

FY2021 – FY2025 Five-Year Capital Outlay Plan

Recommendation

It is recommended that the Board of Governors approve the FY2021 – FY2025 Five-Year Capital Outlay Plan and Attachment B State Capital Outlay Project Request as presented.

Background and Project Description

Beginning in FY2001, the University has been required to submit a five-year capital outlay plan to the State of Michigan. The university has the option to also submit a capital outlay project request. We propose that a full renovation of State Hall be submitted for state appropriation consideration.

The Wayne Framework, Wayne State's campus master plan and space analysis emphasized a near term consolidation strategy that emphasizes strategic investment to address infrastructure and long term growth opportunities. Focusing instructional activity in a renovated State Hall caters to a wide-range of pedagogies and provides excellent facilities for general purpose teaching and learning.

The overall 25 page plan is included in the distributed Board materials. The annual capital plan instructions ask that the University identify projects in progress and potential high priority projects. The following projects have been noted in the plan. The "projects in progress" have already had some level of Board of Governors approval. Projects noted as "planned" will be submitted to the Board of Governors for approval.

Planned SBA Funded Projects

State Hall Renovation (\$85 million) will renovate a five story, 163,530 square feet general purpose classroom building that is critical to our mission of student success and teaching excellence in order to organize the building to better serve faculty pedagogies and student needs for excellent facilities for general purpose teaching and learning. This project will also address deferred maintenance in mechanical, electrical, plumbing and building envelope systems and will equip the building with state-of-the-art technology. The State Hall Renovation is Wayne State University's State Capital Outlay Project Request for FY21 and is requesting a state appropriation of \$30 million. Refer to Attachment B State Capital Outlay Project Request for more detailed information.

SBA Funded Projects in Progress

STEM Innovation Learning Center (\$49.5 million) is renovating the seven-story, 116,000 square feet former Science and Engineering Library to contain undergraduate lab classrooms, a maker space, hacker space and collaboration spaces designed to support and expand STEM education across campus. Public Act 618 of 2018 authorized WSU to proceed with construction for a state

Submitted by: William R. Decatur, Vice President, Finance and Business Operations

appropriation of \$14.75 million and a total project cost of \$49.5 million. The STEM Innovation Learning Center is expected to be completed in August 2020.

Non-State Capital Outlay Projects In Progress

PRB HVAC Improvements at TechTown (\$1.98 million) will implement HVAC improvements and replace a building-wide chiller at TechTown that supports the Perinatology Research Branch (PRB) freezer farm. The project will improve cooling in the building and provide backup power for the cooling systems and the freezer. This project is currently in construction.

Towers Residential Suites and Café Dining Addition (\$2.15 million) will construct a new, 5,500 square foot addition to the existing Towers Café located within the Towers Residential Suites. The new addition will expand into the adjacent courtyard and add over 300 seats as well as an outdoor patio. This project is currently out for bids.

Applebaum Boiler Improvements (\$1.0 million) will implement boiler improvements to the Eugene Applebaum College of Pharmacy and Health Sciences Building. Proposed improvements will add small boilers to address in-house steam generation and add a scalable solution for efficient production when heating is not needed and demand is low. This project is in construction.

State Hall Elevator Improvements (\$4.5 million) will fully modernize two existing elevators and add a new, ADA-compliant elevator with shaft and mechanical room to accommodate accessibility needs within the university's largest classroom building. This project is in design.

Cooling Tower Capital Repairs (\$1.016 million) encompasses capital repairs and component replacements on cooling tower infrastructure to support improved operation and legionella growth prevention across campus. This project is in construction.

School of Social Work Phase II Renovation (\$3.5 million) will complete building renovations started in 2012 and provide flexible meeting space, classrooms and offices. Restrooms will also be updated to meet current building code and ADA requirements. This second phase will also replace all windows in the building with modern, energy efficient, operable windows. This project is currently in construction.

Basketball Arena (\$25 million) will construct a new, 3,000 seat basketball arena. This project will include offices, locker rooms, and ticketing and refreshment areas and will serve the Detroit Pistons G-League team as well as Wayne State University's men's and women's basketball programs as well as summer camps and events. The project is a partnership with the Detroit Pistons and will be sited on the Athletics campus adjacent to existing parking. This project is in design. Completion is anticipated for July 2021.

Electrical Utility Conversion (\$6.0 million) will provide new electrical services to all former Detroit Public Lighting buildings. This project provides the scope and necessary upgrades that Detroit Edison (DTE) will not provide. Phase I and Phase II have been completed and Phase III construction is currently underway.

Anthony Wayne Drive Housing (\$119.1 million) will provide 800 new beds of on-campus apartment style options to satisfy growing and unmet demand. The project is currently in

Submitted by: William R. Decatur, Vice President, Finance and Business Operations

construction. Phase I of the project was completed in August 2018 and Phase II was completed in August 2019. Phase III encompasses the demolition of the DeRoy Apartments building and is anticipated to be complete in November 2019.

Biological Sciences Building Infrastructure Improvements (\$2.5 million) will replace the domestic hot water boiler with a new hot water exchanger. The project will also replace the existing steam boiler with a smaller, high-pressure steam boiler to provide humidification for the vivarium, equipment sterilization and greenhouse and comfort controls. The project is currently in design.

University Services Building Infrastructure Upgrades and Repairs (\$3.3 million) is currently under construction and will provide roof replacement, structural concrete repairs, heating and air conditioning component replacement and provision of a new fire alarm system.

Prentis Heating Pipe Replacement (\$1.3 million) is currently in construction and replaces the balance of hot water piping in the building not currently being replaced in the Computer Lab Classroom Renovation project.

Rackham Building Relocation to Prentis and Rands Buildings (\$1.2 million) is currently in construction and renovates portions of the Prentis Building and Rands House to accommodate departments formerly located in the Rackham Building. The University's lease at the Rackham Building concluded in August 2019.

Old Main HVAC Controls (\$2.2 million) replaces existing pneumatic components of fan control units with digital devices to provide synchronized controls, energy savings and a monitored digital control system for heating and cooling. This project is currently in construction.

Elliman Research Building Air Handling Unit Improvements (\$2.5 million) is currently in construction and will upgrade three existing air handling units, install a new control system and modify existing ductwork to accommodate the new units.

Hilberry Gateway Performance Complex (\$65.0 million) is currently in design and will provide new construction of a full service, 350-seat theatre, a 150-seat "black box" performance space and full "back of house" production support spaces. The project will also renovate the existing Hilberry Theatre to create a state of the art jazz performance space, assisted by a philanthropic donation.

Chatsworth Residence Hall Renovation (\$28.0 million) is currently in construction and will provide renovation of this historic, 1920s-era residential building. The project will completely renovate the building to create 368 beds in a total of 96 units. The project will also include upgrades to mechanical and electrical systems as well as accessibility improvements. Estimated completion for this project is summer 2020.

University Towers Fire Alarm Replacement (\$2.86 million) is currently in construction and includes the replacement and upgrade of existing, outdated fire alarm system to include a new main headend and backbone as well as new devices throughout this 356,000 square foot building.

University Towers Deferred Maintenance Improvements (\$1.1 million) is currently in construction and includes replacement of toilets and HVAC units in all residential units, the installation of a

Submitted by: William R. Decatur, Vice President, Finance and Business Operations

new supply air handler, refurbishment of the chiller and cooling tower and exterior glass and sidewalk repair.

University Deferred Maintenance Program (\$4.6 million) is an annual, campus-wide initiative and includes regular investments in deferred maintenance beyond the projects listed previously.

Planned Non-State Capital Outlay Projects

Parking Structure and Related Improvements (\$10.0 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.

Scott Hall Vivarium Renovation (\$5 million) will renovate existing vivarium space in Scott Hall serving the School of Medicine. The project will incorporate a comprehensive renovation of mechanical systems, plumbing systems and incorporate new equipment including a new cage washer. Electrical systems and some architectural upgrades will also be included.

Keast Commons Renovation (\$1 million) will renovate the existing civic space between the Chatsworth Apartments, Towers Apartments, and Ghafari Hall and expand to incorporate the DeRoy Apartments site which is currently being demolished. The renovation will provide a more inviting and vibrant gateway into the campus and provide much-needed gathering and activity space for students located in the heart of the residential district.

Industry Innovation Center (I2C) Refresh (\$2 million) will renovate the former Next Energy building, now the Industry Innovation Center (I2C) to provide spaces where the university, industry and community come together to address urban challenges. The refresh project will look at interior and exterior spaces along with studying adjacencies to TechTown and the IBio building. Short term installations and a participatory design process will inform long term renovations and improvements to the building and site.

WSU Art Gallery (\$2.4 million) will renovate approximately 5,600 square feet of historic garage space into a dynamic white box gallery that encourages exchange between visual, literary, and performing arts while simultaneously providing space for scholarly research and peaceful contemplation.

University Tower Elevator Service (\$1 million) will complete a full modernization of the four existing elevators at University Towers. This project will include full modernization of circuit boards, some machinery upgrades and install air conditioning in the rooftop machine room. The project will not upgrade finishes to the existing cabs.

Recently Completed Non-State Capital Outlay Projects

Campus-Wide Facilities Master Plan (\$1.5 million) was completed in September 2019. The project provides a comprehensive, data-driven framework to guide the university's decision making over

Submitted by: William R. Decatur, Vice President, Finance and Business Operations

the next 10+ years. Capital projects moving forward will be evaluated through the lens of this master plan effort.

New Data Center (\$16.9 million) was completed in May 2019 and provides approximately 12,500 square feet of current and best-practice environments to support the university's technology and services while offering flexibility for future growth.

Prentis Building Computer Lab Classroom Relocations (\$2.4 million) was completed in January 2019 and is renovating approximately 11,400 square feet to accommodate the relocation of computer science and math lab classrooms. These classrooms are being relocated from the Science and Engineering Library to allow for the renovation of the STEM Innovation Learning Center.

Prentis Building Façade Repairs (\$.8 million) was completed in October 2018 and consisted of the replacement of deteriorated concrete and reinforcing steel as well as patches and repairs existing cracks in the façade.

Social Work Roof Replacement (\$.95 million) was completed in January 2019 and replaced approximately 10,000 square feet of existing roof not addressed in prior renovations to the School of Social Work building.

Campus Health Center Relocation (\$2.11 million) was completed in April 2019 and built out 7,600 square feet of tenant space for the relocation of the campus health center to the new Anthony Wayne Drive Housing complex.

Thompson Home Exterior Improvements (\$.725 million) was completed in August 2019 and includes roof replacement, exterior painting and cooling tower replacement.



WAYNE STATE UNIVERSITY

FY2021-2025: 5-Year Capital Outlay Plan

Submitted to the Office of the State Budget

October 31, 2019

By: William Decatur

A handwritten signature in black ink, appearing to read 'William Decatur', written over a light gray rectangular background.

Vice President for Finance and Business Operations

Table of Contents

Mission Statement	Page 1
Instructional Programming	Page 1
Existing Academic Programs	Page 1
Unique Characteristics of Wayne State’s Academic Mission	Page 2
Research Accomplishments	Page 3
Economic Development Impact of Current/Future Programs	Page 6
Wayne State University Research and Technology Park (TechTown)	Page 7
Staffing and Enrollment	Page 8
Staffing	Page 8
Enrollment	Page 9
Student-to-Faculty Ratios	Page 11
Current Class Size	Page 11
Enrollment and Graduation Patterns over the Past Six Years	Page 12
Extension Center Summary & Web Class Report	Page 13
Facilities Assessment	Page 14
Campus Master Planning	Page 14
WSU Campus Housing Demand	Page 15
Functionality of Existing Structures, Deferred Maintenance and Facilities Condition	Page 15
Utilities and Energy Management	Page 16
Sustainability Path	Page 17
Facilities and Land Use	Page 19
Building and Classroom Utilization Rates	Page 19
Mandatory Facilities Standards	Page 20
Bond Status	Page 21
Implementation Plan	Page 21
Planned SBA Funded Projects	Page 21
SBA Funded Projects in Progress	Page 22
Non-State Capital Outlay Projects in Progress	Page 22
Planned Non-State Capital Outlay Projects	Page 24
Recently Completed Non-State Capital Outlay Projects	Page 25

I. Mission Statement

Wayne State University's mission, as stated in the *Distinctively Wayne State University Strategic Plan 2016-2021*, is the creation and advancement of knowledge that results from preparing a diverse student body to thrive and positively impact local and global communities. To achieve this vitally important mission, it is critical that we modernize and improve the physical infrastructure environment of State Hall, our main classroom building, to ensure that we can achieve our strategic focus on student success and teaching excellence, two of the key focus areas in our Strategic Plan.

II. Instructional Programming

Existing Academic Programs

Wayne State University is a comprehensive research university with thirteen schools and colleges administering more than 370 academic programs, including 126 bachelor's, 139 master's, and 60 doctoral degree programs, three professional programs, and 57 certificate and specialist programs, many of which rank in the top tier nationally. The university currently enrolls 26,881 students. Five extension centers in the metropolitan area provide access for residents to a wide selection of off-campus courses. The university is a significant and influential force in metropolitan Detroit's educational and cultural landscape, and TechTown, the 43-acre research and technology park that the university supports, has made it a major player in Michigan's economic turnaround.

The university serves Michigan's youth by educating them to prepare for a productive career in the state. Eighty-nine percent of the university's students are from Michigan, with 69 percent from the tri-county metropolitan Detroit area. 86 percent of Wayne State graduates remain in Michigan after graduation and provide the highly educated workforce necessary to transform and power Michigan's economy in the twenty-first century.

Wayne State University 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 University graduates play a critical role in Michigan life, from local physicians, teachers and attorneys to scientists and engineers working in the latest high-tech spin-off companies.

Table 1 illustrates the University's fall 2019 enrollment by headcount and degrees awarded from July 1, 2017 to June 30, 2018. These Figures, and all subsequent Figures, exclude graduate medical education students.

Figure 1: 2017-2019 Degrees Awarded and 2019 Enrollment by College

School or College	2017-18 Degrees Awarded	Fall 2019 Enrollment
School of Business Admin.	948	4,353
College of Education	677	2,333
College of Engineering	1035	3,491
College of Fine, Performing & Comm. Arts	492	1,953
Graduate School	0	0
Law School	149	434
Liberal Arts & Sciences	1,556	9,557
Library & Information Science	192	437
School of Medicine	438	1,604
College of Nursing	249	819
Pharmacy and Health Sciences	471	979
School of Social Work	494	921
TOTAL	6,701	26,881

Source: Office of Budget, Planning and Analysis

Unique Characteristics of Wayne State’s Academic Mission

Wayne State University prides itself on its excellent faculty who reach students through their classroom and online teaching, engage in pioneering research, and participate in numerous activities within the broader community. Academic excellence and innovative research are central to our mission and a primary reason why graduate and undergraduate students alike choose to attend the university. We are one of the 50 largest public universities in the nation, and we have received the Carnegie Foundation's highest classifications for research and community engagement, with annual research expenditures of more than \$221 million. We are also a member of the University Research Corridor along with the University of Michigan and Michigan State University, generating 95 percent of research in the state and supporting economic growth throughout Michigan. As one of the city's largest employers, Wayne State has a nearly \$2.5 billion impact in Detroit — a driving force behind the city's resurgence.

From medicine and mechanical engineering to graphic design and geology, our faculty members are renowned for innovation and expertise in their fields, crafting hands-on curricula to take students out of the classroom and into the real world. We are increasingly known for our interdisciplinary research in areas such as health sciences and disparities, the environment, entrepreneurship and data analytics, human services and education, manufacturing, public policy and the law, language and the arts. Whether in the lab or on the stage, we are making a measurable impact locally in our own neighborhood, regionally and within the state, and around the world.

- Ranked in the top 0.8 percent of universities worldwide — *Center for World University Rankings*
- Best business school — *Princeton Review*
- No. 2 medical institution for research in Michigan — *U.S. News and World Report*
- Top 100 law school, second in Michigan — *U.S. News and World Report*
- Named one of the nation's best law schools for bar prep – *The National Jurist*
- Top-ranked physician assistant program in Michigan — *U.S. News and World Report*
- Social work program ranked in country's top 20 percent — *U.S. News and World Report*
- Nursing-anesthesia program ranked in the country's top 25 percent — *U.S. News and World Report*

- Home to IBio, a \$90 million facility dedicated to eliminating health disparities in Detroit
- Home to TechTown, Detroit's most established business accelerator and incubator
- Home to the Hilberry Theatre, the nation's first graduate repertory company
- Technology assistance has helped student and faculty innovators submit 550 patent applications since 2009
- Wayne Law provides pro-bono legal services to 100+ clients annually
- Blackstone Launchpad has turned more than 150 student ventures into viable business

In August 2019, Wayne State University and the Michigan Mobility Institute announced the creation of the Center for Advanced Mobility at Wayne State University. The new center expands on the College of Engineering's current cyber-physical systems programs and features plans for a broader set of degrees and certificates focused on autonomous driving, connectivity, smart infrastructure, and electrification. Combined, they represent the world's first holistic, advanced mobility curriculum. Students will have the opportunity to enroll in offerings for autonomous driving and new courses that provide an overview of mobility fundamentals for engineers. The college also expects to offer a new Master of Science in Robotics for fall 2020. The Center for Advanced Mobility will further leverage Wayne State University's recently acquired Industry Innovation Center, a 45,000 square foot facility in the TechTown neighborhood at the heart of the Detroit Urban Solutions Innovation District, for laboratory and demonstration space, and for a planned speaker series to kick off this fall.

Beginning in September 2019, the Industry Innovation Center will also house the Wayne State University Innovation Studio. The Innovation Studio, powered by TechTown, provides students from all academic disciplines with exposure to innovation and entrepreneurship, offers free assistance toward developing projects and business ventures, and helps students develop skills and connect with experiences and resources they will need to succeed in a 21st century workforce.

Research Accomplishments

Wayne State University is one of the nation's preeminent public research universities in an urban setting. Through a multidisciplinary approach to research and education, and ongoing collaboration with government, industry and other institutions (including our University Research Corridor partners – the University of Michigan and Michigan State University and our research and technology park, TechTown) the university seeks to expand knowledge, enhance economic growth and improve the quality of life in the city of Detroit, state of Michigan, and throughout the world.

Wayne State University is a nationally recognized center of excellence in research. Our faculty lead the nation in many key research areas, and their groundbreaking discoveries make a difference in the everyday lives here in Michigan and around the world. We strive to make an impact through our innovative research.

Research at Wayne State University has made incredible strides in the past few years, including an increase in total extramural research funding from \$150 million in FY2013 to \$260 million in FY2018, and a 38% increase in federal extramural research funding.

Research expenditures have followed this upward trend as well. Expenditures under research grant and contract awards have increased by 8% since 2016 with a total of \$239 million. According to the NSF's 2017 Higher Education Research and Development Survey (the most recent published ranking) Wayne State University ranked 69th among 400 public universities and 99th out of more than 3,500 U.S. colleges and universities.

Our faculty and research staff are key to our growth in research funding and expenditures. Their work involves exciting developments such as developing nanoplatfrom technologies that work in combination with existing chemotherapeutic drugs that have the potential to reverse drug-resistant renal cell carcinoma. This research led by Dr. Arun Iyer in the Eugene Applebaum College of Pharmacy and Health Sciences, will reopen doors that were once closed because drugs that had become ineffective in cancer treatment will again become effective.

Another team of researchers from the College of Engineering has built a prototype that uses sound to improve blood pressure monitoring. This sensor-based monitor is capable of intricate signal processing, allowing for more accurate and real-time readings of systolic and diastolic blood pressures, particularly in infants and the elderly. This team is led by Gaurav Kapur, M.D. in the Department of Pediatrics and Sean Wu, Ph.D. in the Department of Mechanical Engineering. Their new noninvasive, sound-based blood pressure monitoring device is being further developed by Cardiosounds, LLC.

Fatbergs have been a growing problem in our area and across the country. These massive buildups of raw sewage caused by fats, oils and greases discharged into the sewer systems by homes, industry and restaurants can have a potentially severe impact on the environment. With the help of a grant from the National Science Foundation, Wayne State University faculty utilize real-time video, pressure data and advanced chemical analysis to advance the understanding of the physical and chemical structure of these blockages. The project is led by Dr. Carol Miller of the Department of Civil and Environmental Engineering, and Tracie Baker, DVM of the Institute of Environmental Health Sciences, in collaboration with Macomb County and the Michigan Science Center. The center is creating an educational centerpiece for the museum to help educate the public about fatbergs and encourage actions to mitigate the issue.

The university is also developing a novel geocoded map, known as PHOENIX, to improve health outcomes throughout Michigan. Phillip Levy, M.D., M.P.H., the university's assistant vice president of Translational Science and Clinical Research Innovation is driving this precision approach to population health, guided by data that looks at outcomes on as specific a level as possible, perhaps even to individual neighborhoods. The easy availability of this type of data can provide policymakers with information that allows them to focus efforts limited resources and efforts for substantial impact where the need is greatest. This novel geocoded map will be

housed at the university using de-identified electronic health records in combination with information on population-level social determinants to paint an overall picture of health in Michigan area by area, using color-coding to graphically display differences.

University of Detroit Mercy and Wayne State University's ReBUILDetroit program recently received a renewal grant of more than \$19 million over five years from the National Institutes of Health (NIH). The ReBUILDetroit program works to encourage undergraduate students from underrepresented or economically disadvantaged backgrounds to pursue careers in biomedical research. This partnership was supported by an initial \$21.2 million grant awarded in 2014. In this next phase, Henry Ford College has joined the partnership to create pathways for students to transfer from community college to the University of Detroit Mercy or Wayne State University to complete four-year college degrees in STEM and eventually join graduate programs in biomedical-related fields. The first phase of the grant significantly impacted student retention rates, with most BUILD scholars graduating in four years with a STEM major.

Examples of other major projects that received funding during fiscal year 2019 include:

April Carcone, Ph.D., associate professor of Family Medicine and Public Health Sciences in the School of Medicine, received a \$2.7 million grant from the National Institute of Diabetes, Digestive & Kidney Diseases of the National Institutes of Health for the project, "Improving Diabetes Health in Emerging Adulthood Through an Autonomy Supportive Intervention." This project will test the efficacy of a multi-component behavioral intervention to improve metabolic control among older adolescents and young adults with Type-1 diabetes. The research will inform self-determination theory and different interventions targeting this population.

Mary Kay Pflum, Ph.D., professor of Chemistry in the College of Liberal Arts and Sciences, received a \$2.5 million grant from the National Institute of General Medical Sciences of the National Institutes of Health for the project, "Chemical Approaches to Study Post-translational Modifications." This project aims to discover new chemical approaches to characterize the enzymes governing two protein modifications – phosphorylation and acetylation – which will lead to a greater understanding of disease formation and development of new treatments in a wide variety of cancers.

Yongli Zhang, Ph.D., assistant professor of Civil and Environmental Engineering in the College of Engineering, received a \$929,000 grant from the Great Lakes Protection Fund for the project, "Smart Management of Microplastic Pollution in the Great Lakes." This grant will develop technology that will help identify microplastic sources, and also accelerate a targeted outreach and mitigation campaign for these environmental hazards that create profound problems for ecological and human health.

Hilary Ann Marusak, Ph.D., assistant professor -research of Pharmacy Practice in the Eugene Applebaum College of Pharmacy and Health Sciences, received an \$871,180 grant from the National Institute of Mental Health of the National Institutes of Health for the project, "Endocannabinoids and the Development of Extinction Recall Neural Circuitry in Adolescents." This project will examine fear extinction and underlying cortico-limbic eCB circuitry during adolescence aims to provide new insights into mechanisms leading to the development of adolescent anxiety and identify new targets for intervention.

These are just a few of the innovative research projects undertaken by the university's faculty. This important work and many more research accomplishments would not be possible without the valuable partnerships we have formed with universities, hospitals, businesses, community groups, school districts and organizations around the world. Collaboration is essential to innovation, and combining our expertise is critical to finding solutions that save lives and change the world.

Economic Development Impact of Current/Future Programs

Wayne State University's impact on Southeast Michigan is substantial, estimated by the Anderson Economic Group to be over \$2.5 billion per year. 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 nearly 7,500 full- and part-time faculty and staff.

In fiscal year 2017, the university spent nearly \$580 million for compensation, wages, and fringe benefits. The university awarded more than \$342.4 million in financial aid (federal, institutional, private, outside and state) to 22,587 undergraduate and graduate students in FY17-18, which translates to an average of \$15,158 per award. Expenditures on supplies and services in FY18 exceeded \$198 million. 71.4% of all invoices paid in FY18 were from Michigan-based companies.

The university spent over \$227 million in research and development during fiscal year 2017. In fiscal year 2017, 60 new patent applications were filed on technologies invented here, and 27 total patents were issued (U.S. and foreign). Furthermore, the university spent \$874 million to file and maintain all of its patent applications and issued patents, and received \$979,584 in revenue from license and startup companies.

Through fiscal year 2018, the university's portfolio contained over 550 technologies, including more than 340 pending and issued patents. Over 120 of those technologies were licensed, with 31 licensed to Michigan-based companies. The university has assisted in the start-up of more than 40 companies based on university intellectual property with the majority of those startups located in Michigan.

Wayne State University is committed to encouraging an entrepreneurial culture and establishing infrastructure that supports the creation of new companies. The Wayne State University Innovation Studio powered by TechTown has helped launch nearly 200 businesses that have generated revenue or hired employees since 2011, while the Goldman Sachs 10,000 Small Businesses program has graduated 482 second-stage small businesses from across Michigan. 30% are Detroit-based. 76% reported increased revenues 6-months after completion and 57% created jobs within 18 months. TechTown Detroit has served 1962 companies, which leveraged more than \$132 million in start-up capital, and contributed 1411 jobs to the local economy from 2007 to 2017.

Transformations in the Wayne State neighborhood include:

- 175 businesses have opened or expanded in the Midtown, TechTown and New Center districts since 2014; another 63 are scheduled to open or expand in 2019.

- The Live Midtown program attracted 1,200 new residents to the area and retained 900. The estimated financial impact of the program is estimated at over \$22 million.
- The Stay Midtown incentive, designed to help cost-burdened households currently residing Midtown remain in the area, has provided assistance to 121 households since 2016.
- Residential occupancy for rental housing has been at or above 98 percent since 2014.
- 1,538 residential units were recently completed (\$787 million invested); 1,565 are under construction (\$720 million invested); and another 2,275 are in the construction pipeline (\$1.1 billion soon-to-be invested).
- Midtown has seen a 55% decline in major crime since 2009, due in large part to Wayne State University's Police Department and their community policing activities.

Wayne State University is committed to being a catalyst for economic growth in the city. Initiatives include:

- The university completed a comprehensive space utilization analysis and adopted a new campus master plan with a 10-year planning horizon, the Wayne Framework.
- The university is one of 12 institutions partnering in an international design competition and planning process to help re-imagine the DIA Plaza and larger Cultural Center area.
- Construction was completed on the Anthony Wayne Drive apartments in 2019, a \$111 million mixed-use building with 840 new dorm beds and 86,500 square feet of retail space.
- The university acquired the NextEnergy building in 2018 for \$6.6 million. The new Industry Innovation Center (I2C) will be a space where university and industry partners collaborate.
- Landscaping, seating and a welcome kiosk have been added to Woodward | Warren Park. Forthcoming improvements include solar panels, marketplace lighting and a large mural.
- The university continues to promote and make investments in transportation and mobility solutions including the QLINE, MoGo, DDOT and SMART.

Wayne State University Research and Technology Park (TechTown)

TechTown is Detroit's entrepreneurship hub. As the city's most established business accelerator and incubator, TechTown provides a powerful connection to a broad network of resources, catalyzing entire communities of entrepreneurs to energize the local economy. It offers both tech and place-based economic development programs, as well as coworking, office, meeting and event space.

TechTown is a 501(c)(3) nonprofit and is located within the Woodward Technology Corridor SmartZone, on the northern edge the university's main campus. The TechTown building is

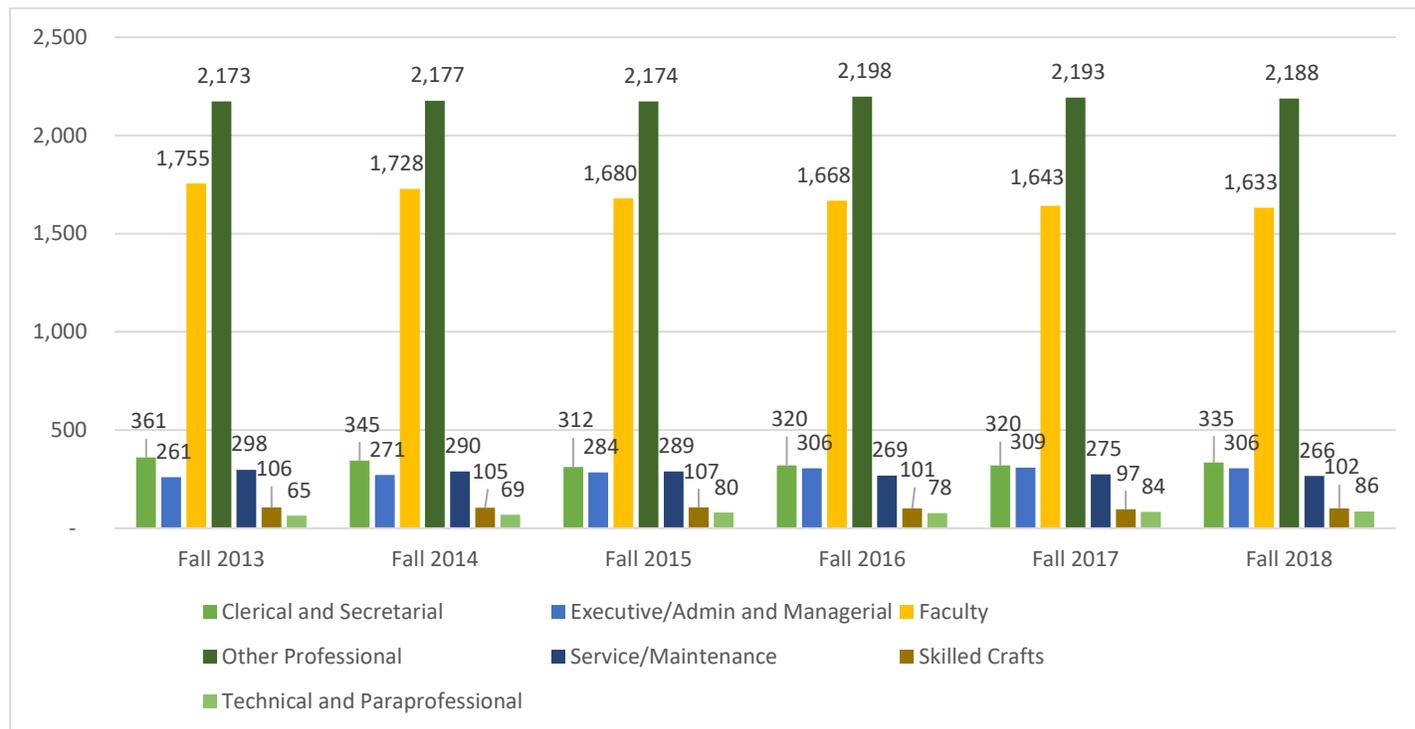
located one block from Wayne State University’s Integrative Biosciences (IBio) Center and across the street from the NextEnergy building, which the university acquired in 2018. Wayne State University is partnering with TechTown to transform the NextEnergy building into the Wayne State Industry Innovation Center (I2C), a facility for university and industry collaboration and research, with a focus on cyber physical systems including cyber security, connected and autonomous vehicles, and smart city technologies.

In this growing neighborhood, Wayne State University’s students and faculty work alongside entrepreneurs at TechTown to refine new generations of 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 University’s greatest strengths, its ability to partner with industry and government for the good of the populations the university serves. TechTown fosters a community of engaged, connected, and better served entrepreneurs, who will accelerate the region’s transition into an innovation-based economy.

III. Staffing and Enrollment

Staffing

Figure 2: Employee Count by HR Equal Employment Opportunity (EEO) Categories



Enrollment

For fall 2018, total enrollment was virtually flat (down 0.1%), suggesting that the university has stabilized from the declines of the past. Fall 2018 also had the largest full-time freshman class in the university's history, a very strong forward indicator of enrollment growth, particularly at the undergraduate level. Fall 2019 shows a small decline in total enrollment (down 0.9%), however total credit hours again increased (up 1.49%), indicating both a stronger revenue projection and improved student outcomes.

We are expecting strong entering classes and strong rates of returning students, particularly at the undergraduate level as a result of our **Student Success Initiative**, which has overhauled the student experience and is drawing national attention for our positive results. As a result of this effort, our 6 year graduation rate has increased from 26% in 2011 to 47% in 2017, *the fastest rate of improvement in the nation for large public universities*. Our commitment to continued improvements in student success, can no longer be described as an "initiative" but must be considered an integral part of our university. We are fully expecting to achieve our strategic plan goal of 50% graduation rates by 2021. Additionally we are working to halve educational disparities for under-represented minorities by 2025.

Key elements of the student success initiative to date include:

- **Undergraduate Academic Advising Initiative**
Over a three-year period, the university hired 45 academic advisors, doubling the number of advisors on campus, achieving an advising ratio below 300:1. We invested heavily in advising technology, including advisor scheduling, case management, and predictive analytics. Our advisors advance professionally through the advisor training academy. Academic advising is now a proactive, individualized, professional practice on our campus.
- **General Education Reform and Gateways Completion**
The university had not updated general education curriculum in three decades. A four-year reform process has led to a new general education curriculum which is not only streamlined, but more engaging and dynamic. The new program provides a clearer foundation for learning in the major. Further, our early mathematics curriculum has been re-organized, providing quantitative literacy and co-curricular support.
- **Support for Teaching and Learning**
Since 2013, Wayne State University has restructured, re-invigorated, and expanded the Office for Teaching and Learning (OTL) to support faculty to advance their pedagogy and to engage in evidence-based teaching and learning. Additionally, the OTL joined Student Success in a partnership that sustained two new grants from the National Science Foundation (WIDER and SSTEP) as well as the Faculty Success is Student Success Initiative.
- **Readiness for College**
Nationally, a college degree has become a crucial step to positive gains in life earnings and career success. Thus, access to college is no longer a privilege for some, but should

be considered a right for everyone. There are external factors, however, that limit success: under resourced K-12 systems produce high school graduates who require supplemental support in order to satisfy college readiness benchmarks and be prepared for the rigor of a post-secondary education.

To address this challenge, we have developed, enhanced, and expanded many of our support programs. First, 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 eight college credits in a free, supported, and residential environment before joining Wayne State University in the fall, which increases their college readiness and gives them a head start on academic success.

Secondly, our Warrior Vision and Impact Program (VIP) provides wraparound services that include peer mentoring, coordinated access to student services, and a weeklong orientation. In the first year, this program eradicated educational disparities in second year retention in the students it served.

- **Expanded First Year Experiences**

The transition into the first year of college is critically important to student success. Therefore, Wayne State University's faculty have expanded the First Year Seminar (FYS) and Wayne Experience course offerings, as well as Learning Communities across campus. The First Year Seminar course, based in neuroscience, is a leading national model and one of a kind with its scientific foundation. Having begun with only three sections, FYS 1010 now has 47 sections and serves 1,500 students. The Wayne Experience courses are also transition courses housed within specific departments.

- **Expansion of Financial Aid and Programming**

In order to maintain our mission of access, we have developed several programs that focus on addressing the kinds of student financial obstacles that often lead to early stop-out. The following programs support students financially through their education, so that bills and expenses do not stop them from degree completion: Senior Sprint, Wayne Access Awards, Completion Grants, and Student Emergency Grants. Lastly, one program in particular, the Warrior Way Back Program, was specifically designed to allow non-traditional students to return to Wayne State, finish the final credits for their degree, and erase a significant portion of their student debts in the process.

- **GRAD: Greater Retention and Achievement through Diversity**

To build on our historical commitment to educational opportunity, the university committed in July 2013 to launch the Greater Retention and Achievement through Diversity initiative to increase retention and graduation rates for students of color and other underrepresented groups and to advance our mission of inclusive excellence. This strategic initiative led to the creation of a chief diversity officer position and the Office of Diversity and Inclusion. It also created The Office of Multicultural Student Engagement (OMSE), which has recorded 9,000 visits over the past academic year. Lastly, a Campus Climate Study Committee was created and charged with assessment, development and

implementation of a study. This group has engaged members of the university community for input from all levels and perspectives to assist in the study design and roll-out process.

- **Predictive Analytics for Student Success**

With the implementation of Advising Works came the opportunity to dive into predictive analytics. This type of data allows Wayne State advisors to provide proactive advising as opposed to reactive advising. Advisors are provided with a quick-read student dashboard that supports a more comprehensive advising session. Additionally, implementation of Progress Reports has allowed students the opportunity to know their grades earlier and adjust their learning experiences accordingly. Predictive analytics has supported administrators' ability to discuss specific cohorts of students that require the most support and make decisions based on the data.

- **Pre-College Collaborative/K-12 Pipeline Programs**

Wayne State University has more than 50 programs that provide educational experiences for pre-college students. These programs are delivered by a variety of units, programs, and schools and colleges throughout the university. During 2013, the providers of these programs organized into a pre-college collaborative to share best practices and develop the capacity to support college access, readiness, and success within our local communities.

One example is the C2 Pipeline Program that serves as an after-school program in 15 local Detroit high schools. Through the College of Nursing, Wayne State University provides a hands-on, STEM learning curriculum throughout the academic year. At its' culmination, students are invited on campus to spend time learning about a national health crisis, and draft a proposal for the community of Detroit.

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 2017 student to faculty ratio is 16 to 1, which is on par with the national average.

Current Class Size

Class size varies depending on the program and class level. Of all undergraduate classes (excluding subsections), 50% have fewer than 20 students. Class sizes of 20 to 49 students make up 37%.

Enrollment and Graduation Patterns over the Past Six Years

Figure 3: Total Headcount Enrollment by Year

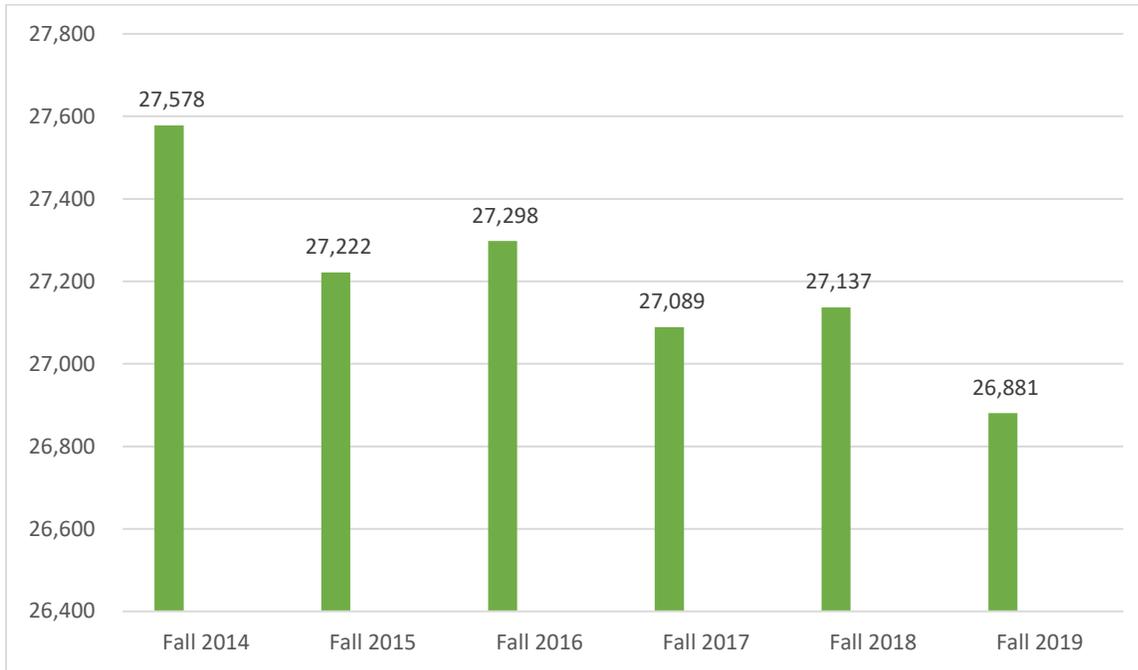


Figure 4: Number of Degrees and Certificates Awarded by Year

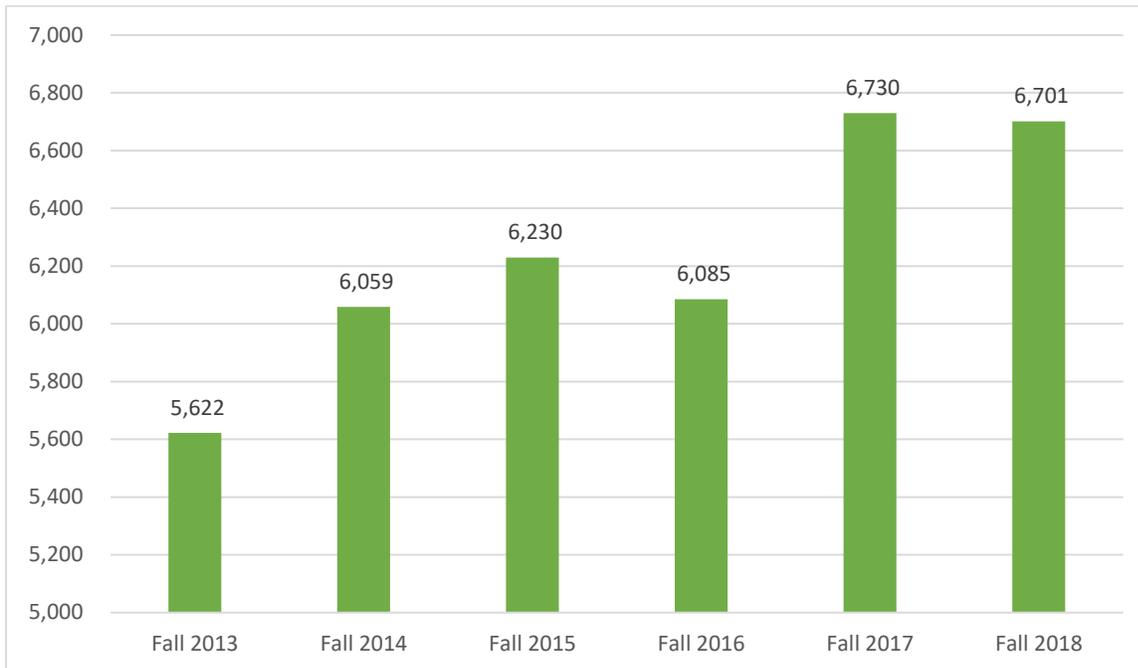
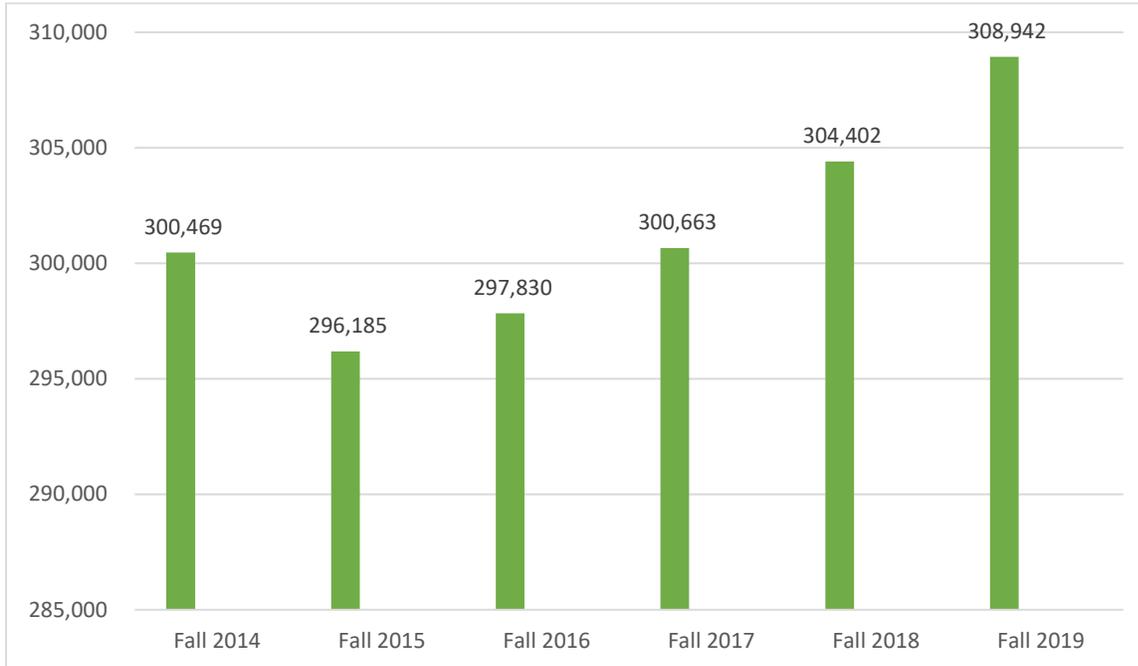


Figure 5: Credit Hours by Year



Source: Office of Institutional Research and Analysis

Extension Center Summary & Web Class Report

Figure 6: Extension Center Enrollment 2018:2019 Comparison

	Section Count		Section Enrollment		Average Section Enrollment	
Class Section Enrollment	2018	2019	2018	2019	2018	2019
All Extension Centers TOTAL	119	94	1,896	1,559	15.9	17
Student Headcount and Credit Hours	Headcount		Credit Hours		Average Credit Hours	
Student Level	2018	2019	2018	2019	2018	2019
Undergraduate Totals	1,076	937	4,429	3,953	4.1	4.2
Graduate Totals	255	114	1,044	484	4.1	4.2
Professional Totals	0	0	0	0	0	0
TOTAL	1,331	1,051	5,473	4,437	4.1	4.2

Figure 7: Web Class 2018:2019 Comparison

Class Section	Section Count		Section Enrollment		Average Section Enrollment	
	2018	2019	2018	2019	2018	2019
TOTAL	389	486	10,591	13,692	27.2	28

Student Headcount & Credit Hours	Headcount		Credit Hours		Average Credit Hours	
	2018	2019	2018	2019	2018	2019
Undergraduate	5,165	6,744	22,275	30,760	4.3	4.6
Graduate	2,335	2,457	10,270	10,920	4.4	4.5
Professional	7	18	18	64	2.6	3.6
TOTAL	7,507	9,219	32,563	41,744	4.3	4.5

Source: Office of Budget, Planning and Analysis

IV. Facilities Assessment

Campus Master Planning

Wayne State University engaged the DumontJanks team in the summer of 2018 to lead a 12-month planning process, including a comprehensive campus-wide space analysis and the development of a framework plan to guide decision-making around the physical future of the campus. This process was managed in close collaboration with the Department of Facilities Planning & Management and guided by the Capital Funding & Priorities Committee, the master planning process involved consultation with faculty and students through engagement with the Academic Senate, Student Senate, focus groups, community town halls, deans and department chairs and administration. Other members of the planning team included Deep Dive Detroit (community engagement), Gage Cartographics (mapping tools), Ghafari Associates (MEP), Gorove/Slade (mobility), and Lord Aeck Sargent (historic preservation and architecture review).

The process started with a significant engagement and analysis. The analysis focused on space utilization, building condition, mobility, history, land use, and physical and programmatic connections, both internally and externally. This provided a foundation from which to develop planning principles, and a long-term framework plan. This framework plan was not conceived as a traditional, static master plan, but as a dynamic, flexible document to help the university

structure ongoing decisions around evaluative principles that integrate strategic, academic, student life, community, financial, and physical considerations. In doing so, the overriding intent of the framework plan is to advance the strategic vision of the university as, "a pre-eminent, public, urban research university known for academic and research excellence, success across a diverse student body, and meaningful engagement in its urban community."

Wayne State University's new campus plan provides a framework to guide decision making around the university's physical environment. It consists of three primary components:

- Important data sets and resulting analytics, most importantly on the use of existing space and the current condition of university buildings, and web-based mapping tools that promote data visualization and communication;
- Physical strategies and principles that better organize the campus; prioritize and direct capital investment; suggest near-term demolitions, renovations, and site improvements; make the campus more welcoming and inclusive for students, faculty, staff, and the community; and maximize future flexibility by providing options for long-term on-campus development; and
- Organizational structures that promote integrated decision making within the university and better connect the university with its external community so as to allow for meaningful and sustained engagement.

Campus Housing Demand

Demand for on-campus housing by university students continues to be strong. Wayne State University's 40-year partnership with Corvias, LLC, a novel implementation of a Public-Private Partnership (P3) began on December 1, 2017. The partnership incorporates the Housing Facilities Master Plan 2016-2026, with the following projects in planning, completed or under current construction: Fall 2017 opening of The Thompson, a 55-bed living/learning community for the College of Fine, Performing and Communication Arts; Fall 2018 opening of the 400-bed Phase I of the new Anthony Wayne Drive Apartments; Summer and Fall 2018 exterior renovation of Chatsworth Apartments; July 2019 opening of the 443-bed Phase II of the Anthony Wayne Drive Apartments; Summer 2019 demolition of the Helen L. DeRoy Apartments; 2018-19 interior "gut and rebuild" of the Chatsworth Apartments interior with a scheduled re-opening as the Chatsworth Suites, 360 new suite-style beds in August 2020. Major activities to address deferred maintenance in University Tower Apartments are scheduled 2018-2021. A major renovation of Keast Commons, the campus green space in the residential precinct of campus, is scheduled to occur during fall 2020. By fall 2020, the university's on-campus housing capacity will have grown from 3,000 to 3,750 beds.

Functionality of Existing Structures, Deferred Maintenance and Facilities Condition

Wayne State University owns and operates 111 buildings and leases space in another 14. The university delivers its programs and conducts research from over 12.7 million gross square feet of space. Over the years, the university has used several methods to estimate and quantify its deferred maintenance backlog.

When the university previously reported its current replacement value and deferred maintenance backlog, the data was from studies conducted over a decade ago, thus the data accuracy came

into question. In 2017, the university retained the services of Sightlines, a nationally renowned company that works with institutional members to benchmark data, identify opportunities to optimize capital resources and quantify campus sustainability performance. For the past three years, Sightlines has worked with the university to collect and verify facilities data in order to inform strategic decision-making related to deferred maintenance and facilities condition. Using measurements of annual stewardship, asset reinvestment, operational effectiveness and service, Sightlines has completed annual analyses through FY18 of the university's return on physical assets or ROPA.

The bulk of the university's physical infrastructure was constructed prior to 1980, with the majority constructed in the post-WWII era of 1951-1975. Even after renovation, 47% of the campus is considered to be over 50 years old which places a significant risk of failure on the university's operations. Since 2012, an average of \$90 million has been spent on capital investment, 50% of which was spent on renovation of existing space and 3% spent on standalone infrastructure improvements. Overall, 73% of the university's space is considered to be "high-risk" by Sightlines' standards. High-risk space has more costly mechanical life cycles coming due, which if not addressed, create operational strain. Based on this profile, Sightlines has estimated that the university's 10-year facilities need is \$142 per gross square foot for an estimated \$1.1 billion.

As a component of the campus master plan effort, 25 high-priority buildings were identified for more in-depth analysis. Over the course of three months, consultants conducted detailed walkthroughs of all 25 buildings and met with operations staff in order to develop a comprehensive understanding of the relative states of the plumbing, electrical, HVAC, and fire protection systems in each. Their findings were summarized using a four-variable rating scale from "excellent" to "adequate" to "poor" ("building systems should be upgraded with next major renovation") and "unreliable" ("the need to replace is immediate"). According to their findings, of the 25 priority buildings identified, three were in adequate condition, 15 were poor, and the remaining seven were in unreliable condition.

These findings suggest the Sightlines valuation is likely low, and that the true need could be as much as double that estimated by Sightlines. The key takeaway from this additional analysis is that the university's deferred maintenance liability is unsustainable, and this suggests the need to look for opportunities to strategically disinvest from buildings in poor condition and with low institutional value while increasing utilization of more desirable buildings.

Utilities and Energy Management

Energy Curtailment Committee

Facilities Planning and Management employees, including directors, managers, engineers and trades participate in quarterly meetings to discuss the best way to conserve energy around campus for the General Fund accounts. This committee has identified well over \$1M in energy conservation measures (ECMs), with priority given to the items with the lowest payback period. The most recent funding request totaled roughly \$200,000 with an annual savings totaling over \$160,000, thus a simple payback of less than 2 years. Some of the recent items identified and completed by this committee are:

- Air Handling Unit Variable Frequency Drive at Biological Science Building

- Various AHU's were running in "hand", now running in "auto"
- Steam Trap repair and replacement- Across campus
- LED lighting initiatives- Across Campus

The committee is investigating funding opportunities to initiate these energy conservation measures.

LED Lighting Retrofits

We continue to see benefits from the T12 Fluorescent lighting retrofit project completed in 2017. Focus is now on the campus mall lighting. These lights are metal halide with 175 watt bulb plus the ballast. This technology has short bulb life with very quick lumen depreciation and frequent ballast replacement. With the poles and fixture heads being in good condition, a retrofit kit was sought. A suitable kit was found and a pilot sample of 100 lamps was recently completed. Results are being analyzed for scaling across campus. This will result in improved lighting which will enhance campus safety and reduce ongoing maintenance.

Building HVAC Analytics (Big Data)

Building analytics typically gather continuous data on HVAC systems. This is over and above data that the building automation systems (BAS) uses. This software overlays on the existing BAS to gather additional information and data. By analyzing this data with software, the analytics software can determine where there are inefficiencies in the HVAC systems and produce reports to identify them. Corrective measures can then be taken. Research facilities are a good candidate for this technology since the energy profile indicates it should be using less energy than what it is currently using. The university is currently analyzing appropriate facilities in which to pilot this technology.

P3 Energy Partnership

Senior management has started an initiative to search for a P3 energy partner. Having just completed a successful long-term P3 Housing partnership, which now manages all of the university's housing portfolio, it is now seeking to initiate something similar for energy. The goal is to lower energy costs over the long term, raise capital and address deferred maintenance issues. Following a request for qualifications issued in early 2019, a consultant has been identified to assist the university in further investigation of the benefits of such a partnership.

Sustainability Path

The Office of Campus Sustainability, located within Facilities Planning and Management, works to reduce the environmental impacts created by the university's operation while also engaging the entire campus community in sustainable actions, initiatives, and opportunities that lead to enhancing sustainability-related outcomes within the learning environment. A five-year sustainability plan has been developed to guide campus sustainability efforts in academics, research, operations, and campus life. The sustainability plan also aligns with Wayne State University's Strategic Plan to help ensure organizational objectives are being met within an environmental framework. This cascading focus has helped bolster sustainability efforts throughout the university. Wayne State University's Office of Campus Sustainability works in collaboration with various departments and colleges, to initiate academic projects that will train

current and next generation sustainability students who will move environmental theory into practical application while addressing urban sustainability issues.

An additional focus of the Office of Campus Sustainability is to advance environmental education around the campus community by increasing awareness of social, global, economic, and cultural sustainability that will have societal impacts into the future. This has been accomplished by increasing awareness of university impacts through an annual Greenhouse Gas Inventory that examines Scope 1, Scope 2, and Scope 3 emissions. This exercise to conduct a GHG inventory has helped further understanding across the campus community of environmental impacts through various segments of the university function. The Office of Campus Sustainability is also currently working with a multi-disciplinary group to research the effectiveness of a campus bioswale in mitigating stormwater runoff in a university parking lot. It is hoped that this endeavor will help the university realize cost savings through a reduction in drainage charges from the local water utility. Through these types of efforts, the Office of Campus Sustainability seeks to achieve sustainability by reaching the intersection of the triple bottom line of environmental, economic, and social sustainability.

Established in 2011, the Office of Campus Sustainability has either implemented and/or assisted with numerous operational and green building initiatives, including:

- Installation of water bottle filling stations around campus to help divert over 2.5 million plastic bottles from the waste stream;
- Green cleaning policy sets guidelines for environmentally-friendly cleaning products and equipment;
- Three, LEED Silver certified buildings awarded;
- Two, LEED Gold certified buildings awarded;
- The Green Ride (sustainability bike tour, held annually) allows the campus community to explore city sustainability sites;
- Solar Compactors placed around campus for waste and recycling;
- Warrior Exchange developed to give the campus a web-based classified section to facilitate reuse of campus property;
- Toner Cartridge Recycling allows departments to recycle used printer cartridges for remanufacturing;
- A green tote office supply program that reduces the amount of cardboard used for office supply delivery by utilizing reusable containers for delivery;
- A green cleaning policy to reduce the amount of cleaning products with toxins used on campus;
- And, a scrap metal recycling program has captured over 110,000 lbs. of ferrous and non-ferrous metals from the traditional campus waste stream.

The dedicated Wayne State University faculty, staff and student leaders have launched various initiatives designed to advance knowledge, raise awareness and change behavior as it relates to the university's impact on the environment. Guided by the Sustainability Plan through 2022, Wayne State University will continue to be a good environmental steward and through its actions will develop leaders and a talent pool that will help ensure the world's resources are sustainable for generations to come.

Facilities and Land Use

The overall distribution of academic and research space is expected to continue changing during the next several years. Currently, approximately 8% of the assignable square feet of space¹ is dedicated to classroom facilities (FICM 100 – 329,000 ASF) and 15% is dedicated to research laboratory facilities (FICM 200 – 1,050,000 ASF). Increases in technology and distance learning will further redefine and shape future classroom space allocations and development. As the university looks to begin implementation of the master planning framework, areas of optimization will include classroom utilization as well as office utilization which encompasses 33% of the assignable square feet (FICM 300 – 1,346,000 ASF).

Along with facility optimization opportunities, the master planning process also considered land use. Of the approximately 118 acres of the core-campus land coverage², over 75% consists of impervious surfaces including buildings, surface parking, streets, driveways and sidewalks. Not only does this pose a significant impact to stormwater retention and drainage but it also reduces the availability for high-performing civic space available to the university and community at large. As an urban campus, Wayne State University has an opportunity to be a leader in both sustainable water management practices but also in creating multi-functional and innovative public spaces. These themes will be further investigated as the university begins to implement the master plan.

Building and Classroom Utilization Rates

As part of the university's master planning process, space utilization data sets were closely analyzed. The space utilization analysis showed significant softness in the university's use of existing space.

Classroom use for scheduled instruction has an evening peak, but even at peak usage only approximately 60% of all classrooms are in use. This initial analysis predates the opening of the new Iltich School of Business which contains a large number of additional classrooms that demonstrated soft usage in fall 2019. The university's overall classroom metric (the ratio of classroom demand to classroom supply assuming a minimum target of 40 hours of weekly room use for scheduled instruction) is 0.259, whereas the state systems which have officially adopted this classroom metric typically target scores of 0.400 to 0.700. There is therefore significant capacity either to increase the number of sections delivered, or to decrease the available classroom space. This analysis is a factor in our decision to prioritize the renovation of State Hall, our primary teaching facility. That renovation will allow the university to better utilize the building and demolish or repurpose less important classroom structures. Teaching laboratories show a somewhat soft utilization profile, except for core science courses in biology, chemistry, and physics.

Research space use, as measured by sponsored expenditures, is currently dominated by the School of Medicine, although even for the School of Medicine utilization is not equally strong

¹ For the purposes of this analysis, assignable square foot totals exclude residential (FICM 900 – 1,017,000 ASF), parking (FICM 700 – 2,640,000 ASF) and unclassified space.

² Excludes athletics campus, health affairs campus, TechTown, IBio and Mike Iltich School of Business

across all research-intensive buildings. Scott Hall is particularly under-utilized from a sponsored expenditures perspective.

Office space utilization is likely also soft. While the best available calculation of the vacancy rate is ~9.3% (i.e. reasonable), an investigation of office configurations suggests significant inequities and likely wasted space. The average size for private offices varies widely across colleges and administrative units, from approximately 85 square feet per person to almost 180 square feet per person, with 20 of the 36 units surveyed having an average above 120 square feet (typical targets are between 100 and 120 square feet). The available data for shared workspaces is even starker. Unit averages vary from ~25 square feet per person to ~175 square feet, with 12 of 31 units surveyed averaging above 85 square feet per person (targets go from 60 to 85 square feet).

The university has over 400,000 assignable square feet of library and study space which represents a significant percentage of its academic portfolio.

As a result of opportunistic program moves, several colleges (e.g., Liberal Arts and Science, Engineering, Fine and Performing Arts, Medicine, and others), and even individual departments within these colleges, are widely distributed across campus. This distribution limits opportunities for formal and informal collaboration and creates logistical issues for students and faculty, resulting in an inefficient distribution of resources.

The analysis suggests that the only way for the university to both achieve its academic goals and successfully negotiate its deferred maintenance backlog is through a careful sequence of moves that create better academic adjacencies, concentrate investment in a selected subset of buildings, allowing these buildings to become world-class examples of active and engaged learning methods and interdisciplinary research, and through these moves and consolidations, empty out a different subset of buildings that can be demolished. The two key ideas are therefore to optimize program locations and consolidate dispersed colleges and strategically eliminate underperforming square footage. The university, through the master planning process, has identified an implementation plan to accomplish these goals over the next 10-15+ years.

Mandatory Facilities Standards

As a “Carnegie Research University, Very High Activity” institution, Wayne State University 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, Nuclear Regulatory Commission, 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.

Bond Status

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

<u>Building</u>	<u>Lease Began</u>	<u>Lease Ends Expiration</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
Integrative Biosciences Center	August 2015	2050

V. Implementation Plan

Throughout this document, Wayne State University has presented comprehensive information regarding its capital project plans. The STEM Innovation Learning Center is the current State Capital Outlay funded project in progress for the University. At this time, the university is requesting State Capital Outlay appropriations to renovate State Hall, our critically important instructional facility as discussed in Attachment B to the report. Listed below are current and planned capital projects in progress, beginning with our top priority renovation of State Hall.

Planned SBA Funded Projects

State Hall Renovation (\$85 million) will renovate a five story, 163,530 square feet general purpose classroom building that is critical to our mission of student success and teaching excellence in order to organize the building to better serve faculty pedagogies and student needs for excellent facilities for general purpose teaching and learning. This project will also address deferred maintenance in mechanical, electrical, plumbing and building envelope systems and will equip

the building with state-of-the-art technology. The State Hall Renovation is Wayne State University's State Capital Outlay Project Request for FY21 which requests a state appropriation of \$30 million. Refer to Attachment B State Capital Outlay Project Request for more detailed information.

SBA Funded Projects in Progress

STEM Innovation Learning Center (\$49.5 million) is renovating the seven-story, 116,000 square feet former Science and Engineering Library to contain undergraduate lab classrooms, a maker space, hacker space and collaboration spaces designed to support and expand STEM education across campus. Public Act 618 of 2018 authorized WSU to proceed with construction for a state appropriation of \$14.75 million and a total project cost of \$49.5 million. The STEM Innovation Learning Center is expected to be completed in August 2020.

Non-State Capital Outlay Projects In Progress

PRB HVAC Improvements at TechTown (\$1.98 million) will implement HVAC improvements and replace a building-wide chiller at TechTown that supports the Perinatology Research Branch (PRB) freezer farm. The project will improve cooling in the building and provide backup power for the cooling systems and the freezer. This project is currently in construction.

Towers Residential Suites and Café Dining Addition (\$2.15 million) will construct a new, 5,500 square foot addition to the existing Towers Café located within the Towers Residential Suites. The new addition will expand into the adjacent courtyard and add over 300 seats as well as an outdoor patio. This project is currently out for bids.

Applebaum Boiler Improvements (\$1.0 million) will implement boiler improvements to the Eugene Applebaum College of Pharmacy and Health Sciences Building. Proposed improvements will add small boilers to address in-house steam generation and add a scalable solution for efficient production when heating is not needed and demand is low. This project is in construction.

State Hall Elevator Improvements (\$4.5 million) will fully modernize two existing elevators and add a new, ADA-compliant elevator with shaft and mechanical room to accommodate accessibility needs within the university's largest classroom building. This project is in design.

Cooling Tower Capital Repairs (\$1.016 million) encompasses capital repairs and component replacements on cooling tower infrastructure to support improved operation and legionella growth prevention across campus. This project is in construction.

School of Social Work Phase II Renovation (\$3.5 million) will complete building renovations started in 2012 and provide flexible meeting space, classrooms and offices. Restrooms will also be updated to meet current building code and ADA requirements. This second phase will also replace all windows in the building with modern, energy efficient, operable windows. This project is currently in construction.

Basketball Arena (\$25 million) will construct a new, 3,000 seat basketball arena. This project will include offices, locker rooms, and ticketing and refreshment areas and will serve the Detroit Pistons G-League team as well as Wayne State University's men's and women's basketball

programs as well as summer camps and events. The project is a partnership with the Detroit Pistons and will be sited on the Athletics campus adjacent to existing parking. This project is in design. Completion is anticipated for July 2021.

Electrical Utility Conversion (\$6.0 million) will provide new electrical services to all former Detroit Public Lighting buildings. This project provides the scope and necessary upgrades that Detroit Edison (DTE) will not provide. Phase I and Phase II have been completed and Phase III construction is currently underway.

Anthony Wayne Drive Housing (\$119.1 million) will provide 800 new beds of on-campus apartment style options to satisfy growing and unmet demand. The project is currently in construction. Phase I of the project was completed in August 2018 and Phase II was completed in August 2019. Phase III encompasses the demolition of the DeRoy Apartments building and is anticipated to be complete in November 2019.

Biological Sciences Building Infrastructure Improvements (\$2.5 million) will replace the domestic hot water boiler with a new hot water exchanger. The project will also replace the existing steam boiler with a smaller, high-pressure steam boiler to provide humidification for the vivarium, equipment sterilization and greenhouse and comfort controls. The project is currently in design.

University Services Building Infrastructure Upgrades and Repairs (\$3.3 million) is currently under construction and will provide roof replacement, structural concrete repairs, heating and air conditioning component replacement and provision of a new fire alarm system.

Prentis Heating Pipe Replacement (\$1.3 million) is currently in construction and replaces the balance of hot water piping in the building not currently being replaced in the Computer Lab Classroom Renovation project.

Rackham Building Relocation to Prentis and Rands Buildings (\$1.2 million) is currently in construction and renovates portions of the Prentis Building and Rands House to accommodate departments formerly located in the Rackham Building. The university's lease at the Rackham Building concluded in August 2019.

Old Main HVAC Controls (\$2.2 million) replaces existing pneumatic components of fan control units with digital devices to provide synchronized controls, energy savings and a monitored digital control system for heating and cooling. This project is currently in construction.

Elliman Research Building Air Handling Unit Improvements (\$2.5 million) is currently in construction and will upgrade three existing air handling units, install a new control system and modify existing ductwork to accommodate the new units.

Hilberry Gateway Performance Complex (\$65.0 million) is currently in design and will provide new construction of a full service, 350-seat theatre, a 150-seat "black box" performance space and full "back of house" production support spaces. The project will also renovate the existing Hilberry Theatre to create a state-of-the art jazz performance space, assisted by a philanthropic donation.

Chatsworth Residence Hall Renovation (\$28.0 million) is currently in construction and will provide renovation of this historic, 1920s-era residential building. The project will completely renovate the building to create 368 beds in a total of 96 units. The project will also include upgrades to

mechanical and electrical systems as well as accessibility improvements. Estimated completion for this project is summer 2020.

University Towers Fire Alarm Replacement (\$2.86 million) is currently in construction and includes the replacement and upgrade of existing, outdated fire alarm system to include a new main headend and backbone as well as new devices throughout this 356,000 square foot building.

University Towers Deferred Maintenance Improvements (\$1.1 million) is currently in construction and includes replacement of toilets and HVAC units in all residential units, the installation of a new supply air handler, refurbishment of the chiller and cooling tower and exterior glass and sidewalk repair.

University Deferred Maintenance Program (\$4.6 million) is an annual, campus-wide initiative and includes regular investments in deferred maintenance beyond the projects listed previously.

Planned Non-State Capital Outlay Projects

Parking Structure and Related Improvements (\$10.0 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.

Scott Hall Vivarium Renovation (\$5 million) will renovate existing vivarium space in Scott Hall serving the School of Medicine. The project will incorporate a comprehensive renovation of mechanical systems, plumbing systems and incorporate new equipment including a new cage washer. Electrical systems and some architectural upgrades will also be included.

Keast Commons Renovation (\$1 million) will renovate the existing civic space between the Chatsworth Apartments, Towers Apartments, and Ghafari Hall and expand to incorporate the DeRoy Apartments site which is currently being demolished. The renovation will provide a more inviting and vibrant gateway into the campus and provide much-needed gathering and activity space for students located in the heart of the residential district.

Industry Innovation Center (I2C) Refresh (\$2 million) will renovate the former Next Energy building, now the Industry Innovation Center (I2C) to provide spaces where the university, industry and community come together to address urban challenges. The refresh project will look at interior and exterior spaces along with studying adjacencies to TechTown and the IBio building. Short term installations and a participatory design process will inform long term renovations and improvements to the building and site.

WSU Art Gallery (\$2.4 million) will renovate approximately 5,600 square feet of historic garage space into a dynamic white box gallery that encourages exchange between visual, literary, and performing arts while simultaneously providing space for scholarly research and peaceful contemplation.

University Tower Elevator Service (\$1 million) will complete a full modernization of the four existing elevators at University Towers. This project will include full modernization of circuit

boards, some machinery upgrades and install air conditioning in the rooftop machine room. The project will not upgrade finishes to the existing cabs.

Recently Completed Non-State Capital Outlay Projects

Campus-Wide Facilities Master Plan (\$1.5 million) was completed in September 2019. The project provides a comprehensive, data-driven framework to guide the university's decision making over the next 10+ years. Capital projects moving forward will be evaluated through the lens of this master plan effort.

New Data Center (\$16.9 million) was completed in May 2019 and provides approximately 12,500 square feet of current and best-practice environments to support the university's technology and services while offering flexibility for future growth.

Prentis Building Computer Lab Classroom Relocations (\$2.4 million) was completed in January 2019 and is renovating approximately 11,400 square feet to accommodate the relocation of computer science and math lab classrooms. These classrooms are being relocated from the Science and Engineering Library to allow for the renovation of the STEM Innovation Learning Center.

Prentis Building Façade Repairs (\$.8 million) was completed in October 2018 and consisted of the replacement of deteriorated concrete and reinforcing steel as well as patches and repairs existing cracks in the façade.

Social Work Roof Replacement (\$.95 million) was completed in January 2019 and replaced approximately 10,000 square feet of existing roof not addressed in prior renovations to the School of Social Work building.

Campus Health Center Relocation (\$2.11 million) was completed in April 2019 and built out 7,600 square feet of tenant space for the relocation of the campus health center to the new Anthony Wayne Drive Housing complex.

Thompson Home Exterior Improvements (\$.725 million) was completed in August 2019 and includes roof replacement, exterior painting and cooling tower replacement.



**WAYNE STATE
UNIVERSITY**

**FY2021: Capital Outlay Project Request
State Hall Renovation**



Submitted to the Office of the State Budget
October 31, 2019

Attachment B

**Fiscal Year 2019
Capital Outlay Project Request
State Hall Renovation**

Institution Name: Wayne State University

Project Title: State Hall Renovation

Project Focus: Academic

Type of Project: Renovation

Program Focus of Occupants: General Purpose

Approximate Square Footage: Approximately 163,530 gross square feet

Total Estimated Cost: \$85 million

Estimated Start/Completion Dates: Summer 2020 to Fall 2022

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

Wayne State University requests \$30 million in State Capital Outlay support to fully renovate State Hall, a critically important classroom building that is centrally located on campus. The total project budget is \$85 million, and the university plans to fund its 50 percent match plus any additional costs with philanthropic gifts and/or through debt financing.

Built in 1948 and expanded in 1957, State Hall is one of the university's most widely used instructional facilities with 75 classrooms and 163,530 gross square feet. State Hall provides three full floors and one partial basement floor of traditional general purpose classrooms and a fourth floor, modified in 2012 to add active learning capabilities. It is one of the most intensely scheduled lecture buildings on campus and supports almost every academic program offered at Wayne State University. Faculty teach classes ranging in size from 20 to 300 in classrooms that are not necessarily right-sized for pedagogical needs. The building is essential to our missions of student success and teaching excellence, but it suffers from aging mechanical systems, lack of collaborative student study spaces and faculty meeting spaces, and classrooms that lack modern technology and equipment suitable for the variety of classes that are taught in the building.

Student complaints about the inadequacies of State Hall classrooms abound. They are increasingly frustrated by their inability to use their laptops efficiently or move chairs and tables to participate in team projects or better participate when a faculty member "flips" the classroom to put students in the leadership role. Faculty who teach in the current State Hall classrooms are hindered by inadequate lighting, poor ventilation, and insufficient electrical outlets for student computers, lack of appropriate technology like smartboards and whiteboards, and furniture that is not readily moved and unsuited to team projects. Unsurprisingly, renovating State Hall has been a top priority of our teaching faculty for the last decade, as shown by the overwhelming support of the university's Academic Senate and the Senate's Policy Committee and Facilities Committee for this project. In fact, the Academic Senate has put State Hall at the top of the list of needed improvements because it is so vital to the teaching mission of the university.

Renovation of State Hall offers several significant advantages over new construction which are discussed in detail in our 5-Year Capital Outlay Plan and in the following pages of this Project Request.

Planned space components for the building include:

- Flexible and convertible general-purpose classrooms that include updated technology such as smartboards and appropriate seating and desk arrangements to permit both traditional lectures and participatory, team, and project-based learning;
- Improvement of flow through the building to ensure ease of access and use for students and faculty, including those with disabilities; and
- Collaboration or "collision" spaces in otherwise underutilized spaces such as corridors where students and faculty can gather before and after class for study, continuation of an interdisciplinary discussion, or a follow-up conversation about items of interest that arose in a class.

This State Hall renovation project represents an enormous step forward in the university's instructional mission of building human capital. It will add value to the State of Michigan by

ensuring that the university's teaching of students is being carried out in an environment that will help students succeed and become entrepreneurs, teachers, scientists, social workers or any number of other professionals in the State of Michigan, thus driving the southeastern Michigan region's and the state's positive economic performance.

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

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

Renovating State Hall will permit students and faculty to work together in a rich learning environment that supports innovative teaching and collaborative student work and provides accessible kiosk monitors with frequently updated information about research opportunities, faculty lectures, and other events taking place. Having that classroom and collaboration environment will help our student success efforts continue to increase the university's retention and graduation rates. Because 89% of our students come from Michigan (69% from the tri-county area around the city of Detroit) and 86% of those students remain in Michigan after completing their undergraduate education, this means that those students will be better prepared and better engaged as educated citizens armed with job competencies. Improving the learning environment by creating a modern classroom building that serves almost every academic program should help in recruitment of new students, retention of existing enrolled students, and graduation of all student cohorts. Because the vast majority of Wayne State University's students remain in Michigan, students who benefit from this improved learning environment will likely undertake jobs within the urban and tri-county region, in particular, as well as throughout the state, thus contributing to the revitalization of Detroit and southeastern Michigan and to the State of Michigan's overall economic growth. Wayne State University 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 and teachers to scientists and engineers working in the latest high-tech spin-off companies.

State Hall is located on Cass Avenue and so sits along a strategic urban corridor where the university and city blend and merge. Landscaping enhancements undertaken along with the interior infrastructure improvements have the potential to make State Hall a showcase classroom building for the campus at that location that will invite parents and potential students to consider enrolling at Wayne State. The resulting impact on enrollment growth will also benefit the region and the State. As one of the city's largest employers, Wayne State already has a nearly \$2.5 billion impact in Detroit — a driving force behind the city's resurgence and key to the State's continued interest in expanding and vital growth of the southeastern Michigan economy.

A state of the art classroom facility that meets and exceeds the needs of tomorrow's students will allow Wayne State University to continue to be a significant and influential force in metropolitan Detroit's educational and cultural landscape. Further, the impact of our students is felt on local,

regional, state and national levels, elevating the State of Michigan as a hub of innovation and talent creation.

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

State Hall is critical to this university's mission to create and advance knowledge by preparing a diverse student body to thrive and positively impact local and global communities, as stated in the Distinctively Wayne State University Strategic Plan 2016-2021. To achieve our mission, our strategic objectives and tactical action plans center around our key educational functions of student success, teaching excellence, and research, in addition to focusing on important operational factors of diversity and inclusion, entrepreneurship, financial sustainability and operational excellence, and community engagement.

The core of this university is the classroom encounter between our graduate and undergraduate students and our excellent faculty, most of whom are engaged in cutting-edge research within their fields. In State Hall's classrooms and in discussions at classroom doors and along the corridors after class, faculty inspire and challenge their students to reach for new goals and to achieve those goals through hard work and deep engagement in learning. Renovation of State Hall will make that interaction simpler, by taking away the frustrations created by current aging infrastructure problems. It will also make that interaction more meaningful, by offering innovative collaboration and meeting spaces for small groups of students and faculty before and after classes where students can engage in free-flowing conversations with each other and with faculty about the materials discussed in class. Faculty and students value this kind of interaction—it is the value-added component of in-class courses where a diverse group of students participating with a faculty member often introduce exciting new ideas to topics that were not necessarily envisioned as part of the day's assignments.

These interactions with faculty in the context of a classroom building like State Hall are vitally important. As one of the 50 largest public universities in the nation with the Carnegie Foundation's highest classifications for research (with annual research expenditures of more than \$221 million) and community engagement, Wayne State University offers students incredible opportunities, even as undergraduates, to conduct research and to explore new ideas. We're also a member of the University Research Corridor along with the University of Michigan and Michigan State University, generating 95 percent of research in the state and supporting economic growth throughout Michigan.

From medicine and mechanical engineering to graphic design and geology, our faculty members are renowned for innovation and expertise in their fields, crafting hands-on curricula to take students from the classroom into real-world situations of observation and research. We're increasingly known for our interdisciplinary research in areas such as health sciences and disparities, the environment, entrepreneurship and data analytics, human services and education, manufacturing, language and the arts. Students who will be more able to interact with faculty both formally and informally in the renovated State Hall classroom building, with more efficient classrooms and discussion spaces, will also get to know more about these research endeavors—research in which even undergraduate students can become active participants through our Undergraduate Research Opportunity Program (UROP).

The university has recently completed a new master plan, The Wayne Framework which recognizes the importance of the State Hall building to our instructional mission and future directions. The Framework firmly establishes the necessity of implementing a full renovation of State Hall as the university's top Capital Outlay Project Request for fiscal year 2021.

3. How does the project support investment in or adaptive re-purposing of existing facilities and infrastructure?

State Hall came into being as a key part of the growth of Detroit and the plan for a campus in the heart of the city. The early 20th century marked a transformative era for Detroit as the city's population grew from less than 300,000 at the turn of the century to almost two million in 1950. Wayne State University's enrollment also surged and the need for more space to accommodate academic and research functions followed suit.

In 1942, Wayne State University and the Detroit Board of Education held a master planning competition to envision a bold new urban university campus. The competition was won by Suren Pilafian, a little-known Armenian architect. State Hall when it became the first building on Wayne State's campus to be built explicitly for the university.

Pilafian designed State Hall and several classroom buildings on campus in the German Bauhaus style, a modernist design movement that operated on the principle of "form follows function." Under this philosophy, designers opted out of the grandiose tendency of traditionalist styles and instead condensed the form of a design to an idiom of lines, planes, solids, and voids. Although modest in architectural composition, State Hall is both unique for its prominent location on the Cass Avenue civic corridor and symbolic of the university's collection of mid-century modern buildings. The building is both structurally sound and historically significant; it is worthy of the necessary investment to retain and renovate in order to suit the needs of today's students.

A comprehensive renovation of State Hall would honor the university's history as told by its collection of buildings and strengthen the future of Wayne State University's learning environment. The university intends to focus instructional activity in a renovated State Hall that caters to a wide-range of pedagogies and provides excellent facilities for general purpose teaching and learning. Renovating this building would retain its existing load of scheduled instruction and accommodate that which takes place in other buildings. By focusing investment on core educational buildings and deactivating a subset of outmoded buildings, the university can make better use of its existing resources.

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

Although the existing 1948 facility complies with the building codes from the time the building was constructed and limited renovation thereafter, the State Hall facility does not meet the current life safety code for new construction pertaining to fire sprinkler coverage, fire rating of building components, emergency lighting levels, door hardware and ramp slopes along a path of egress. This project will address these life safety deficiencies for the entire building, along with other code deficiencies such as current ADA requirements and energy code requirements.

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?

State Hall is currently being under-utilized from two perspectives, the average seat count and the demand for certain classroom sizes. According to the Master Plan the average seat fill per classroom hovers around 50%. This means that most classes are not being taught in right-sized spaces. In terms of direct classroom utilization, the average classroom utilization is less than 40% on Monday through Thursday, indicating an oversupply of classroom space according to the Master Plan. This oversupply, however, is likely due to crunch and surplus times due to scheduling around particular key times, wrongly sized classroom availability that pushes smaller classes into larger rooms, and a surplus of inadequate and inappropriately sized rooms in some of the oldest classroom facilities. Our renovation plan addresses these weaknesses and will allow a decidedly more efficient use of State Hall while permitting us to consolidate classroom space and increase utilization across the campus.

This renovation of State hall will be designed according to the weekly room hour demand per classroom size outlined in the Master Plan. This approach anchors our plan in data identifying the most useful distribution of classroom sizes. The facility will also include larger classrooms that can be separated into two smaller classrooms with partition walls. This will allow State Hall to stay effective and efficient should classroom size demands change in the future.

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

All Wayne State University new construction and major renovation projects built in recent years have been designed to achieve Leadership in Energy and Environmental Design (LEED) silver certification or higher. Completed in 2016, our Advanced Technology Education Center (ATEC) earned the University's first LEED Gold ranking. Likewise, our Integrative Biosciences Building (IBio) was also awarded LEED Gold in 2016. The recently completed Mike Ilitch School of Business building, completed in 2018, is currently awaiting final confirmation of an anticipated LEED Silver ranking and our STEM Innovation Learning Center, currently in construction, is also tracking toward LEED Silver.

State Hall is a frequently used classroom building that offers the opportunity to engage thousands of students in sustainability initiatives on a weekly basis. The sustainability plan calls for use of

the campus as a learning laboratory while integrating environmentally-based learning into a broad cross-section of the academic curriculum. The multi-disciplinary nature of the State Hall classroom building fulfills this goal by providing innovative sustainability features integrated into the building environment. Sustainability-focused buildings enhance the learning environment by providing a clean, healthy, collaborative, productive space that helps students to perform at higher levels.

The WSU Sustainability Plan calls for a 25% reduction in greenhouse gas emissions by using energy innovation, energy conservation measures and improving the building envelope to help reduce the university's carbon footprint. This project will incorporate LED lighting, daylight harvesting, and replacement of older materials such as single pane windows to a multi-pane window to improve energy efficiency and savings.

Renovating an existing building to be more flexible and versatile is in and of itself a sustainable concept. In an ever-changing pedagogical landscape, the university must refrain from designing rooms that support a narrow set of functions. Anytime the university sinks capital into altering a classroom to meet whatever best practice exists for that particular time, it commits itself to unnecessarily spending more resources down the road. Under the ethos of "future-proofing" State Hall, Wayne State can reinvent and equip classrooms in a way that adapt to a variety of teaching activities and learning styles. Having one space that is capable of performing the same tasks of a variety of particular types of spaces saves the university materials, operational costs, and other scarce resources.

7. 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?

No, matching funds are not presently available for this project. In conjunction with the University's capital master plan, a debt capacity study is currently underway that will result in a multi-year capital financing plan. It is anticipated that the additional funding for this project will be provided by a future bond issuance.

8. If authorized for construction, the state typically provides a maximum of 75 percent of the total cost for university projects and 50 percent 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 project cost to design and construct the State Hall Renovation project is estimated at \$85 million. As part of the FY21 funding cycle, Wayne State University is requesting State Capital Outlay funding support in the amount of \$30 million or 35 percent of the estimated project cost. We expect to fund the balance by philanthropic gifts and debt financing.

9. 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.

The table below outlines current operating costs compared to potential future operating costs as previously estimated. As we move into the programming and schematic design phase of the project, these anticipated costs will be tested against potential energy cost savings identified via the design process.

Operational Cost Type	Current Cost (\$) / GSF	Current Costs (\$)	Potential Future Cost (\$) / GSF	Potential Future Costs (\$)
Custodial Cleaning	1.29	211,248	6.17	1,008,162
Grounds Maintenance	0.13	21,259	0.13	21,259
Plant Maintenance	1.20	196,494	1.20	196,494
Utilities	1.22	199,474	1.22	199,474
Security	0.72	117,742	0.72	117,742
Communications	0.28	45,788	0.28	45,788
Insurance	0.16	26,165	0.16	26,165
Service Contracts	0.08	13,082	0.08	13,082
Total Costs		831,252		1,928,166

Specifically, the largest financial impact anticipated is with custodial cleaning. Currently there are 6.5 FTE assigned to clean State Hall, meeting an APPA Level 5 of cleanliness. As the university pursues a plan of consolidation and better utilization of our campus resources, we will be looking to increase our expectations of cleanliness, especially in our heaviest-used facilities. We anticipate increasing the expectation for State Hall to be an APPA Level 2 which would increase our custodial FTE to 27, thus significantly increasing the cost to clean the facility.

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

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

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

Student success and teaching excellence are critical components of the university’s mission. Educational excellence can only be achieved if appropriate instructional facilities exist to support pedagogical innovation and needs. The university campus is currently equipped primarily with traditional classrooms, many of which lack adequate technology and electrical components to support contemporary learning modes, including student laptops and smartboards. A few active and experiential learning classrooms are available, but these limited facilities cannot keep up with instructional demand. Renovation of our primary instructional facility will provide our students with up-to-date, flexible classrooms that are equipped with enabling active learning technologies. If this project is not authorized and advanced, faculty will be limited in their ability to teach using

a variety of pedagogical modes and their students will risk falling behind their peers regionally and nationally, simply due to aging, obsolete and deficient facilities.

Students and their parents have become sophisticated consumers of education and understand that facilities are important to their choices of institution. State Hall's current shortcomings are a constant frustration to faculty and students, but also a deterrent to recruitment of students because parents are looking for modern facilities that they consider safe and efficient. In addition to supporting general purpose classroom space, State Hall contributes to prospective student engagement. In the last year, the university's admissions staff hosted more than 4,500 prospective students with 8,400 guests at individual or recruitment events and gave approximately 1,500 student-attended group tours. Without this renovation, the university faces an increasingly unusable structure that is not designed to suit either student demands or faculty needs.

If State Hall is not fully renovated now, there will also be future financial consequences for performing urgent work in a piecemeal fashion. Code deficiencies relating to accessibility and life safety must be rectified holistically or else the building becomes a patchwork of inconsistent systems that cannot be depended upon. Refurbishing classrooms without also repairing or replacing vital systems serving the whole building can lead to a range of issues that are integral to building safety and comfort.

State Hall is also heavily used for kindergarten through twelfth grade (K-12) summer programs. In 2019 alone, the university saw more than 2,800 K-12 students attend these programs. This number includes 1,012 students who participated in our C2 Pipeline programming. Without the academic spaces provided in State Hall, K-12 programs on campus struggle to find appropriate facilities to host camps, meetings and events.

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

The university's recently completed master plan, the Wayne Framework, focuses on instructional activity in a renovated State Hall that caters to a wide range of pedagogies and provides excellent facilities for general purpose teaching and learning. Adjacencies are key to academic collaboration. They promote interaction, communication, and connection. From a physical perspective, they are also more sustainable, shortening line lengths and limiting initial and ongoing infrastructure costs. A key idea of the master plan is therefore to focus as much energy and activity as possible in an enhanced academic core, and to reverse the university's recent trend to dispersal. A renovated State Hall is central to this idea and supports the creation of enhanced learning environments for Wayne State's students.

There is no feasible alternative to State Hall modernization. Given the historical architectural value of State Hall as well as the amounts already expended on the top floor update several years ago, it would be unreasonably costly and environmentally destructive to demolish the architecturally significant building and build anew. Continuing to use State Hall without renovations is similarly unsatisfactory, as the building needs mechanical and electrical systems updating and technological improvements throughout. The renovation of State Hall is at this time a "must do" endeavor, for both student academic success and faculty teaching needs.