TO: The Board of Regents Addendum IX-B-5

Business Affairs

MEETING DATE: October 9, 2015

SUBJECT: Program Statement for the Global Center for Advanced Interprofessional Learning to be constructed on the University of Nebraska Medical Center campus in Omaha.

RECOMMENDED ACTION: Approve the Program Statement for the Global Center for Advanced Interprofessional Learning.

PREVIOUS ACTION: April 10, 2015 - The Board of Regents approved the establishment of the Interprofessional Experiential Center for Enduring Learning (iEXCEL^{SM}) in the Global Center for Advanced Interprofessional Learning at the University of Nebraska Medical Center campus in Omaha.

EXPLANATION: The implementation of the Interprofessional Experiential Center for Enduring Learning (iEXCEL^{SM}) will enable UNMC to take a major transformative step in delivering superior health sciences education and clinical care through the implementation of competency-based learning and assessment, integrated with interprofessional education and team-based learning throughout the career-long health sciences education process. Such learning, in advanced simulated clinical settings, and through the use of virtual immersive reality technology, will improve student mastery and skills retention, improve patient outcomes and as a result, lower the cost of health care.

The Global Center for Advanced Interprofessional Learning project will construct a new 134,000 square foot, multi-level structure to house and support the activities of the iEXCEL^{SM}. Additionally, the project will construct 56,000 square feet of structured parking (about 120 stalls) below the building for a total area of 190,000 square feet.

The building will be designed and equipped to provide:

- A 3D and virtual immersive reality learning studio, with collaborative and personal virtual learning venues supported by extensive state-of-the-art visualization and performance capture technology.

- An electronic learning media development studio equipped with a network communications platform designed to deliver learning content to remote locations. This will enable the creation of a hub-and-spoke network of virtual simulation centers at prepared education and clinical sites across Nebraska.

- Realistically simulated clinical and community health care space, with operable systems for experiential, individual and team learning

and assessment. The design of the various simulated settings will model transitions of care, since patient hand-offs from care team to care team pose points of greater risk. Simulated space will follow a patient from the point of presentation through various hospital and clinic functions to post-discharge community-based care settings. Also included will be a simulated bio-containment suite.

- Surgical skills simulation space with capability for surgical technology development, and collaborative spaces for biomedical technology development.

- Reception, interaction and collaboration facilities to accommodate the anticipated volume of learners, developers, and visitors.

The planned construction site is currently developed as a surface parking lot located at the southeast corner of 42nd and Emile Streets on the UNMC Midtown Omaha campus. The site also is occupied by a metal building to be demolished formerly housing the UNMC General Supply Warehouse. Two skywalks will be constructed to enable easy access to the new building from clinical areas of the campus and to facilitate the shared use of event spaces and other learning resources in adjacent campus buildings, one to the Michael F. Sorrell Center for Health Science Education adjacent to the north, and one to the Lauritzen Outpatient Center adjacent to the east.

Construction of the building portion of the project will be competitively bid, with the construction contract awarded to the low responsible bidder.

The planned virtual immersive reality, simulation-capture, media production, network communications and associated equipment must be designed and installed to operate as a highly functional, integrated system. It is proposed to select a "technology integration" firm to design, procure, install, and commission this mission critical equipment. The process would follow the procedures set out for Qualification Based Selection.

The iEXCEL℠ and Global Center for Advanced Interprofessional Learning at UNMC will provide a transformative learning resource that positions Nebraska as world-leading in competency-based, experiential learning and assessment, interdisciplinary education, and the advancement of clinical practice through the use of innovative technologies in simulation and virtual immersive reality. The project will also provide facilities designed and equipped to develop novel products, procedures and processes to advance learning and patient care, attracting new collaborative partnerships, helping to attract and retain top talent and serving as an economic driver for the community, state and region.

The program statement has been reviewed and recommended for approval by the Business Affairs Committee.

The project will not commence until commitments for all funding are in place and authorization to proceed is received from the President.

	Proposed Construction Start	January 2017
	Proposed Construction Complete	June 2018
PROJECT COST:	$102,000,000	
ON-GOING FISCAL IMPACT:	Estimated Operating and Maintenance	$1,500,000
	Additional Programmatic Costs	3,500,000
SOURCE OF FUNDS:	State Funds	$ 25,000,000
	Private Funds	77,000,000
		$102,000,000
SPONSOR:	Deborah L. Thomas Interim Vice Chancellor for Business and Finance	
RECOMMENDED:	Jeffrey P. Gold, Chancellor University of Nebraska Medical Center	
DATE:	September 16, 2015	

Global Center for Advanced Interprofessional Learning
Program Statement
University of Nebraska Medical Center

Date: July 29, 2015

Prepared by: UNMC Facilities Management and Planning, and Academic Affairs, with The Clark Enersen Partners as programming architect.

Phone: (402) 559-5022

I. INTRODUCTION

A. Background and History

Health professions education at UNMC continually evolves in order to prepare the best-educated and highly competent health professionals and scientists. Education has developed in recent years well beyond traditional classroom lectures and clinical experience rotations to include newer modes of education, for example problem solving in mentored small groups and the implementation of "flipped classroom" pedagogy. Distance and "on-demand" delivery of course content made possible by the advancement of digital media and networked communications capabilities have further improved the effectiveness and reach of health care education. Of particular importance is the introduction of advanced clinical simulation, offering health professions students the ability to learn, safely practice and be assessed on their mastery of basic, as well as complex procedural skills and patient care delivery in UNMC's current simulated health care settings using high-fidelity mannequins and "standardized" patient actors.

Advanced clinical care requires team-based delivery. The complexity of providing highly proficient and cost effective team-based care increases with the rapid advancement of clinical technology and medical understanding. The development and application of advanced clinical skills simulations and care-team proficiency building in simulated environments has become the state-of-the-art means of accelerating both individual and team skills mastery and retention in order to improve interprofessional health care delivery and patient outcomes.

As a result of the demonstrated success of simulations in achieving enhanced learning and improved health care delivery, UNMC faculty have gained considerable expertise in the development of new clinical simulations and the utilization of existing simulation facilities at UNMC is increasing steadily, taxing capacity.

With this preparation and experience, UNMC is now positioned to take a major transformative step in delivering superior health sciences education and clinical care through the integration of team based learning with individual learning in advanced simulated clinical settings, and through the use of virtual immersive reality technology, to improve student mastery and skills retention, improve patient outcomes, and lower the cost of health care:

- At its April, 2015 meeting, the Board of Regents approved the establishment of the Interprofessional Experiential Center for Enduring Learning (iEXCEL℠) to be housed in the Global Center for Advanced Interprofessional Learning to be constructed at the University of Nebraska Medical Center

campus in Omaha.
The iEXCEL℠ and Global Center for Advanced Interprofessional Learning will position UNMC and Nebraska to be a world leader in using near real life simulated clinical settings and virtual reality scenarios to transform career-long health care education and training. With iEXCEL℠ programs, students and clinicians will learn clinical skills and concepts more effectively and retain that knowledge longer, because it will be hands-on and competency-based, allowing individuals to progress at their own pace toward full mastery of material or skills. The iEXCEL℠ will also develop new ways of teaching and learning through research and development. The Global Center for Advanced Interprofessional Learning, incorporating 3D & virtual immersive reality technology, will place UNMC in a leadership position for recruiting the finest students, faculty and staff.

- The Board of Regents, also at its April 2015 meeting, adopted a Resolution of support for LB532 and LB533, Interprofessional Experiential Center for Enduring Learning (iEXCEL℠) in the Global Center for Advanced Interprofessional Learning.

- The Nebraska Legislature approved provisions of LB 532, amended into LB 660 and LB 662, authorizing the design and construction of the Global Center for Advanced Interprofessional Learning at the University of Nebraska Medical Center. Governor Ricketts signed into law an appropriation of $25,000,000 for that purpose on May 20, 2015.

- The Nebraska Coordinating Commission for Post Secondary Education reviewed and approved the establishment of the Interprofessional Experiential Center for Enduring Learning (iEXCEL℠) at its June 25, 2015 meeting.

B. Project Description

The Global Center for Advanced Interprofessional Learning is one of the most transformational ventures that UNMC has undertaken. The educational resources that will be used in this center -- which will be deployed across the state -- will change the way we educate in health care and may be applied to other NU academic programs.

The Global Center for Advanced Interprofessional Learning project will construct a new 134,000 square foot, multi-level structure to house and support the activities of the iEXCEL℠ plus 56,000 GSF of structured parking below the building, creating a venue that will stimulate and facilitate interprofessional education and teamwork early in and throughout the educational process.

The building is planned to contain:

- A 3D and virtual immersive reality learning studio, with collaborative and personal virtual learning venues supported by extensive state-of-the-art visualization and performance capture technology.

- An electronic learning media development studio equipped with a network communications platform designed to deliver learning content to prepared remote locations.

- Realistically simulated clinical and community health care space, with operable systems for experiential, individual and team learning and assessment. The design of the various simulated settings will model transitions of care, since patient hand-offs from care team to care team pose points of greater risk. Simulated space will follow a patient from the point of presentation through various hospital and clinic functions to post-discharge community based care settings. Also included will be a simulated bio-containment suite.

- Surgical skills simulation space with capability for surgical technology development, and collaborative spaces for biomedical technology development.

- Reception, interaction and collaboration facilities to accommodate the anticipated volume of learners, developers, and visitors.

Architecturally, the building will be designed to be prominent, while complementing other campus architecture. By its nature, it will be relatively complex, combining elements of clinical, research and data processing buildings, requiring a specialized yet flexible space layout and robust structural, mechanical, electrical, and telecommunications systems. Traditional enclosed offices will be minimized, designed instead with work areas optimized for both quiet work and collaboration.

Two skywalks will be constructed to enable easy access from clinical areas of the campus and to permit the shared use of learning facilities in adjacent campus buildings, one to the Michael F. Sorrel Center for Health Science Education and one to the adjacent Lauritzen Outpatient Center.

C. Purpose and Objectives

The purpose of the Global Center for Advanced Interprofessional Learning project is to provide the built environment for the development and delivery of highly integrated and interdisciplinary, adaptive experiential learning in the health sciences through the programs of the iEXCEL℠.

The successful completion of the Global Center for Advanced Interprofessional Learning project will:

- Facilitate a transformative learning culture that positions UNMC as a world leader in interdisciplinary education, experiential learning and the advancement of clinical practice with the goals of improving patient care outcomes and reducing medical errors through improved human performance.

- Facilitate the transformation of education and discovery at UNMC through the use of innovative technologies in simulation and virtual immersive reality; transition a major component of health science education to competency-based learning; and create a transferable model that enables the progression of the individual learner toward mastery of material and skills.

- Create an environment and technology platform that fosters the development of innovative partnerships to advance learning and patient care and to develop new products, procedures, processes and technology, helping to attract and retain top talent.

- Serve as an economic driver for the community, state and region, as faculty partner with other academic institutions, industry, government, and the military to research, develop and stay abreast of the newest tools and techniques necessary to advance health care.

- Create a hub-and-spoke network communications platform to audio-visually connect prepared education and clinical sites across Nebraska, creating a network of virtual simulation centers, including UNMC campuses in Lincoln, Kearney, Scottsbluff and Norfolk, as well as locations served by UNMC's primary clinical partner, Nebraska Medicine, and its regional health partners. It will also serve as a resource to Nebraska's state colleges and the military, bolstering continuing education statewide for all of Nebraska's health care practitioners, enhancing the safety and level of patient care.

- Decrease the cost of health care, as providers master preparedness at all levels, learn to function more effectively as teams and make fewer errors because they've received a more effective, competency-based education.

II. JUSTIFICATION OF THE PROJECT

A. Data That Support the Funding Request

As one of 171 medical centers in the United States, the University of Nebraska Medical Center ranks 4th in training primary care physicians; 9th in training of rural care physicians, and is in the 10th percentile for many other professional training programs. With about 3,000 healthcare professionals in training at any one time and a high percentage of graduates retained in the State of Nebraska, UNMC bears a significant responsibility for the quality and safety of healthcare for Nebraskans.

The current healthcare delivery system in the United States is undergoing major challenges, including an unacceptably high number of avoidable medical errors (estimated at 400,000 per annum), escalating healthcare costs, and an increasing number of underserved patients – especially in rural areas. The current healthcare professions educational model is outdated related to helping address these challenges from early in training and throughout a lifetime of practice.

Desirous of maintaining excellence in healthcare education and providing national and global leadership in improving human performance and effectiveness in health care through transforming the education of healthcare professions, the Global Center for the Advancement of Healthcare Professionals (iEXCEL℠) is designed to change the paradigm for educating the future healthcare work force. This includes expanding simulation based training by 100% and exploring the feasibility of creating a competency-based training model - in contrast to the current time-based model.

Healthcare Work Force

The proposed change in paradigm is to ensure that sufficient (and the right mix) of healthcare professionals are trained for the work force in a manner that is relevant to meet the current and future health care system needs. It is predicted, for example that the demand for registered nurses will expand by

50% with the US nursing workforce projected to grow to 260,000 registered nurses by 2025. The number of vacancies reported for pharmacists in the US has doubled with a shortfall of as many as 157,000 pharmacists predicted by 2020. The United States will require at least 52,000 more family doctors in the year 2025 to keep up with the growing and increasingly older U.S. population. This predicted shortage of healthcare providers particularly affects the rural areas of Nebraska.

Safety, Quality and Cost of Healthcare

In addition to having the most expensive health care in the world, preventable medical errors account for 1/6th (210,000 deaths) that involve diagnostic errors, errors of omission and technical/procedural errors. With the financial cost estimated at $25 billion dollars annually. iEXCEL℠ is purposefully designed to use simulation training for ensuring that healthcare professionals are educated with "hands-on" training in simulated healthcare environments in which they can practice their professional skill development and learn to work as healthcare teams. It is expected that over 20,000 healthcare professionals will utilize iEXCEL℠ in the first year of operations, with a 20% increase in utilization each year thereafter.

The Institute for Healthcare Improvement (IHI) has tied the future of excellent health outcomes in the United States to three principles: *a) improving the quality of care for all patients, b) effectively managing population health and c) reducing the cost of care.*

The five hundred mile-wide campus of UNMC spanning the state of Nebraska will provide the ideal venue to address these IHI principles. The proposed project includes the development of a hub and spoke simulation model of training for health professions education, maintenance of competency and patient education. All of the UNMC campus locations spanning from Scottsbluff to Omaha will benefit from high fidelity simulation that while centralized in a highly effective and efficient site on the Omaha UNMC campus will benefit healthcare education across the State. However, through improved performance by healthcare professionals, the greatest beneficiaries will be the patients in the State of Nebraska.

B. Alternatives Considered

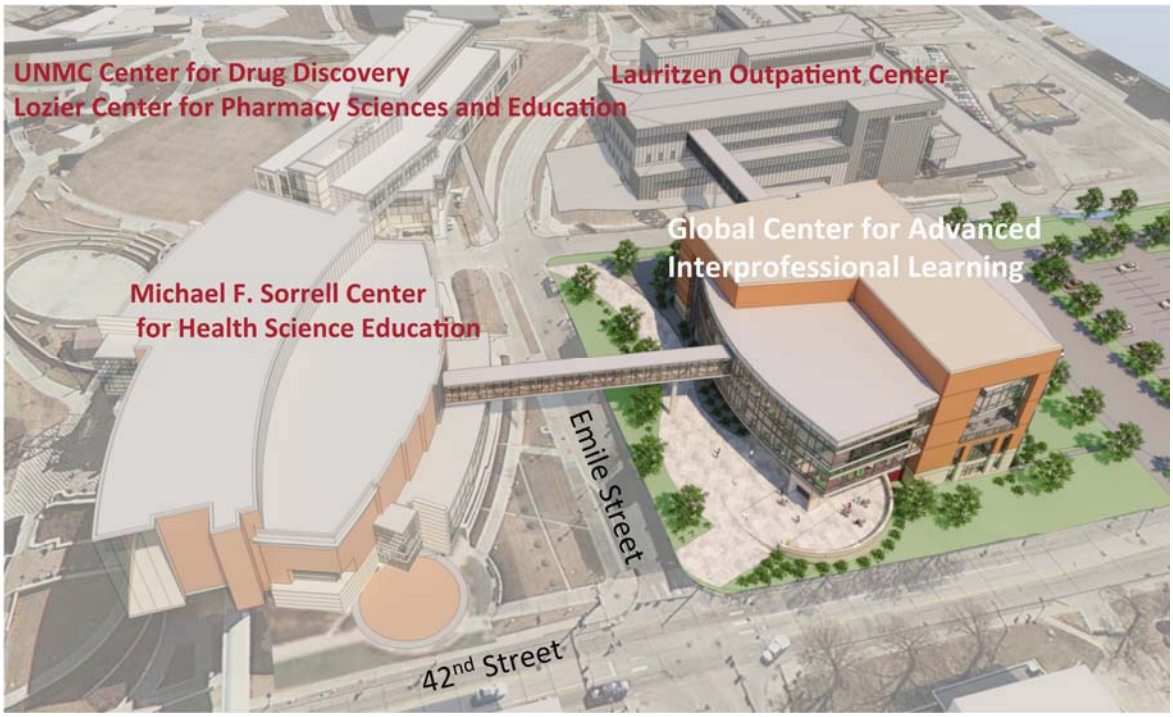
Important site selection criteria for the Global Center for Advanced Interprofessional Learning include proximate connection to the clinical core of the Omaha campus to enable direct access for on-campus students and practitioners, ease of access and parking for the expected volume of off-campus learners, and to accommodate building logistics. Based on these criteria, the only site suitable and available for construction is land immediately to the south of the Michael F. Sorrell Center for Health Science Education.

III. LOCATION & SITE CONSIDERATIONS

A. County: Douglas

B. Campus: University of Nebraska Medical Center

C. **Proposed Project Site:** The proposed construction site is currently developed as a surface parking lot located at the southeast corner of 42nd and Emile Streets on the UNMC Midtown Omaha campus. The site is also occupied by a metal building formerly housing UNMC General Supply Warehouse operations. For site selection criteria see II. B. Alternatives Considered.



Global Center for Advanced Interprofessional Learning
Conceptual Site Rendering

D. Statewide Inventory: Not applicable, new building.

E. Influence of project on existing site conditions:

A. Relationship to Neighbors

The proposed location of the new building is directly south of the Michael F. Sorrell Center for Health Science Education and west of the new Lauritzen Outpatient Center currently under construction. Both of these buildings will be connected to the Global Center for Advanced Interprofessional Learning via skywalks.

Constructing a skywalk from the new building to the Michael F. Sorrell Center for Health Science Education will provide access to that building's skywalk connecting across 42nd Street to the historical clinical core of the campus and with closer proximity to other campus education buildings. The Sorrell Center's large lecture halls, flexible event space, and existing simulation facilities suitable to supplement the event resources to be provided in the new facility, will also be directly accessible, further enhancing interprofessional education and collaboration capabilities.

The planned building site holds a prominent position at the southeast corner of 42nd and Emile streets, with primary exposures to public view from the south, west, and northeast. The new building will present as an important gateway structure identifying the south entry to the campus. Given its advantageous adjacency to the Sorrel Center, the new building will be designed to reflect that

building's curved south façade and feature a complementary pedestrian plaza area. The two buildings will work together as a venue for larger educational events.

B. Utilities

Connections for steam, condensate, chilled water, normal and emergency electrical power, and high capacity fiber optic communications will be extended to campus utility distribution lines located adjacent to the building site. Piping for domestic water, storm and sanitary sewer will be connected to public infrastructure.

C. Parking & Circulation

Construction of the new building will displace all 83 stalls of the existing surface parking lot. Parkers displaced will be assigned to existing other campus parking lots, per UNMC policy. Approximately 120 structured parking stalls will be constructed under the new building to accommodate the projected volume of learners visiting the building. The addition of parking under the building is made feasible and even desirable by the steep grade of the construction site. Without using the downhill area for parking, a large void in would result requiring additional structure and extensive fill.

IV. COMPREHENSIVE PLAN COMPLIANCE

A. University of Nebraska Strategic Planning Framework

The objectives of this project align with many of the goals of the University of Nebraska Strategic Planning Framework 2014-2016 as follows:

Goal 1. The University of Nebraska will provide the opportunity for Nebraskans to enjoy a better life through access to high quality, affordable undergraduate, graduate and professional education.

d. Expand lifelong educational opportunities, including those for non-traditional and transfer students.
g. Expand distance education programs, taking advantage of university-wide marketing and efficiencies and campus role and mission, strengths and entrepreneurship.

Goal 2. The University of Nebraska will build and sustain undergraduate, graduate and professional programs of high quality with an emphasis on excellent teaching.

a. Pursue excellence through focus on targeted programs in areas of importance to Nebraska where the university can be a regional, national and/or international leader (e.g. agriculture and natural resources, life sciences, information technology and architectural engineering).

iii. Campuses are encouraged to collaborate to achieve overall university goals.

b. Provide opportunities for global engagement of faculty through international teaching, research and outreach exchanges, fellowships and collaborations.

Goal 3. The University of Nebraska will play a critical role in building a talented, competitive workforce and knowledge-based economy in Nebraska in partnership with the state, private sector and

other educational institutions.

e. Encourage and facilitate the commercialization of research and technology to benefit Nebraska.
f. Develop and strengthen internship and service learning opportunities with business, education, government, military, and nonprofit organizations.
g. Engage in partnerships with government and the private sector to develop regional economic strength.
h. Pursue excellence in educational attainment aligned with the long-term interests of the state.
ii. Develop educational programs that prepare students for the flexibility required to respond to the uncertainty of future workforce demands.
iii. Develop distance education and other educational programs that permit Nebraskans to prepare for jobs and opportunities to meet future workforce demands.

Goal 4. The University of Nebraska will pursue excellence and regional, national and international competitiveness in research and scholarly activity, as well as their application, focusing on areas of strategic importance and opportunity.

a. Increase external support for research and scholarly activity.
    i. Increase federal support for instruction, research and development, and public service.
    ii. Inventory and forecast infrastructure (physical facilities, information technology, equipment) necessary to support continued growth in research activity and secure private and public support to eliminate deficiencies.
b. Increase undergraduate and graduate student participation in research and its application.
c. Encourage and support interdisciplinary, intercampus, inter-institutional and international collaboration.
d. Improve the quantity and quality of research space through public and private support.
e. Focus resources on areas of strength in research where the university has the opportunity for regional, national and international leadership and in areas of strategic importance to the health and economic strength of Nebraska (e.g. agriculture and life sciences; natural resources, especially water; prevention and cure of diseases such as cancer; and early childhood education).

Goal 5. The University of Nebraska will serve the entire state through strategic and effective engagement and coordination with citizens, businesses, agriculture, other educational institutions, and rural and urban communities and regions.

c. Support Nebraska's economic development.
    i. Partner and collaborate with government and the private sector to attract, retain, and spur business development and economic opportunity.
    ii. Use university research and other resources to foster more effective relationships with the private sector.
d. Support entrepreneurship education, training and outreach.
e. Collaborate with the public and private sectors to build successful regional, multistate, international linkages.
f. Use university resources to engage Nebraskans outside cities where our major campuses are located.

Goal 6. The University of Nebraska will be cost effective and accountable to the citizens of the state.

b. Maintain a safe environment for students, faculty, staff and visitors.

ii. Collaborate with state and local government in disaster planning.

c. Allocate resources in an efficient and effective manner.

ii. Leverage roles and missions of campuses to find savings and cost reductions through academic, administrative and business process efficiencies and effectiveness.

d. Maximize and leverage non-state support.

i. Promote entrepreneurship and revenue-generating opportunities.

B. University of Nebraska Medical Center Strategic Plan 2015 to 2018 - The UNMC/Nebraska Medicine Strategic Plan 2015 to 2018 identifies the implementation of the Interprofessional Experiential Center for Enduring Learning (iEXCEL℠) as its highest priority educational program.

V. ANALYSIS OF EXISTING FACILITIES

A. Function and purpose of existing programs as they relate to the proposed project:

The College of Medicine has a simulation laboratory at the Sorrell Center. The College of Nursing also has smaller simulation laboratories in each of its division buildings. The College of Dentistry has simulated dental operatories. The College of Allied Health Professions has simulation laboratories both in Omaha and Kearney. The College of Pharmacy is in the process of creating new simulation labs to be opened in 2016, and there is one simulated surgical suite that operates independently of the other simulation centers. While these labs have and will continue to serve our students very well, they would benefit from:

- Conceptual integration
- Continued growth of interdisciplinary simulations and team training
- Simulations designed to practice the hand over of care from one level of care to the next
- Capacity to train more than one or a small group of students at the same time.
- Creation of an academic/business model (research and development)
- Additional space for addressing the change in paradigm to expanded experiential learning programs and for large-scale training.
- Engaging in a significant number of quality improvement simulations with hospital partners
- Statewide coordination
- Additional research into the impact of simulation on human performance and patient outcomes
- Collaboration with military and corporate partners

B. Physical and Programmatic Deficiencies

Physical Deficiencies - Current simulation facilities, although for the most part recently constructed, state-of-the-art when built, continually updated, and, with an annual growth of 5% to 8%, have become space limited requiring frequent and inefficient furniture and equipment reconfiguration.

Programmatic Deficiencies – See V. A.

VI. FACILITY REQUIREMENTS AND THE IMPACT OF THE PROPOSED PROJECT

A. Functions & Purpose of Proposed Program – See Project Description

1. Projected Occupancy, Use, Staffing

a. **Usage Data -** See Section II. A.

b. **Staffing**

Department	Year 1 FTE	Year 2 FTE	Year 3 FTE
iEXCEL℠ Leadership Team	5	5	5
iEXCEL℠ Operations	1	11	18
Total *	6	16	23

**Does not include contingent, temporary or student workers.*

B. Space Requirements of Proposed Project

1. Square Footage by Function

Use Code	Functional Area	Quantity	NSF Each	NSF
	3D & VIRTUAL REALITY STUDIO			
620	Lobby/Technology Display Area	1	5,000	5,000
130	3D Virtual Immersive Environment (CAVE)	1	1,000	1,000
130	Curved CAD Wall Environment	2	1,000	2,000
130	Small CAD Wall Environment	2	500	1,000
130	Large Interactive Touch-Screen Environment	2	1,000	2,000
130	Small Interactive Touch-Screen Environment	4	300	1,200
130	Holographic Auditorium	1	2,500	2,500
130	Open, Flexible Technology Room	1	2,000	2,000
130	Innovation and Demonstration Room	1	500	500
130	Virtual Environment Radiotherapy Simulator	1	1,200	1,200
135	Technology Equipment and Service	1	1,000	1,000
135	Equipment Storage	1	1,000	1,000
	Subtotal – 3D & Virtual Reality Studio			**20,400**

	ADVANCED CLINICAL SIMULATION			
	Community-Based Care Services			
211	Ambulatory Care Smart Exam Room	2	200	400
211	Assessment Therapy (Physical Therapy, Dental Care, Speech/Audiology Therapy, Medication Therapy)	1	2,500	2,500
211	Home Care/First Responder Unit	1	800	800
211	Ambulance/Transport Unit	1	600	600

Use Code	Functional Area	Quantity	NSF Each	NSF
211	Innovation Studio	1	400	400
311	Office	1	120	120
215	Equipment Storage	1	500	500
	Acute/Intensive Care Services			
211	ED/Trauma Unit	1	400	400
211	Operating Room Unit	1	600	600
211	Intensive/Critical Care Unit/Electronic ICU	1	600	600
211	Labor/Delivery/Recovery Unit	1	400	400
211	Pediatric Care/Newborn Nursery Unit	1	400	400
211	Patient Room	2	400	800
211	Procedure Room Unit	4	400	1,600
111	Pre-Briefing Room (20-24 people)	2	600	1,200
111	Post-Briefing Room (8-10 people)	8	200	1,600
215	Control Room	2	1,000	2,000
311	Manager's Office	1	120	120
311	Shared Open Office	1	800	800
215	Equipment Storage	1	3,000	3,000
215	Simulation Workshop Space	1	500	500
	Biocontainment Training Suite			
211	Gowning/Locker/Shower	1	200	200
211	Patient Room (Single Patient)	1	400	400
211	Patient Room (Dual Patients)	1	400	400
215	Support Room	1	400	400
211	Laboratory	1	150	150
215	Decontamination/Sterilization	1	300	300
215	Storage	1	400	400
	Subtotal – Advanced Clinical Simulation			**21,590**

	ADVANCED SURGICAL SKILLS SIMULATION			
	Surgical Skills			
211	Surgical Skills	4	1,800	7,200
211	Advanced Surgical Skills	1	600	600
211	Procedural Skills	1	1,200	1,200
215	Locker Room/Surgery Prep/Gowning	2	800	1,600
215	Control Room	1	400	400
111	Pre-Briefing Room	1	600	600
111	Post-Briefing Room	4	200	800
215	Decontamination/Sterilization	1	300	300
311	Manager Office	1	120	120
311	Staff Stations	4	80	320
350	Industry Collaboration Room	1	500	500
215	Equipment Storage	1	600	600

Use Code	Functional Area	Quantity	NSF Each	NSF
	Tissue Prep and Storage			
264	Cadaver Storage (Freezer and Cooler)	1	1,500	1,500
225	Tissue Prep	1	400	400
225	Fresh Tissue Storage	1	150	150
	Subtotal – Advanced Surgical Skills Simulation			**16,290**

	TECHNOLOGY DEVELOPMENT AND TRANSFER			
	Creative Development			
311	Software Development Suite	1	1,200	1,200
350	Interaction Studio	1	300	300
315	Technology Support	1	150	150
315	Equipment Storage	1	200	200
	Technology Hub			
315	Master Control Room	1	1,000	1,000
534	Recording Studio	1	500	500
311	e-Learning Suite	1	500	500
350	Interaction Studio	1	300	300
315	Technology Support	1	150	150
315	Equipment Storage	1	200	200
	Technology Transfer			
311	Software Development Suite	1	600	600
253	Biomedical Device/Systems Development	1	600	600
253	3D Printing	1	300	300
350	Interaction Studio	1	300	300
315	Technology Support	1	150	150
311	Military & Industry Collaboration Suite	1	1,000	1,000
315	Equipment Storage	1	200	200
	Digital Education Center			
160	Training Room	1	1,600	1,600
311	Software Development	1	400	400
350	Interaction Studio	1	300	300
315	Technology Support	1	150	150
315	Equipment Storage	1	200	200
	Subtotal - Technology Development and Transfer			**10,300**

	ADMINISTRATION AND INTERACTION			
	Leadership Suite			
321	Waiting and Reception	1	300	300
310	Associate Vice Chancellor Office	1	160	160

Use Code	Functional Area	Quantity	NSF Each	NSF
310	Executive Director Office	2	140	280
311	Staff Office	6	120	720
311	Volunteer Space	2	120	240
311	Event Management	2	120	240
350	Conference Room	1	400	400
332	Work Room	1	200	200
330	Break Room	1	660	660
355	Storage	1	200	200
	Interaction and Collaboration			
350	Interprofessional Collaboration Open Areas	2	300	600
350	Interprofessional Collaboration Rooms	2	600	1,200
635	Warming Kitchen	1	300	300
350	Global Conference Room	1	660	660
355	Visitor Luggage/Coat Room	1	200	200
	Subtotal – Administration and Interaction			**6,500**
	BUILDING SUPPORT			
740	Enclosed Garage	1	1,000	1,000
712	Server Room Suite	1	600	600
715	IT Support Suite	1	600	600
320	Lactation Room	1	100	100
271	Medical Gas Cylinder Storage	1	200	200
765	Waste Storage	1	1,000	1,000
026	Shipping and Receiving	1	1,000	1,000
014	Storage/Recycling	1	800	800
	Subtotal - Building Support			**5,300**

	Building Net Assignable SF	**80,380**
	Building Net-to Gross Ratio	**60%**
	Building Gross SF	**134,000**

	Structured Parking			
780	Structured Parking Level (60 Stalls per Level)	2	28,000	56,000
	Subtotal – Structured Parking			**56,000**

	TOTAL BUILDING GROSS SF	**190,000**

2. **Planning Parameters -** All spaces have been programmed using UNMC space standards, benchmarking data from similar facilities, and good architectural practice.

3. **Difference Between Existing and Proposed –** Not applicable.

C. Impact of the project on existing space:

1. **Reutilization and function(s) –** Current Simulation space in all education buildings will remain in service to provide basic clinical skills learning and assessment.

2. **Demolition –** It is planned to demolish the existing surface Parking Lot 4 at the southeast corner of 42nd and Emile streets and the vacated General Supply Warehouse at the southern part of the proposed site.

3. **Renovation –** Not applicable.

VII. EQUIPMENT REQUIREMENTS

A. List of available equipment for reuse – Due to the fact that the facility and program are new, there is no plan to reuse or relocate any existing equipment or furnishings. Some equipment migration from existing simulation areas to the new building may occur over time.

B. Additional Equipment – A list of proposed categories of new equipment is as follows:

- Furniture & Office Equipment
- Clinical Equipment
- Surgical Equipment
- Virtual Immersive Reality Equipment
- Media Production Equipment
- Network Communications Equipment

C. Equipment Procurement – Furniture and office equipment, and most clinical and surgical equipment will be purchased following current Board policy. Proposed virtual immersive reality, simulation-capture, media production, network communications and associated equipment must be carefully designed so that the completed installation operates as a highly functional, integrated system serving the intended educational purpose. It is proposed to select a "technology integration" firm to design, procure, install and commission this mission critical equipment. The process would follow the procedures set out for qualifications based selection with approval of the selected firm by the Board of Regents at the same time as project architect selection.

VIII. SPECIAL DESIGN CONSIDERATIONS

A. Construction Type - The construction of the new building will be Type IIA to create a flexible and adaptable building to meet current and future requirements. The facility will be designed for a mixed-use, non-separated assembly and business occupancy. The building will be designed in accordance with

UNMC Design Guidelines to complement nearby campus buildings, and with the same materials used in the design of the Sorrell Center exterior.

B. Heating and Cooling Systems - The building HVAC system will be designed to provide appropriate temperature, humidity, and ventilation for all spaces. Air-handling units will be of the variable air volume type, connected to variable air volume reheat boxes for individual zone control. Exterior zones will be provided with perimeter heating where required. Exhaust systems will be provided for surgical skills areas to remove odors and fumes from the building. Occupancy sensors will be utilized in all spaces to capture energy savings. The building control system will be direct digital type and integrated into the campus-wide energy management and control system. The building will be designed to meet the requirements of the *International Energy Conservation Code* (IECC), per State Statute 72-804.

C. Sustainability - The building will be designed to meet the requirements of the University of Nebraska Sustainable Design Policy.

D. Security - Building security will be considered in the design of the building including the installation of card access at desired locations, surveillance cameras and other physical security measures to be determined during the design process.

E. Life Safety/ADA - The facility will be designed in accordance with the International Codes 2012 Edition, all applicable NFPA 101-2000 code references and the 2010 ADA Standards for Accessible Design and the ICCI ANSI A117.1-2002 Accessibility Codes, and Title 156 of the Nebraska Administrative Code.

F. Historic/Architectural Significance - There are no historic considerations for this project.

G. Artwork - An artwork budget, sufficient for the project and consistent with Board of Regents policy, has been included in the project budget.

H. Phasing - The project will be bid specifying single-phase construction.

I. Future Expansion - The building will be designed for potential horizontal expansion to the south, either by contiguous construction or by skywalk connection to a future adjacent building. The feasibility of a future vertical expansion of the building may be considered as well during the schematic design phase.

IX. PROJECT BUDGET & FISCAL IMPACT

A. Cost Estimate Criteria

1. Standards/ Sources

The programming architect developed the opinion of probable construction cost for this project with input from the construction community. Cost estimates were normalized to the Lincoln and Omaha market areas. The preliminary estimate of the cost of building construction takes into account the intent for the building to be designed as a prominent campus structure and the complexity of its functional components.

The equipment cost for the building was developed based on best available benchmarked information analogous to projected programmatic needs. A consultant specializing in visualization, simulation capture, media production, and network communications technology will be engaged to develop a detailed technology specification and progressed cost estimate as part of continuing project planning.

2. Year, Month, Inflation Factor

The project cost estimate was prepared in July 2015. The cost estimate assumes a 4% annual inflation rate for the 27-month period from July 2015 to the midpoint of construction in September 2017.

3. Gross & Net Square Feet

Building Efficiency (w/o parking)		Parking
Net Square Feet	80,380	120 Stalls
Gross Square Feet	134,000	56,000
Building Efficiency	60%	n/a

4. Project Cost & Construction Cost per Gross Square Foot

Unit Cost Data	Building	Parking
Project Cost/GSF	$733.43	$66.43
Construction Cost/GSF	$435.95	$61.29

B. Project Cost

BUDGET CATEGORY #1 -- CONSTRUCTION COSTS

	GSF	Cost /GSF	Probable Cost
Construction Contracts:			
Building Construction	134,000	$ 330	$ 44,220,000
Utilities to Site			
Electrical - Normal & Emergecy			$ 300,000
Steam & Chilled Water			$ 360,000
Site Demolition and Underground Conditions Contingency			$ 1,000,000
Plaza Area			$ 250,000
Skywalks (Linear Feet)	300	$ 7,000	$ 2,100,000
SubTotal Construction Contracts			$ 48,230,000
Structured Parking (120 Spaces Under Building)	56,000	$ 54	$ 3,024,000
Inflation to Construction Mid-Point 27 months @		4.0%	4,737,000
Total General Construction Contract			*$ 55,991,000*
Utility Company Fees and Contracts			$ 50,000
In House Labor & Construction Including Building Controls	per SF	$ 6.00	$ 804,000
Telecommunications	per SF	$ 10.00	$ 1,340,000
Upgrade campus to 10 GB Service			$ 670,000
Fiber Optics to Site			$ 50,000
Subtotal All Construction			*$ 58,905,000*
Owner Construction Contingency		5.00%	$ 2,945,000
SUBTOTAL COST CATEGORY #1 -- CONSTRUCTION COSTS			***$ 61,850,000***

BUDGET CATEGORY #2 -- NON-CONSTRUCTION COSTS

Moveable Equipment - Furniture			$ 1,550,000
- Clinical and Procedure Simulation Equipment			$ 4,500,000
Special & Technical Equipment (Audio Visual, Virtual Reality, Simulation Capture and Network Communications)			$ 24,150,000
Land Acquisition			
Project Design & Management			
Project Planning & Program Statement			$ 150,000
Technology Integration Planning			$ 100,000
A/E Basic Services		8.0%	$ 4,480,000
A/E Additional Services			$ 295,000
A/E Reimbursable Expense and Printing			$ 20,000
In-House Services -- Project Management/Code Reviews			$ 2,000,000
Other Consultants			
Geotechnical			$ 30,000
Surveys			$ 10,000
Subtotal Professional Services			*$ 7,085,000*
Artwork			$ 250,000
Other Costs			
Risk/Quality Management			
Building Commissioning			$ 150,000
Builders Risk Insurance			$ 80,000
Peer Review of Building Envelope			$ 100,000
Security Equipment			$ 200,000
Moving and Relocation			$ 75,000
Signage			$ 100,000
TOTAL Other Costs			*$ 705,000*
SubTotal Non Construction Costs			*$ 38,240,000*
Non-Construction Contingency		5.0%	*$ 1,910,000*
SUBTOTAL COST CATEGORY #2 -- NON-CONSTRUCTION COSTS			***$ 40,150,000***
TOTAL PROJECT COST			***$ 102,000,000***

C. Fiscal Impact:

FISCAL IMPACT	Amount
Operational & Maintenance costs per year	$1,500,000
Additional Programmatic Costs	$3,500,000

X. FUNDING INFORMATION

A. Total funds required: $ 102,000,000

B. Project Funding Sources:

Funding Sources	Amount	% Total
State Funds	$25,000,000	24.5%
Other Funds	-	-
Private Funds	$77,000,000	75.5%
Total	$102,000,000	100%

C. Fiscal year expenditures:

FISCAL YEAR	EXPENDITURES
FY2015-2016	$ 1,500,000
FY2016-2017	$ 47,500,000
FY2017-2018	$ 50,000,000
FY2018-2019	$ 3,000,000

XI. Project Timeline

Estimated Funding Complete	June 2016
Program Statement Approval	October 2015
Architect Selection Approval	December 2015
Technology Integrator Selection Approval	December 2015
CCPE Approval	January 2016
Intermediate Design Review	June 2016
Bid Project	November 2016
Start Construction	January 2017
Mid-Point Construction	September 2017
Substantial Completion	June 2018

XII. HIGHER EDUCATION SUPPLEMENT

A. Coordinating Commission for Public Education: CCPE review of the building will be required for this project.

B. Method of Contracting

1. Building Construction:

Method: The construction portion of the project will be bid, with subsequent contract award to the low responsible bidder.

Rationale for Method Selection: Bidding conditions in the Omaha construction market are currently favorable, and are expected to yield the most favorable price at the time the project is scheduled to be bid.