

WAYNE STATE UNIVERSITY

FY2016-2020: 5-Year Capital Outlay Plan

Submitted to the Office of the State Budget

October 31, 2014

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A handwritten signature in blue ink, reading "Richard J. Nork", is written over a horizontal line.

Vice President for Finance and Business Operations

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Executive Summary

Construction of the State supported Multidisciplinary Biomedical Research Building (MBRB) on Wayne State University's campus began during December 2012 and is now scheduled to be complete in May 2015. The MBRB was the University's number one capital outlay priority in FY2013 and subsequently this project has been awarded \$30.0 million of State capital outlay funds.

During 2012, Wayne State updated its 2020 Campus Master Plan, and that effort served as the basis for the University's 5-Year Capital Outlay Plan submitted the previous two years, as well as for the Series 2013 bond issue that is being used to partially fund many projects listed in the Plan. These projects include the State supported Multidisciplinary Biomedical Research Building and Student Center Building Renovation which are under construction, and the recently completed Manoogian classroom renovations and Macomb Advanced Technology Education Center. The University submitted the new Science and Engineering Laboratory Classroom Building (SELC) project as its top priority FY2015-2019 Capital Outlay Project Request in November, 2013 and this project, with some updates, modifications and improvements continues to be Wayne State University's top priority Capital Outlay Project Request.

The new SELC Building, which we are now referring to as the STEM Laboratory Classroom Building, will be exclusively dedicated to the training and education of undergraduate students in science, technology, engineering and mathematics (STEM) programs. Increased focus on STEM fields has been deemed critically necessary to maintaining and advancing the State's economy as evidenced by the State establishing a performance funding metric related to STEM degrees awarded. Although Wayne State has shown a positive trend in enrollment in this area over the past five years including an increase of 52 percent in enrollment in the College of Engineering, our absolute numbers of critical skills degrees awarded need to improve. This new facility is essential to attract and retain students in science and technology majors and enable the University to significantly increase the number of STEM degrees awarded while supporting 15-20 permanent jobs. And based on history, the vast majority of these graduates will live and work in Michigan.

According to a report issued by the President's Council of Advisors on Science and Technology, if the nation is to remain competitive in science, technology, engineering, and mathematics, American universities collectively will need to increase graduates in these areas by a third.

The approaches to teaching and learning being used nationally to successfully increase the number of domestic STEM graduates, the diversity of domestic STEM graduates and the quality of learning of these graduates are exactly the same approaches that this facility will enable Wayne State to implement or strengthen in the coming years.

As initially planned, the 45,300 gross square foot building was to provide 30 separate teaching laboratories and support facilities for various academic programs including physics, engineering, computer science, psychology, nutrition and food science, and biological science, for a cost of \$20.0 million to design and construct. The project scored well when evaluated by the State Budget Office, accumulating 123 points which ranked 5th among 12 University projects submitted. However, in the year since the Plan and Project Request was submitted a new opportunity has developed enabling the University to repurpose an existing structure rather than build new, while enhancing the programming and functionality of the facility compared to the initial concept by taking advantage of more than double the amount of floor space provided. In this regard, the University's Science and Engineering Library (SEL) was closed in January 2014 as part of ongoing cost reduction programs. The University now plans to renovate the nearly vacant SEL and repurpose it as the new STEM Laboratory Classroom Building. This revised plan has many advantages in areas of cost, utilization, life safety improvements and sustainability compared with the original SELC concept.

The SEL is structurally sound and its 100,000 gross square feet will accommodate not only the programming planned previously for the new building, but also will enable the University to re-locate and consolidate its entire math department in the new facility creating a highly efficient STEM corridor along Warren Avenue. The additional space will also accommodate several more general-purpose classrooms, as well as tutoring, colloquium, study and gathering spaces which are needs identified by the faculty that would not have been met in the space provided by the initial building concept.

By repurposing an existing building, costs for the construction of the foundation, frame and building enclosure systems will be avoided. Also, the SEL shares mechanical infrastructure with the adjacent, recently renovated A. Paul Schaap Chemistry Building, eliminating the need to purchase new heating and cooling systems. These cost avoidances will enable the University to reduce the project cost per square foot by up to 32 percent, from \$440 per square foot to \$300 per square foot and realize an increase of 120 percent in usable net square feet for a 50 percent increase in total project cost. In addition, the cost of maintaining the mostly vacant SEL will

be avoided, and the site of the previously proposed new SELC building will be retained as a surface parking lot and will still be available for future development if needed.

The new, cutting-edge facility will allow integration and re-assignment of existing and redesigned STEM courses that are currently housed in aged and obsolete facilities and teaching labs, some of which were constructed over 50 years ago and have seen limited updates since. Courses from departments that are presently disbursed throughout main campus will be brought together to take advantage of interdisciplinary teaching and learning opportunities and shared resources, thereby reducing some facilities costs. Most important, however, is that this project will provide a critical context for best practices in STEM teaching and learning that can translate into more graduates who will be successful in their chosen field.

Many existing classrooms will be vacated when the STEM Laboratory Classroom Building has been completed. As a separate but closely related project, the existing lab classrooms in Shapero Hall, the Physics building and the Engineering building, will be upgraded and converted to research space. The University will invest approximately \$8.0 million to convert these labs to state-of-the-art research space which could help generate incremental research funding totaling \$5.0 to \$7.0 million annually bringing 35-50 new permanent jobs to Detroit in addition to the 45 construction and 12 design related jobs which would be required for the duration of the project.

In summary, by implementing the planned STEM Laboratory Classroom Building project, Wayne State will significantly improve its facilities dedicated to STEM teaching and learning environments; resources that are critical to preparing students to excel in an increasingly advanced and interconnected global society. In addition to the significant advantage provided to our students, the University and the State will both benefit from increasing the number of STEM graduates well prepared to meet a growing need and to contribute to the State's economic growth.

Wayne State is requesting \$22.5 million in State Capital Outlay funding (75 percent of the total project cost) to support the STEM Laboratory Classroom Building project, and will use existing bond proceeds to fund its \$7.5 million share of the project as well as the \$8.0 million separate project for research space renovations.

I. Mission Statement

Wayne State University is a national research institution dedicated to preparing students to excel in an increasingly advanced and interconnected global society. As an urban research University, Wayne State's mission is to discover, examine, transmit and apply knowledge that contributes to the positive development and well-being of individuals, organizations and society.

II. Instructional Programming

Existing Academic Programs

Wayne State is a comprehensive research University with 13 schools and colleges administering more than 380 academic programs, including 129 bachelor's degree programs, 116 master's degree programs, 58 doctoral degree programs, 3 professional programs, and 76 certificate and specialist programs, many of which rank in the top tier nationally. The University currently enrolls 27,578 students. Five extension centers in the metropolitan area provide access for residents to a wide selection of off campus courses. Wayne State is a significant and influential force in metropolitan Detroit's educational and cultural landscape, and the 43-acre research and technology park that is supported by the University has made it a major player in Michigan's economic turnaround.

Eighty-eight percent of the University's students are from Michigan, with 78 percent from the tri-county metropolitan Detroit area. Wayne State graduates provide the highly educated workforce necessary to transform and power Michigan's economy in the 21st century.

Wayne State graduates serve the citizens of Michigan with advanced professional training in business; engineering; education; law; pharmacy and health sciences; medicine; nursing; social work; fine, performing and communication arts, liberal arts; and the basic sciences. Every day Wayne State graduates play a critical role in Michigan life, from local physicians to scientists and engineers working in the latest high-tech spin-off companies.

Figure 1 illustrates the University's fall 2014 enrollment by headcount and degrees awarded from July 1, 2013 to June 30, 2014. Note that the Library & Information Science program moved from the Graduate School in Spring/Summer 2009 and is now being reported separately. In addition, these Figures, and all subsequent Figures, exclude graduate medical education students.

Figure 1
Wayne State University
Degrees Granted & Enrollment

School/College	2013-14 Degrees Awarded	Fall 2014 Enrollment
School of Business Admin.	722	2,971
College of Education	715	2,836
College of Engineering	491	3,115
College of Fine, Performing & Comm. Arts	485	2,190
Graduate School	3	15
Law School	177	444
Liberal Arts & Sciences	1,867	11,421
Library & Information Science	215	492
School of Medicine	378	1,604
College of Nursing	232	596
Pharmacy and Health Sciences	360	965
School of Social Work	414	929
Total	6,059	27,578

Source: Office of Budget, Planning and Analysis

Projected Academic Programming Changes

Construction of the State supported Multidisciplinary Biomedical Research Building (MBRB) began during December 2012 and is now scheduled for completion in May 2015. The MBRB was the University's number one priority capital outlay request in FY13 and is one of several major capital projects currently underway at Wayne State University. The MBRB will strengthen the University's ability to conduct translational research; a key scientific need identified by the National Institutes of Health. The MBRB is essential to helping Wayne State bring additional research dollars to campus and to providing students and research faculty with laboratories and the technology necessary for continued academic success and expanded scientific discovery.

During 2012, Wayne State updated its 2020 Campus Master Plan. The goals associated with the 2012 update were:

- To investigate new or evolving University initiatives as they pertain to possible changes or additions to Campus Master Plan priorities.

- To review building conditions, deficiencies, and opportunities within the College of Engineering and the Sciences to determine whether current needs should be elevated in priority to better support academic or research initiatives.
- To update the status of projects proposed in the original 2020 Campus Master Plan and those of the update conducted in 2008.
- To develop final recommendations for specific capital projects to be included in the University's FY14 5-Year Capital Outlay Plan, Series 2013 bond issue and upcoming capital campaign.

In this regard, consistent with the FY14 and FY15 Plan, the new STEM Laboratory Classroom Building remains the University's number one priority Capital Outlay Project Request to the State of Michigan. The new STEM Laboratory Classroom Building will be dedicated to the training and education of undergraduate students in science, technology, engineering and mathematics (STEM) programs. Increased focus on STEM fields has been deemed critically necessary to maintaining and advancing the State's economy as evidenced by the State establishing a performance funding metric related to STEM degrees awarded. This project will contribute to the University's ability to achieve improvement on this key performance indicator.

When last submitted, Wayne State proposed construction of a new 45,300 gross square foot building that provided 30 separate teaching laboratories and support facilities for STEM programs at a cost of \$20.0 million to design and construct. The project scored well when evaluated by the State Budget Office, accumulating 123 points which ranked 5th among 12 University projects submitted. However, in the year since the Plan and Project Request was submitted a new opportunity has developed enabling the University to repurpose an existing structure rather than build new, while enhancing the programming and functionality of the facility. In this regard, the University's Science and Engineering Library (SEL) was closed in January 2014 as part of ongoing cost reduction programs. The University now plans to renovate the nearly vacant SEL and repurpose it as the new STEM Laboratory Classroom Building. This revised plan should increase the project score in that it has many advantages in areas of cost, utilization, life safety improvements, and sustainability compared with the original SELC concept.

The SEL and its 100,000 gross square feet will accommodate not only the programming planned previously for the new building, but also will enable the University to relocate and consolidate its entire math department in the new facility creating a highly efficient STEM corridor

along Warren Avenue. The additional space will also accommodate several general-purpose classrooms, as well as tutoring, colloquium, study and gathering spaces which are needs identified by the faculty that would not have been met in the space provided by the initial building concept.

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By implementing the planned STEM Laboratory Classroom Building project, Wayne State will significantly improve its facilities dedicated to STEM teaching and learning environments; resources that are critical to preparing students to excel in an increasingly advanced and interconnected global society. In addition to the significant advantage provided to our students, the University and the State will both benefit from increasing the number of STEM graduates well prepared to meet a growing need and to contribute to the State's economic growth.

Wayne State is requesting \$22.5 million in State Capital Outlay funding (75 percent of the total project cost) to support the STEM Laboratory Classroom Building project, and will use existing bond proceeds to fund its \$7.5 million share of the project

With respect to the University's FY15 5-Year Capital Outlay Plan, several important projects have been advanced including:

- Multidisciplinary Biomedical Research Building: Under Construction
- Macomb Advanced Technology Education Center: Completed
- Student Center Building Renovations: Under Construction
- Electrical Infrastructure Upgrades: Under Construction
- Chatsworth Apartments Life Safety Upgrades: Completed
- Manoogian Classroom Building 2nd Floor Renovation: Completed

In addition to the STEM Laboratory Classroom Building, the following list summarizes the University's other major facility priorities during the next five years:

BioSci / Nutrition and Food Science Lab Renovations: \$5.5 million
School of Social Work Relocation: \$3.0 million
Scott Hall Lab Renovations: \$5.0 million
DeRoy Apartments Exterior Improvements: \$5.0 million
Hilberry Gateway Phase I: \$25.0 million
BioEngineering Building Renovation and Expansion: \$19.25 million
Class Lab Back-fill Renovations for Research: \$8.0 million
State Hall Classroom Building Renovation: \$20.0 million
Fountain Court Improvements: \$2.5 million
Student Innovation Center for Engineering: \$10.0 million
Law School Classroom Building Renovation: \$10.0 million
University Deferred Maintenance Program: \$50.0 million
Parking Structures and Related Improvements: \$14.0 million
Housing Facilities and Related Improvements: \$9.0 million

Wayne State will implement these major initiatives to increase its research stature, and to improve general education, residential, parking, and support and service facilities to meet the changing expectations of students and keep pace with evolving technology. Comfortable, high-tech facilities play a key role in the University's ability to attract and retain the best and brightest students, faculty and staff to Detroit. It is a dynamic campus with state-of-the-art facilities that offers great "curb appeal" to those seeking complementary opportunities for personal and academic growth.

Unique Characteristics of Wayne State's Academic Mission

Wayne State is Michigan's only urban research University and is ranked by the National Science Foundation among the nation's top 55 public universities for research expenditures. Wayne State is also classified by the Carnegie Foundation for the Advancement of Teaching as "Research University – Very High Activity," a distinction held by only 3.8 percent of universities classified. Through its multidisciplinary approach to research and education, and its collaborations with government, industry and other institutions, the University seeks to enhance economic growth and improve the quality of life in the city of Detroit, the state of Michigan and across the country.

Wayne State's history and mission require that the University provide access to a high quality, research-focused education. Given the demands of the emerging knowledge-based economy, research plays a significant role in the University's programs at all degree levels. Nevertheless, Wayne State has always served the educational needs of first-generation and working students.

Wayne State University has a distinguished history of making higher education available to students from across Michigan -- many of whom are the first in their families to pursue a degree -- and more than 60 countries around the world. The University enrolled 2,275 non-resident / international students in the fall of 2014. Approximately 35 percent of Wayne State's students attend part-time; many work and raise families while attending the University. Six extension centers in Oakland, Macomb, and Wayne counties accommodate almost 10.3 percent of the student population.

While students are Wayne State's abiding priority, the University is also committed to advancing research that benefits the citizens of Michigan and helps strengthen the state's economy. Some examples are:

- Dr. Melissa Runge-Morris, director of the Institute of Environmental Health Sciences and professor of oncology, and Dr. Bengt Arnetz, deputy director of the Institute of Environmental Health Sciences and professor of family medicine and public health sciences, received a \$2.4 million NIH center grant, the Center for Urban Responses to Environmental Stressors. The center is one of 20 select P30 Core Centers funded by the National Institute of Environmental Health Sciences, with the goal of understanding how environmental exposures during life windows of heightened susceptibility can adversely affect health, particularly in vulnerable populations. The heart of CURES is a grass-roots community engagement program committed to improving healthy living and working environments in the city of Detroit.
- Dr. Ambika Mathur, dean of the Graduate School, received a \$1.8 million NIH grant, Broadening Experience in Scientific Training (BEST). Wayne State University was one of 10 institutions selected by the National Institutes of Health (NIH) to lead a five-year, \$18.5 million initiative aimed at strengthening the research workforce in the United States, where there is a shortage of non-academic research scientists. WSU will implement a bold new program that prepares graduate and postdoctoral students to enter research careers outside of academia.

- Dr. Anna Moszczynska, assistant professor of pharmaceutical sciences in the Eugene Applebaum College of Pharmacy and Health Sciences, received a nearly \$1.7 million grant from the National Institutes of Drug Abuse of the National Institutes of Health to explore whether proteasome and parkin — two components of the ubiquitin-proteasome system — are potential pharmaceutical drug targets that can be manipulated to promote survival and recovery of dopaminergic terminals after binge and chronic administration of toxic doses of methamphetamine.
- Dr. Miriam Greenberg, professor of biological sciences in the College of Liberal Arts and Sciences, received a \$1.4 million grant from the National Heart, Lung and Blood Institute of the National Institutes of Health to do further studies on cardiolipin, a critically important mitochondrial lipid that is found in all tissues and is most abundant in the heart. Cardiolipin deficiency leads to dilated cardiomyopathy and arrhythmia in the genetic disorder Barth syndrome, and is also implicated in diabetic cardiomyopathy, heart failure, ischemia/reperfusion injury, and nonalcoholic fatty liver disease. Dr. Greenberg's study will identify specific metabolites that are limiting as a result of cardiolipin deficiency, and that may be candidates for new treatments for Barth syndrome and other cardiomyopathies.
- Dr. Xuwen Chen, professor of computer science in the College of Engineering, received a nearly \$1.1 million grant from the National Science Foundation to develop a knowledge base that will play a central role in paleontological data management. It will facilitate paleontologists to further explore unexploited areas and to raise and answer research questions that are unsolvable under the current paradigm. In addition, it will provide a paradigm shift from the book-based knowledge system to a unified framework in which computational analysis and modeling are integrated with knowledge to derive a new era of paleontological research.
- Dr. Zhengqing Hu, assistant professor of otolaryngology in the School of Medicine, received a \$1.6 million grant from the National Institute on Deafness and Other Communication Disorders from the National Institutes of Health to analyze hearing regeneration using stem cell approaches. The results of this study will provide avenues to explore and promote auditory circuitry regeneration to treat deafness and other inner ear disorders.

Wayne State University also allocates significant resources to a number of exemplary research institutes and centers, including:

- The Institute of Gerontology is dedicated to research in social and behavioral sciences and cognitive neuroscience on issues of aging and urban health. The institute prepares tomorrow's leaders in aging research, and connects with health care providers, seniors and their families to disseminate current knowledge and best practices in gerontology.
- The Merrill Palmer Skillman Institute works to improve the development, health and well-being of infants, children, youth, and their families across the lifespan, through research, education and outreach. The institute conducts research focusing on urban populations at increased risk due to community, environmental, biomedical, and psychosocial and other challenges.
- The Institute of Environmental Health Sciences is a core of research scientists who use state-of-the-art technologies to identify the central mechanisms that lead to environmentally-linked disease. The institute aims to benefit human health through the prevention or early detection of environmentally-induced disease.
- The Center for Automotive Research prepares students to solve practical problems in many engineering disciplines. The center focuses on projects with demonstrated potential benefit to Michigan's economy, including alternate and renewable fuels, biofuels and emission controls.
- The Bioengineering Center promotes the discovery, design, and development of technologies as well as education in the understanding, mitigation, and prevention of impact-associated injuries.
- The Center for Molecular Medicine and Genetics focuses on increasing the understanding, diagnosis, treatment and prevention of disease. The center's activities range from basic research to clinical genetics to translation from the lab to the bedside.
- The Center for Health Research advances nursing knowledge and improves the urban community's health through research.

Other Initiatives Impacting Facilities Usage and Needs

As part of its mission to prepare students to excel on a campus with exceptional student life experiences, Wayne State has embarked on several initiatives that are impacting this 5-Year Capital Outlay Plan.

2020 Campus Master Plan and 2012 Update

The 2020 Campus Master Plan for improving and expanding the physical facilities of Wayne State grew out of a University strategic planning process that concluded in 2001. The 2020 Campus Master Plan is a flexible document, written to provide direction and accommodate unanticipated conditions. The 2020 plan produced a clear picture of the limitations and opportunities for expanding the main campus. The Master Plan places the University's highest priority on facilities that support the University's academic and research mission and many of its high priority recommendations have since been implemented. During 2012 the Campus Master Plan was updated to incorporate the University's evolving priorities, and that effort has impacted and changed projects proposed in previous 5-Year Plans. Wayne State University's new project priorities are represented in the Projected Academic Programming Changes section above, and are described in greater detail in the Implementation Plan of this document. For the FY16 capital planning cycle, Wayne State University is submitting the STEM Laboratory Classroom Building as its top priority for State capital outlay funding consideration.

Relative to the FY15 Plan, Wayne State has completed the construction of the Macomb Advanced Technology Education Center, finished classroom renovations on the second floor Manoogian Hall, renovated general-purpose classrooms in the Education Building and Shapero Hall, and started renovating the Student Center Building. Our FY16 Plan includes several research laboratory renovations for the School of Medicine in Scott Hall and the Elliman Building, and for the College of Liberal Arts and Sciences laboratories will be improved for our Nutrition and Food Science program and the Biological Sciences.

Housing Demand Market Study

The academic year that began in the fall of 2014 brought with it a 100 percent occupancy rate within University provided student housing, and a wait list of over 100 students seeking an on-campus residential experience. When the University's 2020 Campus Master Plan was completed at the beginning of the last decade, among its goals was to significantly expand the on-campus residential population; from 1,500 students to over 6,500 over 20 years. Between 2001 and 2005 the University doubled its student

housing capacity. In recent years we have enjoyed occupancy rates of 95 percent. This year we could not accommodate all of the demand. As a result, a housing demand study has been commissioned to determine whether the time has come to advance development of additional student housing capacity on campus. The 2020 Campus Master Plan has been holding real estate for this purpose. The market study may result in the inclusion of new student housing projects in our FY17 Plan.

Planned P3 Development of Mixed-Use Housing / Hotel / Conference Center

The University's 2020 Campus Master Plan for the housing expansion included the goal to create Public / Private Partnerships (P3) that would result in new student housing solutions on our real estate under long-term land leases, wherein construction capital was provided by the private partner. During 2007, Wayne State completed its first such project on Woodward Avenue through a venture with Studio One LLC out of Grand Rapids. The project produced a \$25.0 million market rate apartment building that many of our students reside in. At this time, the University's administration is negotiating with another private developer hoping to advance a \$65.0 million project that includes market rate apartments, a hotel and conference center component, and additional retail venues at the corner of Cass and Canfield on the south end of campus.

Pivotal Moments: Our Campaign for Wayne State University

On October 8, 2014 we formally launched the public phase of the University's second comprehensive capital campaign to fund raise \$750 million by 2018 when our 150th anniversary is celebrated. Each of the University's 13 colleges and schools has critical goals to achieve through Pivotal Moments, some of which benefit facilities. Specific projects represented in our FY16 Plan are the Hilberry Gateway Phase I, Law School Classroom Building Renovation, and the College of Engineering Student Innovation Center.

Wayne State University Research and Technology Park

TechTown is Detroit's business innovation hub. As the city's most established business accelerator and incubator, it provides a powerful connection to a broad network of resources, catalyzing entire communities of entrepreneurs best poised to energize the local economy.

TechTown is a 501(c)(3) nonprofit and is located within the Woodward Technology Corridor SmartZone, north of the University's main campus. It offers both tech- and place-based economic development programs.

In the district, Wayne State students and faculty work alongside entrepreneurs at TechTown to refine new generations of tech businesses. TechTown not only contributes significantly to the University's research capital, but also strengthens and diversifies the region's economy. The relationship with TechTown highlights one of Wayne State's greatest strengths: its ability to partner with industry and government for the good of the populations the University serves.

TechTown's recently redesigned first floor includes co-working space for entrepreneurs, expanded conference and event space, and an enhanced environment for the incubation of Wayne State and other technology companies. The collaborative space fosters a community of engaged, connected and better-served entrepreneurs who will accelerate the region's transition into an innovation-based economy.

Economic Development Impact of Current/Future Programs

As previously mentioned, Wayne State University's impact on Southeast Michigan is substantial. The significant percentage of alumni who remain in the area after graduation contributes greatly to the region's well-being through their professional and personal accomplishments, community activities and financial resources. Additionally, the University is the seventh-largest employer in the City of Detroit with more than 8,500 full- and part-time faculty and staff.

In FY2014, Wayne State spent more than \$565.0 million for compensation, wages and fringe benefits. The University awarded more than \$358.4 million in financial aid (federal, institutional, private, outside and state) to 23,463 undergraduate, graduate and professional students. Expenditures on equipment, supplies, maintenance, design services and construction exceeded \$170.0 million. Of the \$170.0 million, 72 percent of the contracts were awarded to Michigan contractors and \$51.5 million of those were Detroit based businesses.

The university spent over \$224.3 million in research and development during FY2013. In FY2013, 85 new patent applications were filed on technologies invented at Wayne State, and the university spent \$1.2 million to file and maintain all of its patent applications and issued patents.

Through FY2013, the university's intellectual property portfolio contained over 500 technologies. Over 100 of those technologies were licensed, 23 to Michigan companies. The university has assisted in the start-up of more than 25 companies, most based in Michigan.

Wayne State is committed to establishing infrastructure that supports the creation of new companies and encouraging an entrepreneurial culture. Wayne State also is a catalyst in the revitalization of Midtown Detroit.

Projects transforming the landscape include:

- Midtown now hosts over 91 restaurants, 41 arts and entertainment opportunities, and 49 retail shops. Since 2012, 56 new businesses have opened in Midtown.
- Over 1200 new residents have moved to Midtown through the Live Midtown initiative. Since the program's inception in 2011, approximately \$3.0 million has been spent to attract and retain residents in the neighborhood.
- Residential occupancy for rental housing has been at or above 97%.
- More than \$245.0 million has been invested in residential development in Midtown in recent years.

The University has 38 retail and office spaces for a total square footage of 79,430. Restaurant chains such as Jimmy Johns, Starbucks and Subway have long been anchor tenants. Additional commercial tenants such as restaurants and food trucks were added in the past year. Al-Basha Café and coG-Studios were added this past year. Business & Auxiliary Operations anticipates that additional restaurants (Midtowne Grill located at 51 W. Forest) will open in Spring 2015.

Wayne State is committed to being a catalyst for economic growth in the city of Detroit. Recent initiatives include:

- Announcement of a \$60.0 million development with private developer Broder Sachse. The development will include 248 apartments, 19,000 square feet of retail space, a hotel with up to 120 rooms, and a conference center that can accommodate up to 300 people.
- Contribution of \$300,000 to the final phase of the Midtown Greenway Loop project, a two mile pedestrian and bicyclist pathway connecting key destinations in Midtown. The final phase of the Loop will be along Cass Avenue, from Canfield to Kirby, on Wayne State's campus.
- Investment of \$3.0 million in the M-1 rail streetcar, currently under construction.

- Construction of \$68.0 million development for the Wayne State University Physicians Group on 3750 Woodward Avenue.
- Construction of \$93.0 million MBRB on Woodward Avenue.
- Graduation of two cohorts (64 graduates) of the Goldman Sachs 10,000 Small Businesses program.

III. Staffing and Enrollment

Enrollment

Several initiatives during the past few years have contributed to an increase in applications include enhancements to the Honors and scholarship programs, aggressive enrollment management efforts, opening the Welcome Center and three new residence halls, and expanding the Comerica Charitable Foundation Academic Success Center.

Referring to Figure 2 below, Fall 2014 enrollment is 27,578. This is 319 fewer students than Fall 2013, a decrease of 1.1 percent. Undergraduate enrollment is down 255 students, 1.4 percent, while graduate and professional enrollment dropped by 64 students, 0.7 percent.

Enrollment of new freshmen increased by 28 students, 1.3 percent and the returning freshmen retention rate decreased 1.2 percentage points to 75.7 percent. New transfer and other new students increased by 386 students, 16.9%. Total undergraduate enrollment is 18,347.

New graduate students increased by 135, 8.6 percent, while new professional students declined by 27 students, 4.9 percent.

Full-time undergraduate students decreased by 1.6 percent, part-time undergraduate decreased by 64 students, a 1 percent drop. Full-time graduate and professional enrollment decreased 68 students, 1.2 percent. Part time graduate and professional enrollment was flat.

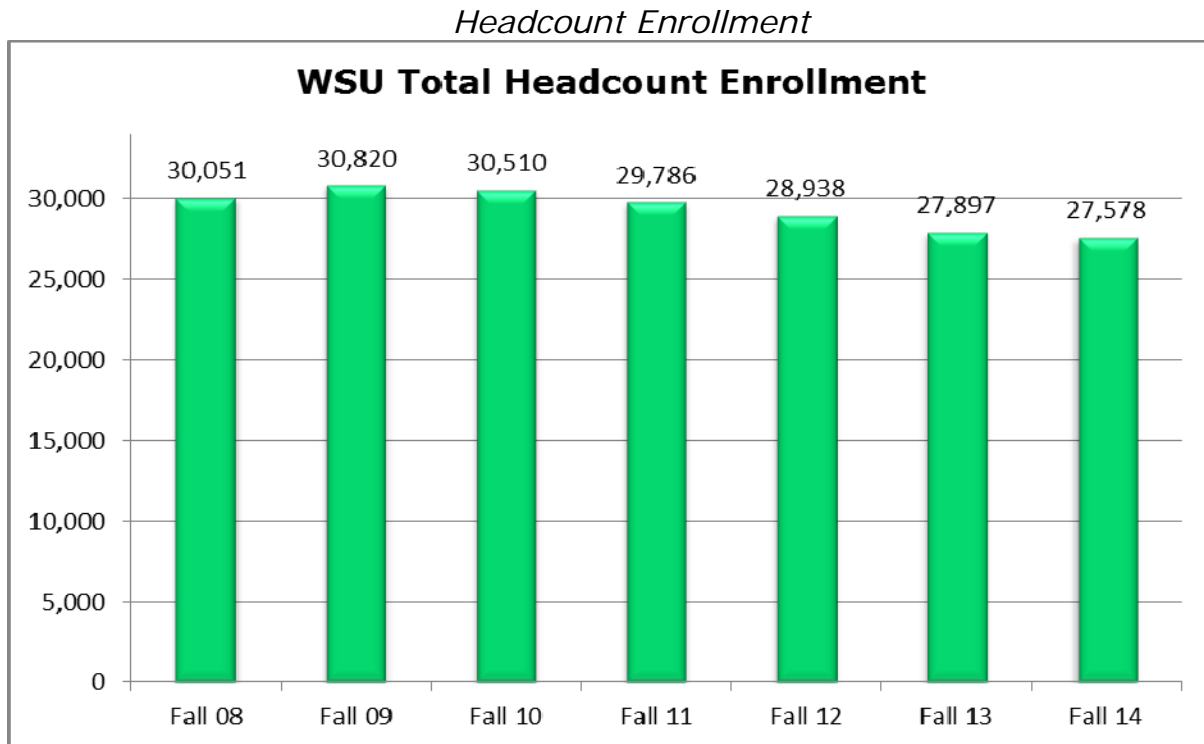
Total credit hours are 300,469, a 0.5 percent decrease from Fall 2013. Undergraduate credit hours are down 0.8 percent. Graduate/professional credit hours are down slightly 0.1 percent. Slightly increased attempted credit hour loads lead to the credit hour percentage decreases being slightly smaller than enrollment percentage declines.

Michigan residents represent 88.2 percent of our student population, 3.6 percent are from other U.S. states, and 8.2 percent are international. The

University has increased in the numbers of international students and the number of non-resident domestic students is about the same as last year. There are 977 students from other U.S. states and 1,877 international students.

Enrollment Patterns over the Past Six Years

Figure 2



In addition to courses held on the main campus in Detroit, Wayne State University offers instruction at six off-site locations in the tri-county area. As shown in Figure 3, 2,851 students are enrolled in courses at the extension centers in Fall 2014, a 10.5% decrease from Fall 2013. A substantial number of these students are enrolled in classes on main campus as well. Distance-learning initiatives have been launched in the College of Education, School of Business Administration, Law School, School of Medicine, School of Social Work, Eugene Applebaum College of Pharmacy and Health Sciences and College of Engineering; the number of web-based classes, in which all or most of the coursework may be completed online, is consistently increasing (see Figure 4). The University offered 322 web-based sections in Fall 2014, up from the 280 sections offered in Fall 2013. Innovative course options,

combined with campus residential choices, help position Wayne State as a desirable destination school.

Extension Center Summary & Web Class Report

Figure 3

Extension Center Summary						
Class Section Enrollment	Section Count		Section Enrollment		Average Section Enrollment	
	2013	2014	2013	2014	2013	2014
All Extension Centers Total	269	252	4,345	3,995	16.2	15.9
Student Headcount & Credit Hours						
Student Level	Headcount		Credit Hours		Average Credit Hours	
	2013	2014	2013	2014	2013	2014
Undergraduate Totals	2,329	2,142	10,055	9,903	4.5	4.6
Graduate Totals	857	708	3,007	2,642	3.5	3.7
Professional Totals	0	1	0	3	0.0	3.0
Total	3,186	2,851	13,562	12,548	4.3	4.4

Figure 4

Web Class Report						
Class Section Enrollment	Section Count		Section Enrollment		Average Section Enrollment	
	2013	2014	2013	2014	2013	2014
Total	280	322	7,504	7,630	26.8	23.7
Student Headcount & Credit Hours						
Student Level	Headcount		Credit Hours		Average Credit Hours	
	2013	2014	2013	2014	2013	2014
Undergraduate Totals	3,658	3,902	15,008	16,135	4.1	4.1
Graduate Totals	1,829	1,630	6,998.5	7,348	3.8	4.5
Professional Totals	2	3	10	8	5.0	2.7
Total	5,489	5,535	22,016.5	23,491	4.0	4.2

Projected Enrollment over the Next Five Years

While the University experienced a very slight decline in total enrollment in the Fall of 2014, the number of new students increased by 8%, with increases in the number of new FTIACs, new transfers, and new graduate and professional students, suggesting that we are turning the corner on previous declines in enrollment. Further, the six year graduation rate for full-time FTIACs has increased by 8 percentage points, to 34% over the past three years. To continue this progress, Wayne State has committed to a concerted and coordinated effort to improve student success and student learning, increase retention and graduation rates, and narrow achievement gaps. This initiative has twelve major thrusts, which are described here.

The first six thrusts were funded and initiated as part of the WSU Retention Implementation Plan, launched in 2012.

(1) **Undergraduate Academic Advising Initiative.** This initiative provided funding for hiring of 45 new professional academic advisors on campus, approximately doubling our institutional advising capacity and bringing our student/advising ratios into alignment with national best practice.

(2) **General Education Review.** Streamline, simplify and better communicate general education requirements.

(3) **Support for Teaching and Learning.** In 2013, Wayne State University began to restructure and reinvigorate of the Office for Teaching and Learning. A new Associate Provost and Director for the OTL was hired who has extensive experience in and a reputation for faculty and instructional development. The staffing and resources of the Office for Teaching and Learning were increased to enable expansion of both services and impact.

(4) **Readiness for College.** Nationally, as access to college becomes a national priority, fewer students are coming to college meeting college readiness benchmarks and prepared for the rigor of a post-secondary education. Increasingly, remediating this gap is the challenge of colleges and universities who must simultaneously meet retention and graduation rate goals. This challenge has become particularly acute at Wayne State University, where we have long had a mission of access and opportunities. To address this challenge, we have enhanced and expanded many of our support programs. In particular, the Academic Pathways to Excellence (APEX) Scholars program now offers a Summer Bridge Program that provides an opportunity for 132 students to earn up to 8 college credits in a free, supported, residential environment before joining Wayne State

University in the fall, increasing their college readiness and giving them a head start on academic success.

(5) **Expanded First Year Experiences.** The transition into the first year and the first year of college are critical to student success. WSU has been making investments into the first year experience for many years, in the form of learning communities, enhanced orientation programs, curriculum enhancements and other forms of support.

(6) **Expansion of Financial Aid.** For students in need of financial assistance, Wayne State University has recently increased its financial aid by \$6.2 million, or 11 percent for the 2013-2014 year. More than 80 percent of all Wayne State undergraduate students receive some form of need- or merit-based financial aid. We are exploring and piloting various approaches to use financial aid to support degree attainment in more direct ways, while maintaining our mission of access.

(7) **GRAD: Greater Retention and Achievement through Diversity.** To build on our historical commitment to educational opportunity, WSU committed in July 2013 to launch the Greater Retention and Achievement through Diversity initiative, which aims to increase our retention and graduation rates for students of color and other under-represented groups and to advance a mission of inclusive excellence. This strategic initiative funds the creation of a multicultural student success center as well as a campus diversity and culture study. Further, it calls for further strategic planning to lead to the creation of a chief diversity officer position and an Office of Diversity and Inclusion.

(8) **Big Data and Student Success.** WSU has embarked on a program to use "big data", analytics and machine learning to disclose patterns in data that influence desired outcomes. Early results have been interesting, and are helping us discover student success factors that had not been considered before.

(9) **Community College/Transfer Student Initiative.** Various initiatives have successfully increased the number of students transferring to Wayne State University from community colleges.

(10) **High Impact Educational Experiences.** Wayne State University has made many investments in High Impact Educational Experiences – learning practices and environments that have been shown to be most effective in contributing to student engagement, motivation, deep learning, and long-term student success.

(11) **Pre-College Collaborative.** Wayne State University has more than 50 in-school and out-of-school, school year and summer programs that provide educational experiences for pre-college students. These programs are delivered by a variety of units, schools and colleges and programs throughout WSU. During 2013, the providers of these programs organized into a Pre-college collaborative to share best practices and develop the capacity of these programs to support college access, readiness, and success within our local communities.

(12) **Strategic Graduation Action Project.** Direct intervention and other initiatives designed to help students graduate.

Student-to-Faculty Ratios

The published student to faculty ratio is based on full-time equivalent students (full time plus 1/3 part time) and full-time equivalent instructional faculty (full time plus 1/3 part time) and excluding students and faculty in stand-alone graduate programs. The Fall 2013 student to faculty ratio is 15 to 1.

Current Class Size

Class size varies depending on the program and class level. Lecture class sections average about 24 students. Subsections (e.g., labs and discussion groups) average about 19 students.

IV. Facilities Assessment

Functionality of Existing Structures and Space Allocations to Programs, Deferred Maintenance and Facilities Condition, Current Replacement Value

Wayne State owns and operates 103 buildings and leases space in another twenty-four. The University delivers its programs from over 12 million gross square feet of space. Over the years, the University has used a number of methods to estimate and quantify its deferred maintenance backlog. Approximately fourteen years ago, the University commissioned an evaluation of its major research buildings and programs to facilitate the development of capital investment and program expansion priorities. The study included detailed facility assessments for sixteen research buildings. During 2002, the University conducted assessments of 12 non-research

buildings, which concluded that the overall condition of several of these buildings is poor. In November 2009, another detailed facilities condition assessment was completed for six of the University's parking structures. The parking study was updated again this past summer. During 2012 a building condition assessment was conducted for all apartment and dormitory buildings.

Beyond these building investigations, the University has commissioned single building studies that produced the Manoogian Building Condition Analysis, and the Student Center Building Assessment of Existing Conditions. The University also conducted studies on individual building systems that resulted in the Chiller Replacement Master Plan and the Roof Condition Report. Each of these studies helped establish capital outlay plans and a realistic estimate of the University's deferred maintenance backlog.

When Wayne State reported its current replacement value and deferred maintenance backlog, the aforementioned reports were used to define a baseline to which inflation assumptions were added over the years. Because most of the data was from studies conducted over a decade ago, the data accuracy came into question. During 2014, Turner Construction was retained to develop a new cost estimate for the current replacement value of each of our buildings using their extensive database of historical construction costs. Their analysis quantifies the University's current replacement value at approximately \$2.7 billion just for the cost of construction. Adding 25 percent to this value for design fees, non-construction project scope and contingencies increases the value to approximately \$3.4 billion.

A separate analysis this year of the University's actual capital construction investments since 1997 resulted in understanding that of our 85 general-fund buildings; only 20 of them have received substantive renovations that would address deferred maintenance. Furthermore, the average age of the 85 general-fund buildings is 57 years, and most continue to operate with their original mechanical, electrical, and plumbing infrastructures. Previous estimates of the deferred maintenance backlog were as high as \$330 million. Recognizing the age of the portfolio, and that 65 general-fund buildings have received little reinvestment other than operating funds, it would not be unreasonable to assume that the University's deferred maintenance backlog is much higher, perhaps exceeding \$500.0 million.

Concurrent with updating the Campus Master Plan in 2012, Wayne State University also conducted an electrical vulnerability study of its critical and sensitive building and scientific assets. This was done in response to the continuing unreliable public utility electrical infrastructure supporting the University from the former Detroit Public Lighting Department and Detroit Edison. Because significant power interruptions have been occurring with

greater frequencies in recent years, occurrences that have resulted in two University shutdowns during the past four years, the University has been forced to install back-up power generation stations in several critical areas. During 2006 four stations were constructed to support research-intensive facilities, and in 2012 the University installed a new back-up generator station to fully support its main Data Center. The electrical vulnerability study resulted in Board of Governors approval earlier this year to invest an additional \$13.5 million to upgrade electrical service entrances and substations, install additional back-up generators, and provide UPS equipment to protect sensitive scientific equipment. The implementation of this project is underway.

The University's infrastructure of parking structures and lots, roads, pedestrian walkways and site lighting continued to advance from fair to good or very good overall condition. During 2012 nearly \$7.0 million was invested in additional structural repairs to five of the University's parking structures and several surface parking lots were significantly upgraded with new asphalt and concrete surfaces, better lighting, additional surface water drainage, and new control equipment. During 2013 an additional \$4.0 million was invested in the parking infrastructure. This Five-Year Capital Outlay Plan includes \$14.0 million to continue implementing improvements to this portion of the University's facility portfolio.

Strategic Energy Plan

As part of a 2008 environmental sustainability initiative, the University developed a Strategic Energy Plan which is based on three parts; energy procurement, energy production, and energy conservation. All natural gas is purchased through a consortium with the State of Michigan. Water and sewer services are purchased from the City of Detroit. On July 1, 2014, Detroit Edison acquired the assets and customer base of the former Detroit Public Lighting Department (PLD). Edison now supplies the University with all of its electricity. Terms of Edison acquisition will have them constructing a new substation in the midtown area of Detroit, and from it providing a new electrical service entrance to each of the 43 former PLD serviced buildings. We understand that this infrastructure upgrade will be implemented during the next three to five years. When this occurs Wayne State expects most of its recurring electrical reliability problems to be issues of the past.

Since 2007, the University has self-generated all of its steam used for heating or cooling. Until 2012, in two limited cases, Detroit Thermal served as a back-up only. During 2012, the University executed contracts with Detroit Thermal to provide steam for the Pharmacy Building and Scott Hall.

Wayne State has always generated its own chilled water for comfort and process cooling. Because we do not have the land resources for a central heating and cooling plant, there are many small individual plants serving single or small groupings of buildings across campus. When individual plants require replacement or refurbishment, each is evaluated on a case by case basis to determine the most appropriate and economically justifiable approach for the future.

With respect to energy consumption or conservation, the University has implemented many energy conservation measures (ECM's) over the years. An emerging element of the energy plan is the retro-commissioning of existing buildings. Most retro-commissioning effort to-date has been focused on energy intense research and medical school building where the greatest saving can be realized. Facilities Planning and Management has also organized an energy curtailment committee whose members have proposed and received funding to implement several energy conservation projects.

Facilities and Land Use

The overall distribution of academic/research space is expected to continue changing during the next several years. For example, when the MBRB is opened in 2015 a larger percentage of the University's physical plant will be dedicated to research. Academic and research uses make up the dominant share, now 4.5 million gross square feet (GSF). Included in this designation are classrooms, lecture halls, laboratories, and a significant portion of faculty and graduate student offices. While academic and research definitions may overlap, these two broad classifications are roughly equal in scope. Technology and distance learning will further redefine and shape future classroom space allocations and development.

Within the timeframe of the 2020 Campus Master Plan, which was completed in 2000, the University has developed additional space to expand many of its programs. Most of this additional space has or will be delivered to three major elements of the facilities portfolio, expanding on-campus residential opportunities, growing research and academic programs, and new parking structures.

The University has accomplished expansion primarily on land it owns. As this continues, the floor-area ratio is expected to increase from 1.06 to 1.60. Earlier land use evaluations concluded that a floor-area ratio of 2.0 to 2.25 was achievable and would not be detrimental to the campus or adjacent neighborhoods in terms of overall bulk or massing of the facilities. Planned

development will preserve ample mall and green space for the community. When fully realized, Campus Master Plan projects will have a negligible impact on open space, as planned demolitions and the re-use of surface parking lots will accommodate most new construction.

Building and Classroom Utilization Rates

The University's commitment to the diversity of its student body and its urban mission are reflected in its academic programs and class scheduling. To accommodate the needs of the large number of students who work during the day, many courses are scheduled in late afternoon or evening. According to the Office of Institutional Research, 47 percent of all courses are scheduled after 4 p.m. While most courses are offered on the University's main campus, many are offered at six extension centers.

Mandatory Facilities Standards

As a "Carnegie Research University, Very High Activity" institution, Wayne State complies with required facilities standards.

- Animal research facilities are distributed throughout the main and medical campus buildings. Facility standards for laboratory research animals are rigorous and regulated by the national accrediting agency, the Assessment and Accrediting of Laboratory Animal Care.
- The University's offices of Environmental Health and Safety and Health Physics and Radiation Control are responsible for the collection, short-term storage and disposition of hazardous waste materials. These activities are regulated nationally by the Environmental Protection Agency and locally by the State Department of Environmental Quality.
- Chemical and biological laboratories that contain fume hoods and store chemicals and/or reagents are spread throughout the main and medical campuses. These facilities are regulated by Occupational Safety and Health Administration standards (OSHA).
- Specialized facilities such as laser laboratories, large testing equipment and laboratories, and biohazard laboratories exist in the colleges of Liberal Arts and Sciences, Engineering, the Eugene Applebaum College of Pharmacy and Health Sciences, and the School of Medicine. These laboratories have special OSHA regulations and requirements and often need significant modification to the buildings and utility systems.

- The clinical behavioral science laboratories used for conducting research on human subjects are regulated by the National Institutes of Health. The University's Institutional Review Board is responsible for implementing these regulations.

Utilization

The University reports that many buildings, including general academic and administration buildings, are used heavily from 8 a.m. to 10 p.m. Monday through Friday, and from 8:00 a.m. to 4 p.m. Saturday. Many research buildings are subject to operation 24 hours per day, seven days a week, and 365 days a year.

Bond Status

The University has five building projects with obligations to the State Building Authority.

<u>Building</u>	<u>Lease Began</u>	<u>Lease Ends</u>
Old Main Renovation	November 1997	2032
Undergraduate Library	February 1998	2033
Pharmacy and Health Sciences	September 2002	2037
Welcome Center	December 2002	2037
Engineering Development Center	December 2009	2044

V. Implementation Plan

Throughout this document, Wayne State University has presented comprehensive information regarding its capital project plans. Consistent with our FY15 Plan, this 5-Year Capital Outlay Plan continues to reflect evolving University priorities. As FY15 progresses construction of the State supported Multidisciplinary Biomedical Research Building will be completed. Through September 2014 construction of the MBRB is approximately 55 percent billed out. With this FY15 5-Year Capital Outlay Plan, Wayne State University submits the STEM Laboratory Classroom Building, an improved version of the Science and Engineering Laboratory Classroom Building as its number one priority State Capital Outlay Project Request for funding consideration.

In addition to the STEM Laboratory Classroom Building, the University has in progress plans to advance several other capital projects as described below. As steps are taken during the next 12 months to move projects and fundraising efforts forward, current plans may be modified.

Status of Ongoing SBA Funded Projects

The Multidisciplinary Biomedical Research Building is the only active State supported project at Wayne State University at this time. Through September 2014 construction is approximately 55 percent billed out. Final completion is expected in May 2015.

Non-State Capital Outlay Projects In Progress

The Student Center Building Renovation (\$26.5 million) is under construction. The project is focus on improving the basement through third floors by comprehensively upgrading the food court, lounges, student group areas, and building administrative spaces. New construction will be introduced at the building entrances to enhance the functionality and appearance of the building. The project will encourage the interaction of resident and commuter students on campus, and incorporate state-of-the-art technology into private and shared spaces. The project was approved by the University's the Board of Governors on November 22, 2013.

Electrical Infrastructure Upgrades (\$13.5 million) will address various electrical vulnerabilities that were noted in the Facilities Assessment above. The project will provide emergency back-up generators to several key research buildings, UPS equipment to protect sensitive scientific

instruments, and delay time re-start devices on freezer equipment. The project was approved by the University's Board of Governors on November 22, 2013.

Planned Non-State Capital Outlay Projects

Various Research Laboratory Renovations (\$5.5 million) will be implemented in supporting the Department of Nutrition and Food Science, and in the Biological Sciences Building supporting the research conducted by the Biology Department.

School of Social Work Relocation (\$3.0 million) involves renovating the recently acquired building from the Detroit Institute for Children located at 5447 Woodward Avenue, and moving the University's School of Social Work to this location from the Thompson House.

Scott Hall Research Laboratory Renovations (\$5.0 million) will improve approximate 10,000 square feet of space on the fourth floor for cardiovascular programs within the School of Medicine. Project scope addressing HVAC equipment that serves floors five through nine is also included.

DeRoy Apartments Exterior Improvements (\$5.0 million) will address and correct masonry disrepair that presently permits water infiltration during major rain events.

The Hilberry Gateway Phase 1 (\$25.0 million) will provide new construction of a "Black-box" theater adjacent and connected to the existing Hilberry Theater. Once completed, a second phase project is planned to renovate the existing Hilberry and further expand the complex to permit consolidation of production support functions that are located in separate facilities.

BioEngineering Building Renovation and Expansion (\$19.25 million) will provide 23,000 GSF of additional research space and renovate the existing building. Within the College of Engineering, the BioEngineering Department is targeted for significant student and research program growth and is expected to have very high interaction with initiatives formed from the new Multidisciplinary Biomedical Research Building.

Class Lab Back-fill Renovations for Research (\$8.0 million) will convert approximately 35,000 square feet of existing teaching laboratories to new research space following the completion of the STEM Laboratory Classroom Building.

The State Hall Classroom Building Renovation (\$20.0 million) will renew and upgrade the remainder of this building's aging infrastructure. Constructed in 1948, State Hall is a general purpose classroom building critical to delivering courses for almost every academic program. Recent upgrades have included replacement windows on the north and south sides of the building, the renovation of the fourth floor to return it to general purpose classroom use, and cosmetic improvements in the basement through third floor. Building improvements which still need to be addressed include replacement of the mechanical and electrical systems, ADA issues including elevator replacement, and the replacement of windows on the east and west facades.

Fountain Court Improvements (\$2.5 million) will replace and renew approximately three acres of landscape and pedestrian malls in the heart of the campus. The project will include improvements to Gullen and Williams Mall, Governors Fountain, and to DeRoy Auditorium's historic water feature.

Student Innovation Center for Engineering (\$10.0 million) will showcase engineering competition teams such as Formula SAE and hybrid vehicle programs, and include space for design, testing and fabrication.

Law School Classroom Building Renovation (\$10.0 million) will complete a decade long quest to expand and renew the Law School complex. The scope will replace the tiered / stadium seating classrooms with flat and raised floor seating options, upgrade MEP systems, and introduce current educational technology.

University Deferred Maintenance Program (\$50.0 million) is a campus-wide initiative and includes regular investments in deferred maintenance beyond the projects listed previously.

Parking Structure and Related Improvements (\$14.9 million) will continue a multi-year initiative to structurally repair and upgrade various parking structures. The program also includes important surface parking lot improvements such as paving, site lighting, gate and control equipment and surface water drainage systems.

Housing Facilities and Related Improvements (\$9.0 million) will continue to address various needs including life safety systems, technology upgrades, building envelope repairs, kitchen and bathroom modernization, and mechanical and electrical systems.