

WAYNE STATE UNIVERSITY

FY2015-2019: 5-Year Capital Outlay Plan

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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 about 20 percent complete. 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 Facilities Master Plan and this served as the basis for the University's FY2014 5-Year Capital Outlay Plan as well as for the Series 2013 bond issue which will be used to partially fund many of the projects listed in the Plan including MBRB, Student Center renovation, Manoogian classroom renovations, and the Macomb Advanced Technology Education Center which are all underway.

The FY2015 5-Year Capital Outlay Plan is very consistent with the FY2014 Plan, and a new Science and Engineering Laboratory Classroom Building (SELC) remains the University's number one Capital Outlay priority. A project request seeking State funding to enable design and construction of this new building, critical to student success in Science, Technology, Engineering and Math (STEM) programs, is included with this 5-Year Plan.

The planned SELC building will be constructed on a site adjacent and potentially connected to the existing Physics building, surrounded by numerous other buildings used for both teaching and research in STEM fields. The building will include 30 separate teaching laboratories and support facilities for various academic programs from physics, engineering, computer science, biological science, psychology, and nutrition and food science. The Total cost to design and construct the building is expected to be \$20.0 million.

In a closely related project, existing labs located in Shapero Hall, the Physics building and the Engineering building totaling approximately 35,000 sq. ft. will be renovated and re-purposed as state-of-the-art research facilities at a cost of about \$8.0 million. These labs currently are laboratory classrooms which will be vacated when the new SELC has been completed.

The University is committed to student success, to increasing retention and graduation rates and to increasing relevant research especially in the areas of Science, Technology, and Health Care. Implementing this 5-Year Capital Plan is critical to the University's success.

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, 64 doctoral degree programs and 79 certificate, specialist and professional programs, many of which rank in the top tier nationally. The University offers higher education to 27,897 students. Presently, Wayne State operates four 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.

Approximately 90 percent of the University's students are from Michigan, with about 80 percent from the three-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 2013 enrollment by headcount and degrees awarded. Note that these figures exclude graduate medical education students.

Figure 1

**Wayne State University
 Degrees Granted & Enrollment**

School/College	2012-13 Degrees Awarded	Fall 2013 Enrollment
School of Business Admin.	676	3,056
College of Education	638	2,996
College of Engineering	478	2,653
College of Fine, Performing & Comm. Arts	432	2,298
Graduate School	7	25
Law School	174	504
Liberal Arts & Sciences	1,613	11,807
Library & Information Science	221	486
School of Medicine	348	1,608
College of Nursing	237	594
Pharmacy and Health Sciences	361	975
School of Social Work	437	895
Grand Total	5,622	27,897

Sources: Office of Budget, Planning and Analysis

Projected Academic Programming Changes

Construction of the State supported Multidisciplinary Biomedical Research Building (MBRB) began during December 2012. 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 Plan, the new Science and Engineering Laboratory Classroom Building (SELC) remains the University's number one priority capital outlay project request to the State of Michigan. As now conceptually programmed, the new Science and Engineering Laboratory Classroom Building will be dedicated to the training and education of undergraduate students in science, technology, engineering and mathematics (STEM) programs that have been deemed critically necessary to maintaining and advancing the State's economy. Wayne State University plans to develop the SELC Building adjacent and potentially connected to the existing Physics Building. The proposed site is at the center of other campus buildings focused on teaching and research in STEM subjects. The planned SELC Building will provide 30 separate teaching laboratories and support facilities for various academic programs including physics, engineering, computer science, biological science, psychology, and nutrition and food science. The new SELC Building will be approximately 45,300 gross square feet in size and cost approximately \$20,000,000 to design and construct.

Completion of this project will enable many existing STEM courses to be re-assigned to the new SELC Building from aged and obsolete facilities and teaching labs, some of which were constructed over 50 years ago and have seen limited updating since. These classroom laboratories will be vacated when the new SELC has been completed. As a separate but closely related project, the existing classroom laboratories totaling approximately 35,000 square feet 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.

By implementing the planned Science and Engineering Laboratory Classroom Building project, Wayne State will have significantly improved 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. Additionally, the creation of state-of-the-art research facilities will enable the University to attract world-class

researchers to new jobs in Detroit. Wayne State is requesting \$15,000,000 in State Capital Outlay funding to support the SELC Building project, and will use bond proceeds to fund its share of the project as well as the separate project for research space renovations.

The following summarizes the University's other major facility priorities during the next five years:

- Multidisciplinary Biomedical Research Building: \$90,400,000
- Macomb Advanced Technology Education Center: \$12,000,000
- Student Center Building Renovations: \$26,500,000
- Electrical Infrastructure Upgrades: \$13,500,000
- Chatsworth Apartments Life Safety Upgrades: \$2,300,000
- Manoogian Classroom Building 2nd Floor Renovation: \$6,000,000
- University Deferred Maintenance Program: \$50,000,000
- Parking Structures and Related Improvements: \$14,900,000
- Housing Facilities and Related Improvements: \$9,000,000
- Various Research Laboratory Renovations: \$5,500,000
- Hilberry Gateway Phase I: \$25,000,000
- BioEngineering Building Renovation and Expansion: \$19,250,000
- State Hall Classroom Building Renovation: \$20,000,000
- Fountain Court Improvements: \$4,000,000
- Business School Building: \$45,000,000

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. A dynamic campus with state-of-the-art facilities 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 73 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 2.1 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 1,877 international students in the fall of 2013. Approximately 35 percent of Wayne State's students attend part-time; many work and raise families while attending the University. Four extension centers in Oakland, Macomb, and Wayne counties accommodate almost 12 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:

- Perinatology Research Branch: Wayne State University was awarded a second 10-year contract to continue housing the Perinatology Research Branch, a branch of the Eunice Kennedy Shriver National Institute of Child Health and Human Development of the National Institutes of Health. The \$165.9 million contract, the largest research contract in the history of Wayne State University, awarded through a competitive bidding process, ensures the PRB will continue conducting critical perinatal and maternal-fetal medical research in Detroit through 2023.

The Perinatology Research Branch conducts clinical and basic research in perinatal medicine and related disciplines with the goal of developing novel diagnostic, therapeutic and preventive strategies to reduce adverse pregnancy outcomes, infant mortality and disability, as well as providing research training for physicians, scientists and other health care professionals whose aim is to improve the health care of mothers and their children. Roberto Romero, M.D., D.Med.Sci., a renowned obstetrician and gynecologist with international stature, has

been the chief of the branch since its creation in 1992. Scientific productivity, creativity and innovation have made the PRB a magnet for worldwide talent.

- Dr. Guangzhao Mao, professor of chemical engineering, received notice of a \$200,000 National Science Foundation award, "NUE: Development of an Undergraduate Certificate Program in Nanoengineering for Training the Workforce of Tomorrow." The program will create a nanoengineering undergraduate certificate program that will target current engineering students and B.Sc. degree holders who wish to expand their educational background. The program will offer accelerated and in-depth training on nanotechnology at the undergraduate level to meet the demands of Michigan's largely manufacturing economy and also the high-tech industries currently settling in the state.
- Dr. Keith Kaye, professor of internal medicine, received notice of a \$2.45 million award from the National Institute for Allergy and Infectious Diseases from the National Institutes of Health. The grant, "Targeted Clinical Trial to Reduce the Risk of Antimicrobial Resistance," aims to evaluate strategies that test the safety and effectiveness of therapeutic approaches/regimens to reduce the probability of the emergence of antibiotic drug resistance by minimizing unnecessary drug exposure.
- Dr. David Ledgerwood, assistant professor of psychiatry, received notice of a \$1.8 million award from the National Institute on Drug Abuse of the National Institutes of Health, "Behavioral smoking cessation treatment for people living with HIV/AIDS." Approximately 50 to 70% of people living with HIV/AIDS are nicotine dependent smokers, thus putting them at increased risk for smoking-related morbidity and mortality. Effective smoking cessation strategies are urgently needed to reduce both the health burden of smoking on this group, as well as costs to society. This study will be one of the first to examine the efficacy of prize contingency management (CM) for cigarette smoking and the first to study CM for persons living with HIV/AIDS. This study will use a stepped-care model to more efficiently tailor treatments to patients on the basis of initial treatment response. If effective, the study will lend support to the wider dissemination of CM approaches for promoting smoking abstinence.
- Dr. Rita Kumar, assistant professor of emergency medicine, received notice of a \$1.66 million award from the National Institute of Neurological Disorders and Stroke of the National Institutes of Health, "Mitochondrial Integrity Regulates Cerebral Reperfusion Injury."

Cardiac arrest and stroke continue to be the leading causes of death and disability in the U.S. Mitochondrial dysfunction and the release of cytochrome c play a central role in the ischemic death of neurons. The objective of this study is to elucidate the molecular events underlying mitochondrial dysfunction and cytochrome c release and ascertain a targeted therapy to prevent death of neurons following brain ischemia and reperfusion.

- The nFAB (Nano Fabrication) Core Facility in the State supported Marvin I. Danto Engineering Development Center has created opportunities for students to learn about and work with the next revolution in micro technology. Research in Nano materials and smart sensors have great commercial promise, not only in the automotive industry, but also in medicine, the environment, aerospace, transportation and national defense.

Although the program initially was tied to the automotive industry, the focus has shifted toward biosensors, targeted drug delivery and medical devices. The nFAB Core Facility is being utilized by many investigators from engineering, medicine, sciences and other disciplines. These collaborative efforts have been enhanced greatly by the Marvin I. Danto Engineering Development Center, which is home to high-priority research projects as well as numerous scholarly activities for students.

- The Lumigen Instrumentation Center, located in the A. Paul Schaap Chemistry Building, makes critical analytical instrumentation available to researchers throughout Wayne State University and other institutions. Over the last several years a large number of new state-of-the-art instruments have been added in all disciplines, totaling in excess of \$35 million. The facility consists of several major areas of emphasis: Mass Spectrometry, Nuclear Magnetic Resonance, X-Ray Crystallography, TEM/SEM Microscopy, and 'Small' Shared Research Instruments. Each area is managed by a knowledgeable and highly experienced professional staff that provides assistance in using the various techniques. This facility was fully modernized in 2012 with a \$3 million project funded by the A. Paul Schaap Foundation and various colleges within Wayne State. The 8,000 square foot facility is considered a benchmark by numerous peer academic institutions.

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

- The Center for Automotive Research, which 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, which promote 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, which 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, which 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, Wayne State has embarked on the following initiatives that impact both the size and quality of learning and research space on campus:

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 FY15 capital planning cycle, Wayne State University is submitting the new Science and Engineering Lab Classroom Building as its top priority for State capital outlay funding consideration.

Wayne State University Research and Technology Park

TechTown Detroit is the most established business incubator and accelerator in the City of Detroit; founded in 2000 specifically to develop and grow sustainable technology businesses, including University spinouts. TechTown is a 501(c)(3) nonprofit and is located within the Woodward Technology Corridor SmartZone, north of the University's main campus.

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.

In 2013, TechTown began construction on its first-floor redesign to modernizing and reconfiguring the space. The new space will include membership-based co-working space, expanded conference and event space, and an enhanced environment for the incubation of Wayne State and other technology companies. The project will create collaborative, innovative spaces fostering a community of engaged, and 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 FY2013, Wayne State spent more than \$562 million for compensation, wages and fringe benefits. Expenditures on equipment, supplies, maintenance and services exceeded \$98.4 million. The University awarded more than \$384.3 million in financial aid (federal, institutional, private, outside and state) to 24,628 undergraduate, graduate and professional students. The contracts awarded for professional design services and construction totaled just over \$76.6 million in FY2013.

The university spent over \$245.9 million in research and development during FY2012. In FY2012, patent applications were filed for 92 new technologies invented at Wayne State, and the university spent nearly \$1.3 million to file and maintain all of its patent applications and issued patents. Through FY2012, the university's intellectual property portfolio contained nearly 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:

- The Auburn, a private development, has converted a vacant building in South University Village into an occupied three-story mixed-use residential, commercial, retail facility which opened this year;
- A private residence at 295 E. Ferry was recently renovated into 9 one-bedroom apartment units;
- Midtown now host over 85 restaurants, 36 arts and entertainment opportunities, and 55 retail shops several of which are new to the neighborhood this year;
- A second phase of South Village development along Woodward Avenue is being planned to add on to the existing 155,000 square feet of privately owned and operated residential units and commercial space.

The University has 39 retail and office spaces for a total square footage of 79,057. 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. Dunkin' Donuts, Freshii, and a number of local restaurants were added in the past year. Business & Auxiliary Operations anticipates that an additional three new restaurants (Freshii, Dunkin' Donuts, and Midtowne Grill) will open in December 2013.

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

- The creation of a corporate engagement center to serve as interface with industry partners

- The Detroit Revitalization Fellows Program
- Live Midtown residential assistance initiative with Henry Ford Health System and the Detroit Medical Center
- Commitment to the M-1 Woodward light rail project
- Buy Detroit procurement initiative with HFHS and DMC
- The redesign and augmentation of WSU's technology commercialization process

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 2013 enrollment headcount is 27,897 *excluding Graduate Medical Education*. This is 1,041 fewer students than Fall 2012, a decrease of 3.6 percent. Undergraduate enrollment was down 740 students, 3.8 percent, while graduate/professional enrollment dropped by 301 students or 3.1 percent.

Enrollment of new freshmen declined by 7.3 percent or 171 students, retention of freshmen students increased 2 percentage points to 77 percent. New transfer and other new students were down 9.6 percent or 243 students over last year. Overall, undergraduate enrollment was 18,602.

The enrollment of new graduate students decreased by 4.9 percent, while new professional students declined by 3 students or 0.5 percent. Overall graduate/professional enrollment, for both new and continuing students, was down 301 students, or 3.1 percent.

Full-time undergraduate students decreased by 2.0 percent, part-time undergraduate decreased by 490 students or 7.1 percent drop. Full-time graduate/professional student enrollment, excluding medical interns/residents, increased 0.5 percent. In ten years, undergraduates who are full-time have gone from less than half to 66 percent. Similarly, for graduate/professional students, 63.2 percent are studying full-time.

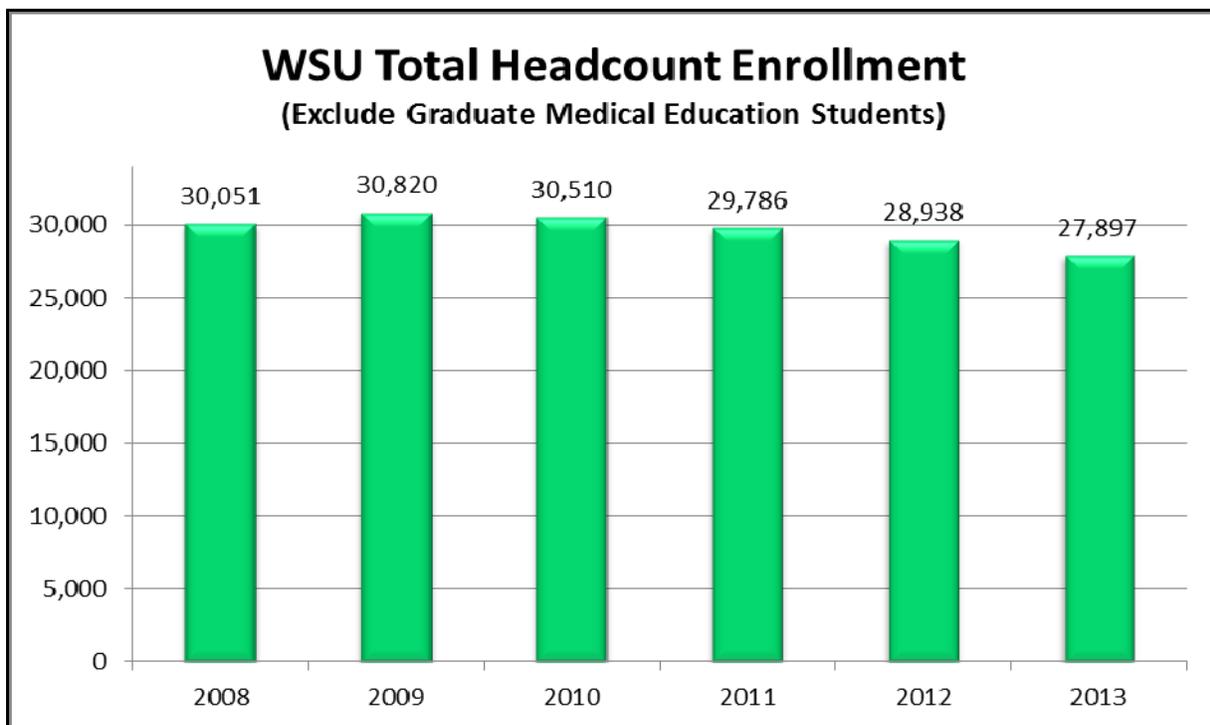
Decreases in enrollment at the graduate level continue at the part-time level.

Total credit hours were 302,038, a 3.0 percent decrease from last year. Undergraduate credit hours are down 3.5 percent. Graduate/professional credit hours are down 1.9 percent, less than the drop in headcount for the same group.

Michigan residents represent 90 percent of our student population, 3.5 percent are from other U.S. states, and 6.7 percent are international. The University has increased in the numbers of international students and the number of students from other U.S. states fell. There are 977 students from other U.S. states and 1,877 students from other countries.

Enrollment Patterns over the Past Six Years

Figure 2
Headcount Enrollment Excluding Graduate Medical Education



In addition to courses held on main campus in Detroit, Wayne State University presently offers instruction at four off-site locations in the tri-county area. A fifth extension center, the Advanced Technology Education Center (A-TEC), is now under construction on 12 Mile in Warren. A-TEC will permit an increased partnership between Wayne State University and

Macomb Community College by allowing students to take advantage of program offerings from both institutions at the same location. Wayne State University and Schoolcraft College have also executed a letter of intent wherein some University's programs will be offered on the Schoolcraft campus starting in the fall of 2014. As shown in Figure 3, approximately 3,296 students enrolled in courses at the extension centers in 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 280 web-based sections in the Fall of 2013 up from 268 offered in fall 2012. 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						
	Section Count		Section Enrollment		Avg Section Enrl	
	2012	2013	2012	2013	2012	2013
Total All Centers	282	275	4,789	4,483	17	16
	Headcount		Credit Hours		Avg Credit Hours	
Student Level	2012	2013	2012	2013	2012	2013
Undergraduate Totals	2,654	2,439	12,238	10,969	4.6	4.5
Graduate Totals	821	857	2,893	3,007	3.5	3.5
Professional Totals	0	0	0	0	0.0	0.0
Grand Total	3,475	3,296	15,131	13,976	4.2	4.1

Figure 4

Web Class Report						
	Section Count		Section Enrollment		Avg Section Enrl	
	2012	2013	2012	2013	2012	2013
Totals	268	280	7,452	7,504	27.8	26.8
Student Headcount & Credit Hours	Headcount		Credit Hours		Avg Credit Hours	
Student Level	2012	2013	2012	2013	2012	2013
Undergraduate Totals	3,548	3,658	14,095	15,008	4.0	4.1
Graduate Totals	1,975	1,829	7,631.50	6,998.50	3.9	3.8
Professional Totals	5	2	24	10	4.8	5.0
Grand Total	5,528	5,489	21,750.50	22,016.50	3.9	4.0

Projected Enrollment over the Next Five Years

The University experienced a slight decline in enrollment in the Fall of 2013, and expects to see a minor decline over the next few years. To mitigate declining enrollment and to increase overall retention and graduation rates, 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 to 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 which 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 total estimated faculty headcount (full and part-time, instruction and research) for Fall 2012 is 2,872. Total student enrollment (not including the graduate medical education students) for Fall 2012 is 28,938. The corresponding ratio of student to faculty is 10:1.

Current Class Size

Class size varies depending on the program and class level. Nonlecture classes have an average of 15 students and lecture classes have approximately 24 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 104 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 thirteen 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 16 of its primary 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 the University's six parking structures. The parking study was updated 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 commissioned or 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.

Based on these studies referenced above, Wayne State's deferred maintenance backlog was estimated at approximately \$330 million in last year's FY14 5-Year Capital Outlay Plan. The current replacement value of the facility portfolio was estimated at \$2.2 billion. Because most of this deferred maintenance backlog estimate is from studies conducted over a decade ago, it is difficult to defend its accuracy. While millions have been invested to address deferred maintenance priorities it is still clear that the backlog of unfunded building deficiencies and performance problems represents a significant issue for the University. As a result the University's facilities staff is developing a project plan to provide an update during 2014.

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 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 three 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 proposals to invest an additional \$20,000,000 to upgrade electrical service entrances and substations, install additional back-up generators, and provide UPS equipment to protect sensitive scientific equipment. The administration is now evaluating funding options that would enable implementation of approximately two-thirds of the most critical needs.

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 \$7,000,000 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 \$4,000,000 was invested in the parking infrastructure. This Five-Year Capital Outlay Plan includes \$14,900,000 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. Presently, procurement contracts are in place for electricity with Detroit Edison and Detroit Public Lighting Department, each of whom serve approximately half of the campus. All natural gas is purchased through a consortium with the State of Michigan. Water and sewer services are purchased from the City of Detroit.

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. In January 2014 the University will begin self-generating steam for the Pharmacy Building. 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. Energy audits were recently completed at a select group of high energy consumption buildings. Each energy conservation measure identified was ranked according to its capital investment requirement and payback potential. Approximately \$1.2 million was allocated to implement several lighting ECM's, and occupancy sensors have been incorporated with many of these installations. During the past year the University has also implemented an energy conservation project with Siemens Building Technologies targeting cost reduction opportunities in 7 different buildings. Annual savings exceeding \$350,000 have been realized from the Siemens initiative.

Another element of the energy plan is the retro-commissioning of existing buildings. At the Biological Sciences Building this effort resulted in a 21 percent utility cost saving and a similar project to improve the performance of Elliman has just been completed. Facilities Planning and Management has also organized an energy curtailment committee whose members have proposed and received funding to implement several energy conservation projects during the past year.

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 four 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 FY14 Plan, this 5-Year Capital Outlay Plan continues to reflect evolving priorities that were confirmed or identified as a result of the 2012 Campus Master Plan Update, and further enhanced by the review and recommendations of the University's Faculty Senate. As FY14 progresses construction of the State supported Multidisciplinary Biomedical Research Building will continue. Through September 2013 construction of the MBRB is approximately 20 percent complete. With this FY15 5-Year Capital Outlay Plan, Wayne State University submits the Science and Engineering Laboratory Classroom Building (SELC) as its number one priority State Capital Outlay Request for funding consideration.

The new Science and Engineering Laboratory Classroom Building will be dedicated to the training and education of undergraduate students in science, technology, engineering and mathematics (STEM) programs that have been deemed critically necessary to maintaining and advancing the State's economy. Wayne State University plans to develop the SELC Building adjacent and potentially connected to the existing Physics Building. The proposed site is at the center of other campus buildings focused on teaching and research in STEM subjects. The planned SELC Building will provide 30 separate teaching laboratories and support facilities for various academic programs including physics, engineering, computer science, biological science, psychology, and nutrition and food science. The new SELC Building will be approximately 45,300 gross square feet in size and cost approximately \$20,000,000 to design and construct.

Completion of this project will enable many existing STEM courses to be re-assigned to the new SELC Building from aged and obsolete facilities and teaching labs, some of which were constructed over 50 years ago and have seen limited updating since. These classroom laboratories will be vacated when the new SELC has been completed. As a separate but closely related project, the existing classroom laboratories totaling approximately 35,000 square feet 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.

By implementing the planned Science and Engineering Laboratory Classroom Building project, Wayne State will have significantly improved 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. Additionally, the creation of state-of-the-art research facilities will enable the University to attract world-class researchers to new jobs in Detroit. Wayne State is requesting \$15,000,000 in State Capital Outlay funding to support the SELC Building project, and will use bond proceeds to fund its share of the project as well as the separate project for research space renovations.

In addition to the Science and Engineering 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 2013 construction is approximately 20 percent complete. Final completion is expected in April 2015.

Non-State Capital Outlay Projects In Progress

The Advanced Technology Education Center (\$12,000,000) will be a new extension center offering 4-year degree opportunities in computer science, business, and advanced manufacturing to the citizens of Macomb County. The project is located in the City of Warren, across the street from Macomb Community College, and is expected to open in the fall of 2014. This project was authorized by the University's Board of Governors on June 26, 2013 and reported to the State with our bi-annual Project Report on June 28, 2013.

Student Center Building Renovations (\$26,500,000) will 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 University's administration intends to submit the project to the Board of Governors for construction authorization in November 2013.

Electrical Infrastructure Upgrades (\$13,500,000) 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 University's administration intends to submit the project to the Board of Governors for design and construction authorization in November 2013.

Chatsworth Apartments Life Safety Upgrades (\$2,300,000) will expand the current fire alarm and fire suppression systems and provide a code compliant fire command center. The mechanical units in the stairwells will be replaced and will include required smoke and fire dampers. The fiber network will be extended throughout the building to provide access to each apartment unit. New ceilings and lighting will be installed in the main corridors. This project was authorized by the University's Board of Governors on June 26, 2013 and reported to the State with our bi-annual Project Report on June 28, 2013.

Manoogian Classroom Building 2nd Floor Renovation (\$6,000,000) will completely renew this floor of the building which is dedicated to general purpose classrooms. Project scope will include all new mechanical and electrical distribution, ceilings, lighting, fire alarm and suppression, technology, interior finishes and furniture. The University's administration expects to submit the project to the Board of Governors for construction authorization in March 2014.

Planned Non-State Capital Outlay Projects

University Deferred Maintenance Program (\$50,000,000) is a campus-wide initiative and includes regular investments in deferred maintenance beyond the projects listed previously.

Parking Structure and Related Improvements (\$14,900,000) 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 (\$9,000,000) will continue to address various needs including life safety systems, technology upgrades, building envelope repairs, kitchen and bathroom modernization, and mechanical and electrical systems.

Various Research Laboratory Renovations (\$5,500,000) 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.

The Hilberry Gateway Phase 1 (\$25,000,000) 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 (\$19,250,000) 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.

The State Hall Classroom Building Renovation (\$20,000,000) 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 (\$4,000,000) 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.

School of Business Administration (\$45,000,000) will provide a new home for the College. This facility will house the academic, research and conferencing facilities needed to replace obsolete and overcrowded structure and support evolving programs.

Attachment B

**Fiscal Year 2015
Capital Outlay Project Request**

Science and Engineering Laboratory Classroom Building

Institution Name: Wayne State University

Project Title: Science and Engineering Laboratory Classroom Building (SELC)

Project Focus: Academic

Type of Project: New Construction

Program Focus of Occupants: Dedicated to the training and education of undergraduate students in science, technology, engineering and mathematics (STEM) programs.

Approximate Square Footage: 45,300 gross square feet

Total Estimated Cost: \$20,000,000

Estimated Start/Completion Dates: Construction Start April 2015, Use and Occupancy September 2016

Is the Five-Year Plan posted on the institution's public internet site? YES

Is the requested project the top priority in the Five-Year Capital Outlay Plan?
YES

Is the requested project focused on a single, stand-alone facility? YES

Please provide detailed, yet appropriate concise responses to the following questions that will enhance our understanding of the requested project:

1. Describe the project purpose.

The purpose of the project is to upgrade significantly laboratory classroom facilities dedicated to Science, Technology, Engineering and Math (STEM) programs in order to attract and retain students, improve students' learning experience and graduation rates, enrich the quality of campus life, and prepare students for jobs in STEM fields deemed critically necessary to advancing both the State's and Nation's economy.

2. Describe the scope of the project.

The scope of the project includes construction of a new, 45,300 sq. ft. Science and Engineering Laboratory Classroom Building (SELC) dedicated to teaching STEM related courses in a laboratory environment for a total cost of \$20 million.

The planned SELC building will be constructed on a site adjacent and potentially connected to the existing Physics building, surrounded by numerous other buildings used for both teaching and research in STEM fields. The building will include 30 separate teaching laboratories and support facilities for various academic programs from physics, engineering, computer science, biological science, psychology, and nutrition and food science as detailed below.

- 17 dry laboratory classrooms,
- 5 wet laboratory classrooms,
- 2 computer laboratories,
- 2 large active learning classrooms,
- 3 small active learning classrooms,
- 1 seminar room.

In a closely related project, existing labs located in Shapero Hall, the Physics building and the Engineering building totaling approximately 35,000 sq. ft. will be renovated and re-purposed as state-of-the-art research facilities at a cost of about \$8.0 million. These labs currently are laboratory classrooms which will be vacated when the new SELC has been completed.

3. How does the project enhance the core academic and/or research mission of the institution?

Wayne State University (WSU) is one of the nation's top urban, public, research institutions, offering more than 350 academic programs to nearly 28,000 students through 13 schools and colleges. Along with the University of Michigan and Michigan State University, WSU is designated as a university with very high research activity with recognized research and educational strengths in health and life sciences, physical sciences, engineering, and mathematics. The University awarded 2,634 baccalaureate degrees in 2012, a 6 percent increase from 2010, and 20 percent of the graduates earned degrees in health sciences and related fields.

Although WSU has been successful in producing STEM graduates, we must increase graduation in these critical areas not only to ensure that students are best prepared for a knowledge based economy, but also to meet a

growing national need. 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 (STEM) American universities collectively will need to increase graduates in these areas by a third. Nationally 60% of students who intend to major in a STEM field ultimately graduate in a non-STEM area. Reducing attrition by only 10% will fulfill three-fourths of the necessary increase. Educational reform in STEM undergraduate teaching aimed at improving student retention in these fields include active and experiential learning, interdisciplinary teaching and learning, integration of knowledge across the curriculum, and flexible learning spaces. The proposed Science and Engineering Laboratory Classroom (SELC) building will provide up-to-date facilities that will promote and enhance these best-practice teaching methods and the latest classroom and teaching technology. Enhancing undergraduate teaching and learning more generally is also a cornerstone of the University's 2012 to 2017 Strategic Plan.

This 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 updating since. Courses from departments that are presently scattered in buildings across the campus will be brought together to take advantage of interdisciplinary teaching and learning opportunities and shared resources, reducing some facilities costs. Most important, however, is that this ultra-modern building 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.

A secondary benefit from the SELC project, which enhances the research mission of the University, is the opportunity to reclaim and convert 35,000 square feet of obsolete laboratory classroom space into state-of-the-art research space which will lead to an anticipated increase in research funding of \$5.0 to \$7.0 million annually.

4. How does the project enhance Michigan's talent enhancement, job creation and economic growth initiatives on a local, regional and/or statewide basis?

The new Science and Engineering Laboratory Classroom Building will help the University to recruit, retain and graduate more students in STEM fields by providing attractive, state-of-the-art teaching and learning laboratory facilities.

Approximately 91 percent of the University's students are from Michigan, including about 80 percent from the three-county metropolitan Detroit area.

History suggests that, upon graduation most of these students will remain in southeast Michigan to contribute to the region's growing economy. Wayne State graduates are a significant part of the highly educated workforce needed to transform Michigan's economy. Wayne State's core academic mission is focused on the Sciences, Engineering and HealthCare fields, and this building along with additional research capacity related to this project, will enable continued growth in these areas which are critical to sustaining growth in Michigan's economy.

With regard to research, the additional capacity will enable the University to attract world class researchers to new jobs in Detroit, potentially generating \$5.0 to \$7.0 million annually in incremental research funding; most of which will contribute to the Southeast Michigan economy.

5. How does the institution measure utilization of its existing facilities, and how does it compare relative to established benchmarks? How does the project help to improve the utilization of existing space and infrastructure, or support the need for additional space and infrastructure?

The University tracks utilization of existing laboratory classrooms on a departmental basis (i.e. physics, chemistry, engineering etc.). In connection with the review of science and engineering facilities conducted in support of the 2012 update of the Campus Facilities Master Plan, the administration identified a critical need to upgrade existing laboratory classrooms dedicated to STEM courses because these facilities are obsolete, and cannot support active and experiential learning or interdisciplinary teaching and learning. Subsequently, a joint faculty/administration task force confirmed that during periods of maximum utilization (Monday through Friday between 8:00 AM and 8:00 PM) facilities dedicated to engineering, chemistry, biology, physics, nutrition and food science, psychology and computer science were heavily utilized. In addition, laboratory classroom space is not available to accommodate expected and continuing growth in these areas. In this regard, enrollment has increased over 20 percent in the college of Engineering over the past five years and as a result, the new SELC building will include up to four additional engineering labs.

This project helps to improve the utilization of existing space and infrastructure by combining STEM laboratory classrooms in one location which promotes interdisciplinary teaching and learning, providing a significantly improved life/safety environment for students, and freeing up space which will be made available to support growth in research in STEM fields.

The University does not benchmark laboratory classroom space utilization.

6. Does the project address or mitigate any current life/safety deficiencies relative to existing facilities? If yes, please explain.

Yes. Courses that will be taught in the new Science and Engineering Laboratory Classroom (SELC) Building are presently taught in four buildings including Science Hall, Shapero, Physics, and Engineering. Science Hall was constructed in 1949, Shapero and Physics in 1965, and the laboratory wing of Engineering in 1951. Each building has pipe stands for fire suppression in stair towers, but horizontal distribution to occupied spaces is quite limited with the exception of Engineering which offers fairly broad but not complete coverage. Engineering's fire alarm system was recently upgraded. The other three buildings do not satisfy current code requirements. The new SELC Building will be built with comprehensive life safety systems reducing current exposure, and significantly upgrading the life/safety environment for our students.

7. How does the institution intend to integrate sustainable design principles to enhance the efficiency and operations of the facility?

The SELC Building will be designed and constructed to meet State requirements for Leadership in Energy and Environmental Design (LEED). All Wayne State University new construction projects built in recent years have achieved silver certification with significant focus on mechanical / HVAC solutions that minimize energy costs and related environmental impacts. In addition, the University intends to explore sustainable design features that have not been incorporated in its previous LEED certified projects. Of particular interest on the SELC Building project is the inclusion of a storm water retention system to support project site irrigation, the use of dimmable LED lighting and daylight harvesting, incorporation of occupancy and CO2 sensor technology within the building automation system program to reduce unnecessary HVAC system operation, and use of modulating air valves on laboratory fume hoods to safely minimize conditioned exhaust air rates from the building. Because this project focuses on setting the standard for science and engineering education, special consideration will be given to creating a state-of-the-art facility that has its LEED solutions on display as complimentary instructional tools for our faculty and students.

8. Are match resources currently available for this project? If yes, what is the source of the match resources? If no, identify the intended source and the estimated timeline for securing said resources?

Yes. On February 6, 2013 the Wayne State University Board of Governors authorized the sale of general revenue bonds totaling \$92.0 million to partially fund several capital construction projects including the Science and

Engineering Laboratory Classroom Building project. Bonds were issued in May 2013 and a portion of the proceeds are available for this project.

9. If authorized for construction, the state typically provides a maximum of 75% of the total cost for university projects and 50% of the total cost for community college projects. Does the institution intend to commit additional resources that would reduce the state share from the amounts indicated? If so, by what amount?

The total cost to design and construct the new SELC building is expected to be \$20.0 million. Wayne State is requesting capital outlay funds from the State in the amount of \$15.0 million or 75 percent of the project cost. As part of the University's overall science and engineering facilities initiative however, it is essential that we reclaim the obsolete classroom labs which will be vacated when the new building is completed and convert them into state-of-the-art research space. This closely related project is expected to cost about \$8.0 million and will be funded with the University's own resources obtained as part of its Series 2013 bond issue.

When considered together, the total cost of both projects is expected to be \$28.0 million and the State's contribution of \$15.0 million would represent a 53% share.

10. Will the completed project increase operating costs to the institution? If yes, please provide an estimated cost (annually, and over a five-year period) and indicate whether the institution had identified available funds to support the additional cost.

Yes. The University estimates that operations and maintenance costs for the new building will be approximately eight dollars per square foot annually, or \$362,400. Over five years this totals \$1,812,000. These costs will be offset partially by operating and energy efficiencies in the renovated research labs and be covered within inflationary cost estimates included in the University's General Fund budget projections.

11. What impact, if any, will the project have on tuition costs?

This project will not have any direct impact on tuition costs.

12. If this project is not authorized, what are the impacts to the institution and its students?

If this project is not authorized the benefits to the region and the nation in STEM education outlined under Question #3 will be much more difficult, if not impossible, to achieve. Students' learning in these key fields will be

challenged in sub-optimal and outdated spaces and STEM graduates will lag behind regional and national need. Wayne State is dedicated to educational excellence by mission and strategic vision and can only enact best practices if contemporary facilities exist to support pedagogical innovation and need. Currently, our campus is equipped primarily with traditional classrooms. A few active learning classrooms are available, but none exist to enhance laboratory instruction. Construction of the SELC Building will provide our students up-to-date, flexible classrooms that are equipped with enabling active learning technologies. If this project is not authorized and advanced in the FY15 State Capital Outlay, Wayne State students risk falling behind their peers both regionally and nationally only because of obsolete and deficient facilities.

13. What alternatives to this project were considered? Why is the requested project preferable to those alternatives?

For several years through FY2012, Wayne State's Capital Outlay Plan included a \$110 million project to design and construct a 250,000 sq. ft. Interdisciplinary Science Research Building on the site of the current Life Sciences Building. Although this alternative would have met all of the University's science and technology research and teaching facility needs for years to come, it was simply too expensive. Given numerous competing facility needs, even with substantial State support, the University cannot afford to proceed with a project of this magnitude. During the 2012 Campus Master Plan update, the current plan to construct the new SELC Building and subsequently renovate vacated labs to create new research space was developed as an alternative. This alternative provides about 60 percent of the functionality of the \$110 million project at 25 percent of the cost.

Other alternatives considered to address the significant need to upgrade existing teaching labs included renovating those labs in the various buildings where they are located currently with no new construction. While this would be a lower cost alternative, the requested project is preferable because it facilitates interdisciplinary teaching opportunities, enables growth in Engineering and other STEM fields, provides 35,000 sq. ft. of additional space in Shapero, Engineering and Physics buildings for state-of-the-art research facilities, and enables the University to provide a significantly enhanced life/safety environment for classroom facilities and the student population. Also, this alternative is not feasible because there is no lab space available to conduct classes while renovations are in progress.