**

Purchasing and/or leasing expensive field equipment is an investment that the AES needs to protect. Storing expensive research plot equipment, such as tractors and combines, outdoors reduces the life of the machines and can compromise the sophisticated electronics typically found on field plot equipment. Shed would be approximately 140 x 60 in size with a concrete floor.

Housing **$500,000**

The expanded graduate student programs in animal science, crop production, and range science has resulted in the HREC needing to provide housing on a short-term basis during the field season to graduate student, technicians and animal science interns. While local house rentals have been utilized in the past, increased pressure from oil development is limiting those opportunities. A bunkhouse facility, built to provide a stable housing source that scientists can rely on a yearly basis for project and grant planning, is needed.
Size: Two housing modules (2,220 sq. ft. each) that each included five (5) bedrooms with attached bathroom and kitchen areas.

Sheep Feed Efficiency Research Facility **$1,621,000**

Traditionally, high grain prices and volatile commodity prices have placed an increased interest and emphasis on increasing the efficiency of sheep production during all phases of production (rams, ewes, and feedlot performance).

No facility exists in the northern Great Plains to evaluate feed efficiency in sheep production but the HREC is well situated and established in the sheep industry to expand its research capabilities through a new facility that can monitor individual animal intake in a pen setting. Research would evaluate genetic potential of breeding stock that measures feed intake in relation to performance, as well as feedlot research to complement and provide additional replication to the large-scale trials conducted at the Southwest Feeders Feedlot at the HREC.
Size: 16,200 sq. ft. open-fronted barn and 14,400 sq. ft. feedlot attached to barn including 16 pens and water fountains

Langdon Research Extension Center

Equipment Storage Shed $306,250
Purchasing and/or leasing expensive field equipment is an investment that the AES needs to protect. Storing expensive research plot equipment, such as tractors and combines, outdoors reduces the life of the machines and can compromise the sophisticated electronics typically found on field plot equipment. Shed would be approximately 140 x 60 in size with a concrete floor.

North Central Research Extension Center

Equipment Storage Shed $306,250
Purchasing and/or leasing expensive field equipment is an investment that the AES needs to protect. Storing expensive research plot equipment, such as tractors and combines, outdoors reduces the life of the machines and can compromise the sophisticated electronics typically found on field plot equipment. Shed would be approximately 140 x 60 in size with a concrete floor.

Williston Research Extension Center

Equipment Storage Shed $306,250
Purchasing and/or leasing expensive field equipment is an investment that the AES needs to protect. Storing expensive research plot equipment, such as tractors and combines, outdoors reduces the life of the machines and can compromise the sophisticated electronics typically found on field plot equipment. Shed would be approximately 140 x 60 in size with a concrete floor

WREC Multi-Use Greenhouse Facility (30' x 60') $260,000
All aluminum frame /structure (mill finish) w/Lauer system of framing, 16mm Deglas Acrylic, ventilation system, evaporative cooling system, automated environmental controls and software, permits, plumbing, heating, electric power and control wiring, irrigation system, doors, and concrete/ masonry, (16) rolling benches 5' x 24', crop lighting: (32), and automated shade/ heat retention curtain system. The WREC laboratory addition completed in 2011 was designed to handle the electrical, heating, and water requirements for this greenhouse.
The greenhouse would be used to enhance the following WREC cooperative research and outreach programs:

- Horticulture Research and Education Project- greenhouses are an integral part of a successful horticulture research and extension program. With a new greenhouse facility, the Williston Research Extension Center's Horticulture program would be able to start all flower, vegetable, and small fruit seeds inside and transition new plants to outdoor gardens.
- Perform greenhouse studies to support cropping systems and field research activities on fungicide and seed treatment compounds for disease control of prevalent diseases of pulse crops, oilseeds and small grains and on seed/seedling quality and plant health.
- Potato Cooperative Research Project- Cooperative research on potato tissue culture and early generation research with NDSU, USDA, University of Minnesota, and seed potato growers.

Irrigation Research & Development Technology Transfer Center – Nesson Valley $1,250,000

The promotion of irrigated land for value added crop production is very important. This regional based irrigated research and technology transfer facility will promote the ever expanding research, development and technology transfer of new irrigated agricultural production systems and technologies, new value added/high value irrigated alternatives and expanded/new agriculture processing industries in the region. The facility is needed to fully develop and utilize this 160 acre irrigated research site to foster expanded irrigation research 23 miles northeast of Williston, ND in the Nesson Valley Irrigation District.

NORTH DAKOTA AGRICULTURAL EXPERIMENT STATION

2015-17 Plant Improvement Projects < $250,000

Projects not requiring legislative authority (but may require an increase to plant improvement funding)

RESEARCH EXTENSION CENTERS		Estimated Project Cost
MAIN STATION		
New Construction (less than $250,000)		
Dairy Manure Handling Upgrade		$ 98,000
Dairy Heifer Barn		$ 80,000
Plot Size Grain Dryers		$ 85,000
Bunker Silo		$ 95,000
Loafing Barns Beef (5 sheds)		$ 245,000
Scale barn at beef		$ 185,000
Equipment Storage Shed - Prosper Site		$ 245,000
12,000 bu grain bin		$ 38,000
Equipment Storage Shed - Main Station		$ 245,000
Grain Drying falilities at Prosper		$ 230,000
Grain Storage and Drying Bins		$ 40,000
Equipment Storage Lot		$ 55,000
Concrete Aprons for at each unit		$ 50,000
Hay Storage Shed		$ 76,000
Irrigation pivot Dairy		$ 135,000
Bay Sheds Farms (2)		$ 175,000
Cattle Working Facility Beef		$ 98,000
Hay Shed ANPC		$ 65,000
Liquid Solid Separator ANPC		$ 75,000
Replace Feed Bunks Beef		$ 90,000
Drain tile research plot land		$ 249,000
Sheep working Shelter		$ 65,000
Municipal Sewer Hookup		$ 45,000
Equipment Storage Shed Absaraca		$ 64,000
	TOTAL MAIN STATION	**$ 2,828,000**
AGRONOMY SEED FARM		
No Requests		
CARRINGTON REC		
New Construction (less than $250,000)		
Rebuild and Expand Fuel Storage & Refueling Site		$ 75,000
Hopper Bottom Bins With Aeration (4,000bu) 6 bins		$ 77,000
Pesticide Handling Facility Addition		$ 65,000
Commercial Scale and Aprons for Trucks & Trailers		$ 95,000
Bulk Feed Commodity Storage Building		$ 85,000
Storage Shed for Misting System Infra-Structure		$ 53,000
Vehicle Storage Building		$ 50,000
Storage Building for Research Equipment		$ 115,000
Foundation Seedstocks Seed Storage Building		$ 160,000
Oakes Irrigation Research Site - Pesticide Handling Facility		$ 45,000
	TOTAL CARRINGTON REC	**$ 820,000**

CENTRAL GRASSLANDS REC

New Construction (less than $250,000)

All Seasons Greenhouse Facility	$	220,000
10,000bu grain bin with Drying Capabilities	$	30,000
Pesticide Handling Facility	$	153,000
Machine Storage Shed	$	128,000
TOTAL CENTRAL GRASSLANDS REC	**$**	**531,000**

DICKINSON REC

New Construction (less than $250,000)

Arena addition	$	245,000
Residence Garage Dickinson	$	150,000
Residence Garage Ranch	$	150,000
Machine Storage Shed Dickinson	$	245,000
Machine Storage Shed Ranch	$	245,000
Calf Barn Ranch	$	245,000
Horticulture Hoop Structures Dickinson (2)	$	90,000
Agronomic Livestock Holding Facility Dickinson	$	60,000
Set-up of 2 Hoop Structures Ranch	$	50,000
Feedlot Fencing at Ranch	$	200,000
Water Wells, water line & water tap @ Ranch	$	60,000
Six New Grain Bins Ranch	$	150,000
New Fence Approx 40 miles	$	250,000
Grounds Reception & Service Building / Dickinson	$	245,000
TOTAL DICKINSON REC	**$**	**2,385,000**

HETTINGER REC

New Construction (less than $250,000)

Modify hay Storage Shed Concrete & Steel Siding	$	20,000
Seed Storage Facility	$	80,000
Machine Storage Shed Hoop Shed	$	100,000
Road and Low Water Crossing	$	100,000
Dead Animal Disposal Facility	$	84,000
Road & Low Water Crossing	$	100,000
Bunkhouse Renovation	$	100,000
TOTAL HETTINGER REC	**$**	**584,000**

LANGDON REC

New Construction (less than $250,000)

10,000 bushel bin with drying capabilities	$	30,000
Soils lab/equipment storage facility	$	240,000
Two horticultural/pathology hoop structures	$	60,000
Three hopper bins	$	39,000
TOTAL LANGDON REC	**$**	**369,000**

NORTH CENTRAL REC

New Construction (less than $250,000)

Expand Pesticide Storage/Mixing Facility	$	125,000

Pave Southwest Parking Lot	$	80,000
Water System for Horticulture & Pathology	$	40,000
Municipal Sewer Hookup	$	80,000
Concrete Floor in Storage Building	$	75,000
Horticulture Storage Shed	$	30,000
Six Hopper Bins w/Concrete	$	125,000
Expand Electrical Around Hopper Bins	$	15,000
Stand-by Generator (Research Lab & Greenhouse)	$	75,000
TOTAL NORTH CENTRAL REC	**$**	**645,000**

WILLISTON REC

New Construction (less than $250,000)

Saline Seep Monitering Wells	$	11,000
Picnic Table Shelter Area	$	25,000
Four Hopper Bins (2 sites)	$	36,000
Paving Parking Lot		
	$	25,000
	$	122,000
	$	68,000
	$	50,000
Horticulture Storage Shed	$	14,500
TOTAL WILLISTON REC	**$**	**351,500.00**

GRAND TOTAL ALL RESEARCH CENTERS	**$**	**8,513,500**

NORTH DAKOTA AGRICULTURAL EXPERIMENT STATION
2014 Deferred Maintenance
Projects not requiring legislative authority (but may require an increase to plant improvement funding)

		Deferred Maintenance Categories			
		Health & Safety	ADA	Major Repairs	TOTAL
MAIN STATION					
Dairy Unit:					
	Electrical Upgrades	$ 50,000	$ -	$ -	$ 50,000
	Upgrade Manure System	$ -	$ -	$ 150,000	$ 150,000
	Improve Water Drainage Around Barn	$ -	$ -	$ 52,000	$ 52,000
	Bulk Tank replacement	$ -	$ -	$ 55,000	$ 55,000
	Remodel Main Barn	$ -	$ -	$ 225,000	$ 225,000
	Concrete Repair	$ -	$ -	$ 35,000	$ 35,000
		$ 50,000	*$ -*	*$ 517,000*	*$ 567,000*
Sheep Unit:					
	Upgrade Ventilation System West Barn	$ 70,000	$ -	$ -	$ 70,000
	Upgrade Lagoon	$ -	$ -	$ 50,000	$ 50,000
	Upgrade plumbing to waterers	$ -	$ -	$ 40,000	$ 40,000
	Upgrade Manure Handling System ANPC II & III	$ -	$ -	$ 29,000	$ 29,000
	Electrical Upgrades ANPC III	$ 20,000	$ -	$ -	$ 20,000
		$ 90,000	*$ -*	*$ 119,000*	*$ 209,000*
Beef Unit:					
	Ventilation Upgrade	$ 22,500	$ -	$ -	$ 22,500
	Replace Lights in Main Barn	$ -	$ -	$ 12,000	$ 12,000
	Renovate Pen Area of Main Barn	$ -	$ -	$ 15,000	$ 15,000
	Concrete Repair	$ -	$ -	$ 24,000	$ 24,000
	Upgrade Feed Bunk line	$ -	$ -	$ 72,000	$ 72,000
		$ 22,500	*$ -*	*$ 123,000*	*$ 145,500*
Swine Unit:					
	Renovate Rooms in Main Barn	$ -	$ -	$ 120,000	$ 120,000
	Electrical Upgrade	$ 40,000	$ -	$ -	$ 40,000
	Replace Gates & Pens inside Barn	$ -	$ -	$ 12,500	$ 12,500
	Heating & Ventilation Upgrade	$ 15,600	$ -	$ -	$ 15,600
	Replace windows	$ -	$ -	$ 15,000	$ 15,000
	Replace interior doors	$ -	$ -	$ 25,000	$ 25,000
	Replace Lights Main Barn	$ -	$ -	$ 25,000	$ 25,000
	Insulation Upgrade	$ -	$ -	$ 18,720	$ 18,720
		$ 55,600	*$ -*	*$ 216,220*	*$ 271,820*
Farm Shop Unit					
	Road Repair	$ -	$ -	$ 20,000	$ 20,000
		$ -	*$ -*	*$ 20,000*	*$ 20,000*
Agronomic Units					
	Remodel garage area at Absaraca			$ 20,000	$ 20,000
	Reside & Reroof Pole Barn - Prosper	$ -	$ -	$ 30,000	$ 30,000
	Concrete Repair & Replacement	$ -	$ -	$ 150,000	$ 150,000
	Road Repair & Replacement	$ -	$ -	$ 75,000	$ 75,000
	Water Line Replacement	$ -	$ -	$ 50,000	$ 50,000
	Ditch Maintenance	$ -	$ -	$ 20,000	$ 20,000
	Lagoon Maintenance	$ 20,000	$ -	$ -	$ 20,000
	Reside & Reroof Pole Barn - Absaraca	$ -	$ -	$ 30,000	$ 30,000
	Replace water wells at Absaraca	$ 20,000	$ -	$ -	$ 20,000
	Municipal Sewer Hook up	$ -	$ -	$ 90,000	$ 90,000
	Reside and refoof 3 sheds 15th ave	$ -	$ -	$ 90,000	$ 90,000
	Add ice breakers to roof on AES Greenhouse	$ 20,000	$ -	$ -	$ 20,000
	Repair concrete by storm sewer at AES GH	$ -	$ -	$ 5,000	$ 5,000

	Improve Drainage Main Station	$ -	$ -	$ 22,500	$ 22,500
		$ 60,000	*$ -*	*$ 582,500*	*$ 642,500*
	TOTAL MAIN STATION	**$ 278,100**	**$ -**	**$ 1,577,720**	**$ 1,855,820**
RESEARCH EXTENTION CENTERS					
CARRINGTON	Renovate Residence At Headquarters Unit	$ 10,000	$ -	$ 60,000	$ 70,000
	Renovate Residence at Livestock Unit	$ 10,000	$ -	$ 50,000	$ 60,000
	Resurface and Repair Parking Lots & Driveway	$ -	$ -	$ 160,000	$ 160,000
	Field Road Repair - Gravel and Grading	$ -	$ -	$ 40,000	$ 40,000
	Renovate Irrigation Well & Pump to Convert to Overhead	$ -	$ -	$ 18,000	$ 18,000
	Renovate Seed Conditioning Plant	$ 60,000	$ -	$ 120,000	$ 180,000
	Shelterbelt Renovation	$ -	$ -	$ 18,000	$ 18,000
	Repair and Painting of Hopper Bins	$ -	$ -	$ 36,000	$ 36,000
	Replace Rain Gutters on Headquarters Pole Bld & Gara	$ -	$ -	$ 10,000	$ 10,000
	Renovate and Improve Existing Feedlot Pens	$ 30,000	$ -	$ 50,000	$ 80,000
	Repair and Expand Feedlot Aprons	$ -	$ -	$ 90,000	$ 90,000
	Repair & Replace Sections of Silage Bunker	$ -	$ -	$ 15,000	$ 15,000
	Repair and renovate Livestock Run-off Lagoons	$ 45,000	$ -	$ -	$ 45,000
	Repair Pole Barns in Feedlot Facilities	$ -	$ -	$ 35,000	$ 35,000
	Renovate Animal Handling Facility	$ 20,000	$ -	$ 25,000	$ 45,000
	Renovate Drainage and Re-Surface East Feedlot Pens	$ 80,000	$ -	$ 85,000	$ 165,000
	Miscellaneous Concrete Installations (Livestock/Seeds	$ -	$ -	$ 150,000	$ 150,000
	TOTAL CARRINGTON	**$ 255,000**	**$ -**	**$ 962,000**	**$ 1,217,000**
CENTRAL GRASSL	Clean out Dugouts	$ -	$ -	$ 12,000	$ 12,000
	Siding & Window Replacement in Residence	$ -	$ -	$ 30,000	$ 30,000
	Concrete Floor in Shop	$ -	$ -	$ 15,000	$ 15,000
	Fencing Repairs and Replacement	$ 105,600	$ -	$ -	$ 105,600
	Feed Bunk Repair	$ -	$ -	$ 4,500	$ 4,500
	Corrals & Feedlot Fencing Improvement and Repair	$ 42,000	$ -	$ -	$ 42,000
	Parking Lot Repair and Expansion	$ -	$ -	$ 70,000	$ 70,000
	Repair to Foundation and Basement at Residence	$ -	$ -	$ 150,000	$ 150,000
	Replace Roof at Residence	$ -	$ -	$ 20,000	$ 20,000
	Pen floor maintenance (gravel fill)	$ -	$ -	$ 27,000	$ 27,000
	Add well and pump house to support main facility water	$ 20,000	$ -	$ -	$ 20,000
	Roof Repairs to Office Building	$ -	$ -	$ 50,000	$ 50,000
	Gravel for repair and grading of roads	$ -	$ -	$ 15,000	$ 15,000
	Shelterbelt Renovation	$ -	$ -	$ 10,000	$ 10,000
	Additional Lighting near office building	$ 5,000	$ -	$ -	$ 5,000
	Renovations to Lighting in Existing Barns	$ 5,000	$ -	$ -	$ 5,000
	Water Development in Refuge pastures	$ -	$ -	$ 10,000	$ 10,000
	Correction of rain water drainage near office basement	$ -	$ -	$ 15,000	$ 15,000
	TOTAL CENTRAL GRASSLANDS	**$ 177,600**	**$ -**	**$ 428,500**	**$ 606,100**
DICKINSON	Replace porch, repair water damage at Residence	$ 25,000	$ -	$ 25,000	$ 50,000
	Residence Exterior Brick repair & fill cistern	$ -	$ -	$ 45,000	$ 45,000
	Replace Windows Directors Residence	$ -	$ -	$ 40,000	$ 40,000
	Waterproof Residence Basement Walls & abate Mold	$ 15,000	$ -	$ 15,000	$ 30,000
	Remodel former farrowing barn to sample workspace	$ -	$ -	$ 70,000	$ 70,000
	Section 19 Facility Repair & Upgrade	$ -	$ -	$ 170,000	$ 170,000
	Fence Repair & Replacement (80 miles)	$ 160,000	$ -	$ 160,000	$ 320,000
	Road Maintenance (30 miles)	$ 100,000	$ -	$ 100,000	$ 200,000
	Residence Upkeep (Ranch unit)	$ -	$ -	$ 15,000	$ 15,000
	Water System Repair	$ -	$ -	$ 30,000	$ 30,000

	Repair Roof in Arena	$ -	$ -	$ 150,000	$ 150,000
	Concrete Floor in Ranch Shop/Machine Storage	$ -	$ -	$ 70,000	$ 70,000
	Seed House Repair & Renovation	$ 70,000	$ -	$ -	$ 70,000
	Machine Shed Repair & Maintenance (Bin Quonset)	$ -	$ -	$ 100,000	$ 100,000
	Small Storage House Repair & Update (Horticulture)	$ -	$ -	$ 10,000	$ 10,000
	Grad Residence Repair Basement Floor	$ -	$ -	$ 30,000	$ 30,000
	Horse Barn Renovation	$ -	$ -	$ 250,000	$ 250,000
	Shop Building Repair & Renovation (Dickinson)	$ -	$ -	$ 320,000	$ 320,000
	Cattle Shelters Renovation 4 shelters	$ -	$ -	$ 180,000	$ 180,000
	Repair Grain Bins 6 bins	$ -	$ -	$ 30,000	$ 30,000
	Fuel Shed Repair & Update	$ -	$ -	$ 5,000	$ 5,000
	Hay Shed Repair & Update	$ -	$ -	$ 90,000	$ 90,000
	Elevator Repair Grain Handling System	$ -	$ -	$ 50,000	$ 50,000
	TOTAL DICKINSON	**$ 370,000**	**$ -**	**$ 1,955,000**	**$ 2,325,000**
HETTINGER	Repair and Replace Fencing (Wire and Metal)	$ 131,230	$ -	$ -	$ 131,230
	Repair Fans in Confinement Barn	$ 20,000	$ -	$ -	$ 20,000
	Clean duct work in office	$ 18,000	$ -	$ -	$ 18,000
	Mechanical System Renovation at Headquarters	$ -	$ -	$ 80,000	$ 80,000
	Re-carpet Bunkhouse and Grad Office	$ -	$ -	$ 20,000	$ 20,000
	Tear Down Silo	$ 6,500	$ -	$ -	$ 6,500
	Repair and Maintenance to Directors Residence	$ 7,000	$ -	$ 15,000	$ 22,000
	Bunk house roof repair	$ 20,000	$ -	$ -	$ 20,000
	Repair or Replace Hopper Bottom Bins	$ -	$ -	$ 28,000	$ 28,000
	Concrete repair south half of hay shed	$ -	$ -	$ 20,000	$ 20,000
	Concrete at SW feeders	$ -	$ -	$ 20,000	$ 20,000
	Repave parking lot	$ -	$ -	$ 87,296	$ 87,296
	Repair paved entrance road to headquarters	$ -	$ -	$ 100,000	$ 100,000
	TOTAL HETTINGER	**$ 202,730**	**$ -**	**$ 370,296**	**$ 573,026**
LANGDON	Foundation Repair at Residence	$ 40,000	$ -	$ -	$ 40,000
	Replace Three Windows Residence	$ -	$ -	$ 5,000	$ 5,000
	Resident Landscaping	$ -	$ -	$ 7,500	$ 7,500
	Complete Resident West Porch Renovation	$ -	$ -	$ 2,500	$ 2,500
	Yard and Road Graveling	$ 15,000	$ -	$ -	$ 15,000
	VSLC Landscape Irrigation	$ -	$ -	$ 30,000	$ 30,000
	VSLC Storm Windows/handicap electric entrance	$ -	$ -	$ 40,000	$ 40,000
	VSLC A/V Upgrade	$ -	$ -	$ 80,000	$ 80,000
	VSLC north/east doors replace	$ 10,000	$ -	$ -	$ 10,000
	Pave Parking Lot/Seal Coat at VSLC	$ -	$ -	$ 75,000	$ 75,000
	Pesticide Facility Addition	$ 30,000	$ -	$ -	$ 30,000
	Seed Office Renovate/ADA Requirements	$ -	$ 50,000	$ 50,000	$ 100,000
	Repair/Replace Staircase in Seed house	$ 5,000	$ -	$ -	$ 5,000
	Machine Storage I Electrical upgrades	$ 5,000	$ -	$ -	$ 5,000
	Machine Storage I Concrete Repair	$ 25,000	$ -	$ -	$ 25,000
	Machine Storage I Door Replacement/insulation	$ 25,000	$ -	$ 10,000	$ 35,000
	Machine Storage II Repair/Concrete	$ 5,000	$ -	$ -	$ 5,000
	Machine Storage III Concrete Repair	$ 10,000	$ -	$ -	$ 10,000
	Shelter Belt Renovation	$ -	$ -	$ 25,000	$ 25,000
	LREC Demonstration Gardens Renovation	$ -	$ -	$ 10,000	$ 10,000
	Seed Cleaning Plant Dust Control System	$ 25,000	$ -	$ -	$ 25,000
	Seed Cleaning Plant Safety Upgrades	$ 40,000	$ -	$ -	$ 40,000
	TOTAL LANGDON	**$ 235,000**	**$ 50,000**	**$ 335,000**	**$ 620,000**
NORTH CENTRAL	Repair/Replace underground electrical service	$ 150,000	$ -	$ -	$ 150,000
	Residence Siding Repair	$ -	$ -	$ 95,000	$ 95,000

	Resurface & Repair Parking Lots	$ -	$ -	$ 80,000	$ 80,000
	Repair Storage Shed Roof & Overhead Doors	$ -	$ -	$ 35,000	$ 35,000
	Yard Excavation, Tiling, Shaping & Gravel	$ -	$ -	$ 125,000	$ 125,000
	Repair and Enlarge Spray Pad to Fit Larger Sprayer	$ 55,000	$ -	$ -	$ 55,000
	Field Road Repair	$ -	$ -	$ 20,000	$ 20,000
	Concrete Aprons- Scale, Pest. Bldg. & Seed House	$ 40,000	$ -		$ 40,000
	Remove Garage	$ -	$ -	$ 18,000	$ 18,000
	Repair/replace Perimeter Fence	$ -	$ -	$ 40,000	$ 40,000
	Remove Old Seed House	$ 200,000	$ -	$ -	$ 200,000
	Sandblast & Paint Hopper Bins	$ -	$ -	$ 40,000	$ 40,000
	Renovate Headquarters Building	$ -	$ -	$ 75,000	$ 75,000
	Removal & Maintenance of Shelterbelts	$ -	$ -	$ 15,000	$ 15,000
	Sandblast & Paint Quonset	$ -	$ -	$ 30,000	$ 30,000
	TOTAL NORTH CENTRAL	**$ 445,000**	**$ -**	**$ 573,000**	**$ 1,018,000**
WILLISTON	Heating/Cooling System Repair and Upgrade-EFC	$ -	$ -	$ 20,000	$ 20,000
	Gravel Nisson Valley parking, cement sidewalk, asphal	$ -	$ -	$ 45,000	$ 45,000
	Pave EFC Parking Lots				
	East Parking Lot	$ -	$ -	$ 122,000	$ 122,000
	North Parking Lot	$ -	$ -	$ 68,000	$ 68,000
	West Side Parking Lot	$ -	$ -	$ 50,000	$ 50,000
	Tape, texture, and paint wall seams in lab addition	$ -	$ -	$ 10,000	$ 10,000
	Hopper bottom for flat bin	$ -	$ -	$ 15,000	$ 15,000
	Roof Repair Thrashing Shed	$ -	$ -	$ 12,000	$ 12,000
	Misc. Door, Fascia, Downspouts, Eaves and Painting W	$ -	$ -	$ 12,000	$ 12,000
	Replace Perimeter Fence (4.5 miles)	$ -	$ -	$ 42,000	$ 42,000
	Remodel South Residence	$ -	$ -	$ 45,000	$ 45,000
	Remodel North Residence	$ -	$ -	$ 45,000	$ 45,000
	Concrete curb south driveway	$ -	$ -	$ 25,000	$ 25,000
	Renovate EFC	$ -	$ -	$ 35,000	$ 35,000
	Gravel and Shape Secondary Roads	$ -	$ -	$ 29,000	$ 29,000
	Sandblast and Paint Hopper Bins	$ -	$ -	$ 12,000	$ 12,000
	TOTAL WILLISTON	**$ -**	**$ -**	**$ 587,000**	**$ 587,000**
	GRAND TOTAL AES DEFERRED MAINTENANCE	**$1,963,430**	**$ 50,000**	**$ 6,788,516**	**$ 8,801,946**