



Capital Outlay Plan

FY2017

TABLE OF CONTENTS

Page

Introduction (Executive Summary)

3

University Mission Statement

Mission

6

Instructional Programming

Executive Summary

8

The Colleges

9

Other Academic Units

19

Enrollment and Faculty/Staff

Executive Summary

22

Current Student Enrollment

23

Enrollment Patterns

33

Average Class Size

34

Staffing Ratios

35

Facility Assessment

Executive Summary

38

Building and Classroom Utilization Rates

40

Architectural Systems

52

Mechanical Systems

56

Steam Supply and Distribution System

64

Electrical Systems (Buildings)

67

Elevator Systems

70

Fire Protection Systems

73

Electric Supply and Distribution Systems

77

Site Work and Drainage Systems

79

Energy Plan Goals

82

Roads, Streets, Parking Lots and Structures

83

Implementation Plan

Strong Hall Renovation

86

Building Maintenance Projects Greater than \$1 Million

89

Appendix

List of Tables and Exhibits

90

Eastern Michigan University Capital Outlay Plan FY2017

EXECUTIVE SUMMARY

Eastern Michigan University is pleased to present this Capital Outlay Plan for FY 2017. Established in 1849 as the Michigan State Normal School, Eastern Michigan University has played an important role in providing higher education to the students of Michigan, the Mid-West region, the United States and countries around the globe. With 90% of our students originating from Michigan and 72% of these students remaining in Michigan following graduation, an investment in Eastern Michigan University is an investment back into the state of Michigan.

Throughout its history, Eastern Michigan University has enriched the lives of the citizens of Michigan by developing countless teaching, business, health and human services, technology and STEM professionals who have gone on to have meaningful contributions to society and the local and national economies.

The University has accomplished this by providing an exceptional learning environment that accommodates the diverse mission and specialized delivery of instruction that meets the expectation of our students and their parents, business and industry and the state. An exceptional learning environment requires facilities that are up-to-date and can accommodate the technologies that are now woven throughout every discipline.

Eastern Michigan University's top capital project for FY 2017 is Strong Hall, which houses the Physics & Astronomy and Geology & Geography departments. The 80,713 sq. foot structure built in 1957, plays an important role in the development of not only our Physical Science students, but also to over 35% of our student population, as the auditoriums within Strong Hall are utilized by many departments. This makes Strong Hall the third most trafficked building on our campus.

Strong Hall is in need of a total renovation to bring the building up to modern educational standards. The renovation will consist of reconfiguring the existing space to modernize classroom and lab spaces with new technology and flexible use spaces for both research and instruction; updating the fire suppression system; and replacement of the existing HVAC, plumbing and electrical systems to improve energy efficiency by implementing "green" solutions to help reduce existing operating & long-term energy costs. These renovations will provide an enhanced environment for students to receive instruction, perform research and collaborate with their peers and professors.

Eastern Michigan University is focused on its continued development of the STEM programs as evidenced by the \$90 million self-funded renovation of Mark Jefferson Hall, which together with Strong Hall comprises the University's science complex. Once Strong Hall is renovated, Eastern will hold a state-of-the-art-facility that will facilitate cutting edge sciences, promote STEM education for Michigan students and will be used as a model for universities across the country.

Eastern Michigan University Capital Outlay Plan FY2017

The University's focus and investments have already begun to generate dividends as we have experienced an 11% increase in enrollment in STEM programs and a 15% increase in STEM graduates since the completion of Mark Jefferson Hall. The University believes that the additional investment into Strong Hall can create additional interest in Eastern Michigan University's STEM programs and better equip these graduates in their careers in the STEM fields.

**Eastern Michigan University
Capital Outlay Plan FY2017**



MISSION STATEMENT
VISION
CORE VALUES

Eastern Michigan University Capital Outlay Plan FY2017

MISSION

Eastern Michigan University enriches lives in a supportive, intellectually dynamic and diverse community. Our dedicated faculty balance teaching and research to prepare students with relevant skills and real world awareness. We are an institution of opportunity where students learn in and beyond the classroom to benefit the local and global communities.

VISION

Eastern Michigan University will be a premier public university recognized for student-centered learning, high quality academic programs and community impact.

CORE VALUES:

Excellence - We provide an exceptional environment to our faculty, staff, and students. We improve our performance continuously and strive to be the best in everything we do.

Respect – We care for our people, communities, and the environment and show respect for the dignity of the individual.

Inclusiveness – We create an environment that supports, represents, embraces, and engages members of diverse groups and identities.

Responsibility – We are accountable – individually and in teams – for our behaviors, actions and results. We keep commitments.

Integrity – Integrity and transparency are critical to our institutional effectiveness. We pursue the highest level of personal, intellectual, academic, financial, and operational integrity within the University community.



INSTRUCTIONAL PROGRAMMING

EXECUTIVE SUMMARY

THE COLLEGES

OTHER ACADEMIC UNITS

Eastern Michigan University Capital Outlay Plan FY2017

EXECUTIVE SUMMARY

The University was founded by the State of Michigan in 1849. Then called Michigan State Normal School, its primary purpose was to educate teachers. In 1956, Michigan State Normal College became Eastern Michigan College, and in June 1959, then comprising three Colleges and a Graduate school, it became Eastern Michigan University.

Today, Eastern Michigan University is a comprehensive Undergraduate and Graduate institution, offering over 140 Undergraduate majors and curricula leading to a broad spectrum of Baccalaureates and a total of 136 Graduate concentrations leading to the Master's, Specialist's, and Doctoral degrees. Its focus is on preparing students to succeed beyond graduation by emphasizing a personal approach to education in which the student is the center of the learning experience. The University prides itself on putting "Education First."

The University is fully accredited by the North Central Association (NCA) of Colleges and Schools. More than 100 national and international professional organizations provide focused accreditations at the college, department, and program levels.

The University's Division of Academic Affairs comprises five academic Colleges: the College of Arts and Sciences (CAS), the College of Health and Human Services (CHHS), the College of Business (COB), the College of Education (COE), and the College of Technology (COT). The Division is further supported by Extended Programs and Educational Outreach (EPEO), and the Bruce T. Halle Library (LIB).

Eastern Michigan University Capital Outlay Plan FY2017

THE COLLEGES

College of Arts and Sciences

The College of Arts and Sciences (CAS) was established in 1959-1960 during the academic year EMU became a University. The College currently is the largest in the University, with 18 Departments (Art; African American Studies; Biology; Chemistry; Communications, Media and Theatre Arts; Computer Science; Economics; English Language and Literature; Geography and Geology; History and Philosophy; Mathematics; Music and Dance; Political Science; Physics and Astronomy; Psychology; Sociology, Anthropology and Criminology; Women and Gender Studies; and World Languages). Graduate Studies in the College expanded rapidly from two degrees in 1960 (History and Literature) to degrees in all departments by 1969. Beginning in Fall 2001, the College offered a Ph.D. in Clinical Psychology, the first Ph.D. at Eastern.

For a perspective of the size and complexity, the College of Arts & Sciences:

- Generates more than half of EMU's student credit hours.
- Employs slightly more than half of the University's faculty.
- Uses all or part of 13 buildings.
- Offers nearly all of the general education courses, which provide the foundation for specialized work in major programs.
- Supports 6,000 sections annually for more than 1,800 courses.
- Maintains over 100 Undergraduate and 70 Graduate programs.
- Includes over 7,000 Undergraduate and 900 Graduate majors each year.
- Awards more than 1,200 Undergraduate and 300 Graduate degrees annually.

The College is also proud of the following attributes:

- It exhibits student research and creativity in its annual Undergraduate Research Symposium.
- Maintains the federally funded (a) Sailing Ocean Literacy Grant; (b) DUETS Urban Education Grant; (c) Gear Up Higher Education Preparation Grant; (d) TCATTE English-As-A-Second-Language Grant; and the (c) Creative Science Inquiries Experience Program (CSIE).
- Hosts the Institute for Geospatial Research (IGRE) has received major grants from NOAA, Michigan Department of Natural Resources, NASA, and NSF.
- Every Department in the College participates in the education of teachers through specific methods course offerings.

The Board of Regents has recognized the upgrade of the science facilities as a critical need of the University. With the renovation of the Mark Jefferson Science Building completed, the focus shifts to renovating Strong Hall.

Eastern Michigan University Capital Outlay Plan FY2017

Strong Hall was built in 1957 as an 80,713 square foot three-story building to house Physical Science programs that include the Departments of Physics & Astronomy and Geography & Geology. The building also houses the programs of earth science, physical science, integrated science, historic preservation, urban and regional planning, and geographic information systems. Strong Hall has not seen significant renovations since it was built nearly 60 years ago. It is in need of classroom and laboratory upgrades, technology repair, and replacement of infrastructure and building improvements including mechanical and electrical systems, and removal of asbestos. The renovation of Strong Hall would continue to allow integration between programs and departments from other Colleges, for example, that of the Coatings Research Institute and all the science departments with the new connection to the science complex. The project is estimated to cost \$39.5 million for renovating the existing space.

It is also important to note that the three large auditoriums in Strong Hall serve the entire campus, resulting in more than 8,000 students using the facility each semester. This makes Strong Hall the third most-heavily-trafficked building at EMU. The learning environment of these students is greatly impacted by the current state of disrepair of the building's infrastructure and technology. As a simple example, the lack of electrical capacity in the building prevents more than six students from plugging in their laptops in the classrooms because there are only 3 available electrical outlets in most classrooms.

The departments housed in Strong Hall have several programs of note. Entering its fourth decade, Eastern's Historic Preservation Program is the largest Graduate program in Historic Preservation in the nation. Over the years it has been the recipient of multiple state and national awards, including the American Association of State & Local History's coveted "Certificate of Commendation" (1989) for ten years of nationally-recognized performance within the field of historic preservation education.

In 1999, Eastern's Historic Preservation Program was presented with the "Lucy Hamilton Education Award" from Preservation Wayne, Detroit's leading preservation organization, for contributions to historic preservation in Michigan and Detroit. That same year, program founder Marshall McLennan received the "Lifetime Achievement" Award from the Michigan Historic Preservation Network. Michigan Historical Commission has designated EMU Historic Preservation in a new partnership to ensure the continuation of the Michigan Historical Marker Program. The partnership was in response to Executive Order 2009-36, which abolished the Department of History, Arts and Libraries.

The Department of Physics and Astronomy was recently named by the American Institute of Physics as a top producer of Undergraduate Physics majors in the country, among Master's granting institutions. Faculty members in the Department were awarded a \$600,000 grant from the National Science Foundation to create the Physics Scholars Program, which prepares young scientists to enter the discipline of Physics. Another faculty member received The "Sam Tour" award from ASTM International for publishing the most influential research paper on the corrosion testing of metals.

Eastern Michigan University Capital Outlay Plan FY2017

College of Health & Human Services

The College of Health and Human Services (CHHS) prepares professionals with the knowledge and skills to enhance quality of life for Michigan residents and facilitate social change. The college's schools include: Health Promotion and Human Performance, Health Sciences, Nursing, and Social Work. The College of Health and Human Services is located in the Porter Building, the Warner Building, Roosevelt Hall, and the Marshall Building. Administrative space is provided in the Marshall Building for the Dean's office and three of the four schools, as well as laboratories and classrooms for the whole College. Roosevelt and Warner provide classroom and laboratory space, and Porter houses the School of Health Promotion and Human Performance.

With the State of Michigan's push to support health and human service programming, the population of undergraduate and graduate students has increased in the college. Enrollment increased by more than 40% in the last 5 years, and the college is now the second largest at EMU. Classroom and office space is at a premium. There is a possibility of increasing the number of students in some of the existing programs as well as adding new programs if our need for more classroom, laboratory as well as research space is met. Furthermore, the CHHS has hired new research faculty over the past few years, and with the 2009 addition of a doctoral program in Nursing Education, steady expansion of faculty/student, interdisciplinary-research collaborations are anticipated. The first class of students in the new Physician Assistants program entered in 2014. The program's facility needs were met with an upgrade to Rackham Hall and a unique partnership of sharing space at St. Joseph Hospital. Under these circumstances, the CHHS has proposed a three-prong strategy to address its facility needs. First, the Warner gymnasium is in need of major renovation: heating and cooling, classrooms, existing labs, etc. Second, acquiring additional space in the Bowen, Warner buildings, and/or future expansion to the Marshall Building, for office and research needs is critical to grant acquisition and contract services for on and off-campus constituents as well as to meet accreditation requirements. Third, Roosevelt is in need of classroom improvements, but these are not in the magnitude of total building renovation; thus, these needs likely will be addressed in the University's annual maintenance program.

To address the first component of the CHHS strategy regarding the Warner building, a multi-disciplinary Wellness Research Institute is proposed to provide central coordination and support services to researchers. The center will be comprised of a variety of laboratories such as movement technology, performance testing, simulation, sensory integration, body composition and wet laboratories. Currently at EMU, similar research institutes, such as the Coatings Research Institute, thrive and can serve as a model for this endeavor.

While most proposals will serve one or two major research efforts, this one benefits a College whose percent increase in enrollment and new faculty hiring outpaces the rest of the campus.

There has been a strategic decision by Eastern Michigan University (EMU) to grow research capacity. While EMU has been a stellar, accredited, comprehensive university for 160 years, it

Eastern Michigan University Capital Outlay Plan FY2017

enjoyed 75% state support in the 1970's and now receives on average 21% of its revenues from state funding. Seeking revenue from grants and contracts to achieve our mission has become an important goal.

Several programs in the College of Health and Human Services are accredited by disciplinary organizations, which frequently list standards for quality of program space especially with regards to research space:

School of Health Promotion and Human Performance - Athletic training accredited by the Commission on Accreditation of Allied Health Education Programs and the Joint Review Committee on Education Planning and Athletic Training; health education accredited by the Michigan Department of Education/National Council for the Accreditation of Teacher Education; orthotics and prosthetics is accredited by the National Commission on Orthotics and Prosthetics Education; physical education is accredited by the National Association of Sport and Physical Education/National Council for the Accreditation of Teacher Education.

School of Health Sciences - Clinical laboratory sciences program accredited by the National Accreditation Agency for Clinical Laboratory Sciences; occupational therapy accredited by the Accreditation Council for Occupational Therapy Education; dietetics accredited by the Commission on Accreditation for Dietetics Education of the American Dietetic Association.)

School of Nursing - Accredited by the Commission on Collegiate Nursing Education.

School of Social Work - Accredited by the Council on Social Work Education.

Eastern Michigan University Capital Outlay Plan FY2017

College of Business

The College of Business was formed in 1964 and has grown to be the third largest college at Eastern. Branded as “Innovative, Applied and Global”, it has been selected as one of the “Best Business Schools” every year since 2003 by the *Princeton Review*. The College is accredited by the AACSB (The Association to Advance Collegiate Schools of Business International), a distinction shared by only 30% of U.S. Business Schools. The College offers 12 Undergraduate majors, eight Undergraduate minors and five graduate degree programs in four departments: Accounting and Finance, Computer Information Systems, Management, and Marketing. It is the only Business school in the country to offer a Master’s of Science in Integrated Marketing Communications program and offers the only Graduate program in Human Resources in China. Its Professional Education Center provides executive education for a variety of corporations and non-profit organizations. The College is supported by 13 business advisory boards to ensure the relevancy of curriculum and to increase interaction with the business community. Additionally, the College has partnership agreements with Universities in China, Korea, India, Malaysia, Pakistan, Germany, France, Spain, Belgium and Yemen.

The region’s economic development has been enhanced through centers of excellence within the College of Business. The Center for Entrepreneurship is specifically intended to support the development of new enterprise in the region and provide no-cost services to entrepreneurs and small businesses. The Center houses the SBA Small Business and Technology Development Center network (SBTDC). The SBTDC operates four offices covering the metro-Detroit area (Wayne, Oakland and Monroe counties). Typically these offices provided services to over 750 clients, training to over 2,200 people and helped start dozens of new businesses. The Center also sponsors an Annual Collegiate Entrepreneur Organization (CEO) student organization and the Annual SESI Midwestern Entrepreneurship Conference. Annually about 300 High School, Community College and University students attend the Conference. The Skandalaris Business Plan Competition with cash prizes sponsored as part of the conference attracts almost 100 plans from High School, Community College and University students.

To further the mission to enhance regional economic development the COB has also committed a suite of offices on the third floor of the Owen Building to establish the Office of Business Partnership Program. These offices house the Regional Headquarters of the Michigan Small Business & Technology Development Center (SBTDC); the Southeastern Michigan U.S. Export Assistance Center; the Center for Entrepreneurship; the Biz Resource Center for small businesses and students; and the Washtenaw County, Ypsilanti SmartZone Center. The College was instrumental in opening a Business Incubator partnering with Ann Arbor SPARK, a regional economic development organization, about 100 yards from the College. The Strategic Human Resource Management Center has been providing Human Resource Management education and certification to professionals throughout Southeast Michigan for more than nine years, receiving multiple awards and recognition from the National Society for Human Resource Management. Other new strategic initiatives include programs in Supply Chain Management, International Business, Integrated Marketing Communications and Entrepreneurship.

Eastern Michigan University Capital Outlay Plan FY2017

The College is the first business school in the country to develop an “Ethos Statement”, a strong statement of ethics and values to foster a professional culture within the College. This statement is attached to every syllabus for every course offered in the College. It is also the first business school to have an “Ethos Week” to promote and encourage ethics education. This initiative was started by the Business students and continues as an annual series of events to promote ethics in business. Students also started the first and only “Ethos Honor Society” in the country.

The College of Business is currently housed in the Gary Owen Building, built in 1990, and situated on Michigan Avenue roughly one mile from EMU’s Main campus. This building comprises the instructional facility for more than 3,500 students, both day and evening, who represent the ethnic and socio-economic diversity of the region as well as having a significant international component. The College has experienced steady growth in enrollments over the past five years due to the introduction of new programs, Community College Articulation Agreements, and International Partnerships. Approximately 121 Undergraduates (4%) and 230 Graduate students (27%) from over 30 countries help to make the business programs and activities not only diverse, but truly international. College of Business programs attracted approximately 40% of the University’s international students. The Graduate programs are offered at night along with Undergraduate courses that allow Undergraduate students to complete their degree programs.

The College is nearly at capacity. Its classrooms are filled most of the day and at night, except for early morning. Building capacity constraints are becoming critical. The increased interaction with the business community, economic development activity and professional education also raises the need to have a more professional business facility. Currently, there is no true “entry” to the College. There is only one executive classroom and no student lounge area. There is no library, student center or even adequate study areas for the students to study between classes. The lunch area has a maximum capacity of 50. This is inadequate to service the over 2,600 undergraduate and 1000 graduate students. Because of the distance from the main campus all of the students are “commuters”, it is just a matter of how far they commute. A building addition to the College of Business continues to be considered as a major priority for future Capital Outlay allocations.

Eastern Michigan University Capital Outlay Plan FY2017

College of Education

For more than 163 years, Eastern Michigan University's College of Education (COE) has played a major state and national role in the preparation of teachers, other school personnel and related professionals. Eastern has an historic and valued place as the first "Normal School" West of the Allegheny Mountains. Eastern was among the first institutions involved with the preparation of physical and special education teachers. The College of Education is one of the nation's largest preparers of professional education personnel, offering programs at the Bachelor's, Master's, Specialist's and Doctoral degree levels. The College's programs have received a number of national recognitions, are fully accredited and are Charter members of the National Council for the Accreditation of Teacher Education (NCATE), and are approved by the Michigan Department of Education. In almost every instance where a program-specific national recognition exists, the EMU College of Education holds this recognition at the highest level.

Through its Office of Urban, Community, and International Outreach (OUCIO), the College has created numerous partnerships with local school districts that are interested in enhancing a variety of school improvement activities. The OUCIO has also established strong new partnerships with the Detroit Public Schools and the Charles H. Wright Museum of African American History. The office supports a growing number of international partnerships and programs and is home to two distinguished Chairs—The Morris Chair and the Porter Chair. Additionally, the OUCIO and its Minority Achievement Retention and Success (MARS) Program have been instrumental in the recruiting, retention, and achievement of our minority students.

Graduates from the College of Education are highly prized and are aggressively recruited at the national level. Our alumni hold many distinctions, including the Pulitzer Prize, National Student Teacher of the Year and National Teacher of the Year, and serve as presidents or executives of major national professional organizations. In addition, 26 COE graduates have received the prestigious Milken Family Foundation Award for teaching excellence in the classroom. Finally, over 500 of our students become certified teachers each year.

In July 1999, the College of Education was relocated to the John W. Porter Building. This building was a \$13,816,000 renovation of the former campus library that was authorized in Public Act 19 (P.A. 19) of 1993. Thus, we have no short term capital outlay requests for this college. Since 1999 college development resources have been used to refresh and address expanded technology needs. With continued and additional expansion of technology and users, the facility requirements for the EMU College of Education will need to be addressed through a more stable refreshment program if we are to continue to deliver our comprehensive and diversified academic programs for the next five years.

Most programs in the College of Education are nationally accredited by disciplinary organizations, which frequently list standards for quality of program space:

Department of Leadership and Counseling - Leadership programs are accredited by the National Council for the Accreditation of Teacher Education. Community, college and school counseling

**Eastern Michigan University
Capital Outlay Plan FY2017**

programs are accredited by the Council for Accreditation of Counseling and Related Educational Programs.

Department of Special Education - Speech-language pathology program accredited by the American Speech-Hearing Association; hearing impaired program accredited by the Council on Education for the Deaf. The department is nationally accredited by the Council for Exceptional Children and the National Council for the Accreditation of Teacher Education.

Department of Teacher Education - Accredited by the National Council for the Accreditation of Teacher Education, the Association for Childhood Education International, the International Reading Association, and the National Association for the Education of Young Children.

Eastern Michigan University Capital Outlay Plan FY2017

College of Technology

The College of Technology (COT) is dedicated to excellence in the delivery of 26 professional programs in applied engineering technology (10 programs), applied management (10), applied design (5) and in Military Science and Leadership. The COT is also proud of its research and training activities in textiles, polymers and coatings, and police and fire staff training. Program offerings are based on the philosophy that applied, project-based problem solving enhances learning and that application of knowledge is a key driver in the creation and discovery of new knowledge. Graduates of COT programs are well prepared to function in an ever-changing, global technological environment and to assume leadership roles in organizations, corporations, government agencies, and institutions of higher education throughout the world. Today's College of Technology has become an integral component of the University's mission, allowing students to be better prepared to compete globally. With a reputation for achievement and innovation, the College of Technology continues to meet the changing needs of students and employers. COT programs are ideal engines for addressing state and federal government's priorities for enhancing Science, Technology, Engineering and Mathematics (STEM) education and the country's STEM-educated work force.

The College of Technology operates within three buildings. The Coatings Research Institute (1987; 8,000 s.f.), the newest building, is small and only provides laboratory spaces for coatings research and analysis. Sill Hall (1965; 92,635 s.f.), the largest building, was originally programmed for fine arts and industrial arts activities. Today, the industrial labs are still used for engineering technology and construction management courses, but the fine arts spaces were long ago renovated for computer, electronics, and chemical laboratories, and classrooms. The retrofitting of technology programs into fine arts spaces forces us to live with many sacrifices and compromises. Roosevelt Hall (1925; 75,639 s.f.) was originally programmed as a high school. In 1973, it was renovated to accommodate Military Science and home economics activities. Today, many of the spaces have been renovated again, with various levels of success, to accommodate computer laboratories, design studios and classrooms.

By modifying existing programs and creating new programs, College of Technology faculty respond quickly to industrial demands for trained professionals. A great barrier to program development is the shortage of appropriate facilities and the less-than-adequate teaching and laboratory environments for instructional and research activities.

- Sill Hall received about \$100,000 of capital upgrades in the spring of 2012; the result was more a minor facelift than an extensive renovation. Roosevelt Hall has not received attention in many years and is underserved for power and communications.
- Because of its inferior seating and "hard" furniture and flooring, the Roosevelt Hall Auditorium is underutilized (both for instruction and for special events). We are not getting a good value for dollars we spend heating and cooling the air in the space.
- The Roosevelt Hall Auditorium stage is not accessible for those with mobility issues.
- The majority of spaces in Sill and Roosevelt Halls are not air conditioned, which makes it difficult to conduct technology research that yields reproducible results.

Eastern Michigan University Capital Outlay Plan FY2017

- In general, heating in Sill Hall is irregular and difficult to control.
- The south end of the upper floor in Sill Hall was renovated to create chemistry laboratories. The air flow is uneven and turbulent, resulting in uncomfortable spaces.
- The Sill Hall chemistry casework, workbenches, and fume hoods are old and decaying from caustic chemicals.
- Windows in Sill and Roosevelt Halls are original construction and drafty. Classroom blinds are not adequate to darken the room for proper use of modern digital projectors.
- Sill and Roosevelt classroom walls have not been painted in many years.
- In 2012, ABET accredited the Mechanical Engineering Technology (MET) Program. The announcement quickly resulted in an increase in the number of MET majors, which is straining the MET laboratory situation.
- Faculty in Simulation, Animation and Gaming have requested space and equipment for housing a green screen and a virtual reality cave.
- Another faculty member has developed an exciting research program and several courses around the theme of robotics and unmanned terrestrial, marine, and aerial vehicles. He has asked us for enhanced laboratory facilities.
- The Information Assurance Program continues to grow, which will require us to expand the computer laboratory resources and facilities infrastructure.
- Finally, the COT faculty have embraced the concept of providing project-based learning opportunities throughout the curriculum. Project-based learning will require COT to acquire more equipment and larger, modern, laboratory spaces.

In summary, COT programs and courses require significant hands-on laboratory resources. COT has done well in maximizing its use of its presently allocated space; however, to truly allow students to achieve their potential as STEM-educated graduates, provisions must be made for program growth and modernization of program spaces and infrastructure.

Eastern Michigan University Capital Outlay Plan FY2017

Other Academic Units

Extended Programs and Educational Outreach

Extended Programs and Educational Outreach (EPEO) provides leadership to the campus in extending Eastern Michigan University to its communities. As the primary delivery structure for off-campus programs, EPEO works closely with academic departments and colleges as well as student service areas to serve students both on campus and beyond. Because its programs are offered off campus, we have no short term capital outlay requests for EPEO.

EMU programs offered via EPEO are varied in both geographic distribution and program type. Courses are offered in traditional and compressed formats, distance learning, and contract programs. Off-campus centers are maintained in Brighton, Detroit, Jackson, Livonia, Monroe, and Traverse City. Courses and programs may also be delivered at non-EMU locations such as Grand Rapids in partnership with Grand Valley State University, Daimler Chrysler, and Foote Hospital, to name a few. Programs are also offered internationally in partnership with foreign institutions, for example the Human Resource and Organizational Development Master's degree in China.

EPEO is also responsible for EMU-Online, Eastern Michigan's online course delivery unit. More than 350 courses have been developed and enrollments are increasing annually. Ten full degree programs have been developed for online delivery.

EPEO continues to expand within the region, and internationally. EMU-Livonia will expand again this year to serve the growing off campus student population. In addition to the partnership with the Tianjin Normal University, there are discussions with other potential university partners in China interested in Geographic Information Systems (GIS) and Quality programs. These programs can be delivered in a hybrid format, face-to-face and online, and help further the internationalization of the curriculum and broaden the knowledge and experience of the faculty.

On campus, EPEO delivers programming on weekends using various campus buildings and the Eagle Crest Conference Center. In addition, technology can be used to deliver programs between campus and distance sites.

EPEO also provides a number of non-credit offerings which meet the life-long learning needs of the southeast region of Michigan.

Eastern Michigan University Capital Outlay Plan FY2017

Library

The Bruce T. Halle Library houses the University Library, Bruce K. Nelson Faculty Development Center, Holman Learning Center, Academic Technology and Computing Services and Eagle Cafe. With over 949,000 volumes, 200 indexes and databases, and 20,000 full-text journals, the library provides an array of resources that supports teaching, learning and research to facilitate the intellectual, scientific, artistic, cultural, and service pursuits of the University. The 273,715 square foot library offers 2,250 seats for faculty and students, over 500 computers in labs and public areas, 1,500 network ports, and wireless access to Internet throughout the Library.

At the time when Halle Library opened in 1998, several decisions were made due to budget constraints: (1) to limit the size of the Automatic Retrieval Collection (ARC), (2) to limit the size of the University Archives, (3) to forego proper environmental controls in the University Archives, and (4) to forego proper environmental controls in the “Head End” room which houses major servers, network infrastructure, and the like.

Completion of the full capacity of the Automatic Retrieval Collection (ARC) has been completed. The addition of two (2) bays increased the capacity of the ARC by 200,000 volumes. There was also an update to the ARC’s decade-old hardware in the project.

The University’s interest in showcasing its accomplishments and the desire to expand the conception of the University Archives to a digital repository both require different and more significant space utilization than the current area provides. Every year that we delay proper environmental controls for these materials is decreasing their life expectancy. A state-of-the-art Archives/Special Collections area with room for a public exhibit and museum-like display area would cost approximately \$1,725,000. Remodeling and expansion of the current site could be done for \$500,000-\$750,000. A recent project addressed the needs of the environmental controls within the archives.

Approximately \$1,000,000 would be needed to add necessary levels of electrical power and air conditioning in the Head End Room, as well as to replace the outdated sprinkler system with a fire suppression system more appropriate to a room housing so much high-tech equipment. We have been fortunate in avoiding major system failures or fires in that room to date, but the safety risks and the potential for system failure are of continued concern.

The Halle Library is now seventeen years old, and was used heavily in FY2012 as “swing space.” Worn carpeting was noted as far back as the 2006 program review of the library, and carpeting is even more worn since the end of the “swing space.” Furniture has worn out, and paint has faded. There has been continual rethinking of the use of space, but minimal monies available to do the changes in a manner that befits the stature of the building on the campus. Approximately \$1,000,000 is still needed to catch up on the routine maintenance of the building that had been delayed.



ENROLLMENT AND FACULTY/STAFF

EXECUTIVE SUMMARY

CURRENT STUDENT ENROLLMENT

ENROLLMENT PATTERNS

AVERAGE CLASS SIZE

STAFFING

Eastern Michigan University Capital Outlay Plan FY2017

EXECUTIVE SUMMARY

EMU has led the state of Michigan's 12 other regional public universities in terms of freshman enrollment growth. Since fall 2010, the entering class has grown by 42%. In the fall of 2015, EMU enrolled one of the largest classes of freshmen in its 166-year history, continuing the positive trend and momentum built during the past several years. The University enrolled 2,857 first-time freshmen, close to the previous all-time record for freshmen of 2,872, set in fall 2013. The freshman class also displays improved academic preparation, strong diversity and further growth of The Honors College at Eastern. The Honors College, which accepts students entering with typically at least a 25 ACT score and 3.5 high school GPA, has more than doubled in freshman enrollment since 2011. This year, the college expects to admit more than 450 students in its freshman class and anticipates an estimated record 1,600 students in the overall honors program, an increase of 5% from last year's record total.

In addition to near record numbers, this year's incoming freshman class is better prepared academically. The average GPA of incoming freshmen is 3.29, up from 3.05 in 2010. In addition, the number of enrolled freshmen showing a GPA of between 3.5 and 4.0 has increased 10% from last year and the number of students with a GPA between 3.0 and 3.49 has increased more than 22%. Average ACT scores are also climbing. This year's freshman class has an average ACT score of 22.06, showing dramatic growth from an average of 21.05 in fall 2010.

The entering freshman class also shows increasing diversity at Eastern. The number of newly enrolled African-American freshmen, 656, represents 23% of the entering class, while the number of newly enrolling Hispanic freshmen, 183, makes up 6.4% of the entering class. The number of African-Americans in this freshman class is an increase of 22% over last year's class, while Hispanic students show a 38% increase. New Asian freshman students grew by 40% as well.

Student success continues to be the priority of Eastern Michigan University. In the recently developed EMU Strategic Plan, student success is the number one of the four overarching strategic themes. Our freshman retention rate increased from 72.5% in fall 2014 to 74.7% this fall, turning around the several years of decline. Examples of new action items to promote student success include:

- Establishing advising/service centers at strategic and convenient locations;
- The development of a retention monitoring and tracking system at the major level;
- A University-wide quality initiative that is focused on measuring and improving the quality of academic advising; and
- Application for external grants aimed at helping targeted student populations (e.g. the award of \$1.8 million Student Support Services grants from the U.S. Department of Education to benefit veterans and low-income, first-generation students).

**Eastern Michigan University
Capital Outlay Plan FY2017**

CURRENT STUDENT ENROLLMENT BY LEVEL AND PROGRAM

In Fall 2015, among the total enrollment of 21,634 students, 14,665 (or 67.8%) registered for courses at the main campus only, 413 are at satellite campus only, 1,382 are online only, and 5,174 are a combination of courses from main campus, satellite campus or online.

Level	Combination	Main Campus Only	Online Only	Satellite Only	Grand Total
UG	4,369	12,576	658	177	17,780
GR	805	2,089	724	236	3,854
Grand Total	5,174	14,665	1,382	413	21,634

Fall 2015 Opening-Term Student Headct
by Student Level, College, Department, Major and Full/Part-Time

UNDERGRADUATE

College	Department	Major	Full-Time	Part-Time	Grand Total
AS	Africology&African Amer Studie	African American Studies	15	4	19
		Art	122	72	194
		Art - 30 Hour	23	16	39
		Art - Teaching	1	0	1
		Art History	11	7	18
		Visual Arts Education	28	5	33
		Visual Arts Education - Intent	3	0	3
	Biology	Biology	381	143	524
		Biology - Teaching	5	3	8
		Pre-Chiropractic	7	1	8
		Pre-Medicine/Osteopathy	157	10	167
		Pre-Optometry/Podiatry	4	0	4
		Pre-Veterinary	53	3	56
		Biochemistry/Toxicology	4	0	4
	Chemistry	Chemistry	52	22	74
		Chemistry - Teaching	2	0	2
		General Biochemistry	85	22	107
		Pre-Dentistry	44	5	49
		Pre-Mortuary Science	4	0	4
		Pre-Pharmacy	25	1	26
		Professional Biochemistry	31	2	33
	Comm, Media & Theatre Arts	Professional Chemistry	25	4	29
		Arts and Entertainment Mgmt	24	3	27
		Arts Management	11	0	11
		Comm, Media & Thtr Arts			
		Comp	3	0	3
		Comm, Theatre Arts - Teaching	6	2	8
		Communication	310	81	391
		Communication and Theatre Arts	43	6	49
		Electronic Media-Film Studies	145	52	197

**Eastern Michigan University
Capital Outlay Plan FY2017**

	Entertainment Design/Tech	22	1	23
	Media Studies and Journalism	13	0	13
	Public Relations	46	8	54
	Theatre Arts	74	11	85
Computer Science	Computer Science	137	51	188
	Computer Science Applied	159	46	205
	Actuarial Science and			
Economics	Economic	6	2	8
	Economics	47	15	62
	Economics - BBA	6	3	9
	Economics - BBA Intent	11	2	13
English	Child Lit/Drama/Thtr for Young	9	4	13
	Creative Writing	46	14	60
	English Language	23	9	32
	English Linguistics	27	19	46
	Journalism	85	16	101
	Language, Literature and			
	Writg	59	22	81
	Language, Litr, Writg - Tchrs	82	29	111
	Literature	22	5	27
	Media Studies and Journalism	2	0	2
	Public Relations	40	11	51
	Technical Communications	3	0	3
	Written Communication	18	10	28
Geography & Geology	Earth Science	12	7	19
	Earth Science - Teaching	2	2	4
	Geography	24	12	36
	Geography/History Comp Maj	3	0	3
	Geology	26	19	45
	Urban and Regional Planning	13	7	20
History & Philosophy	History	87	43	130
	History - Teaching	1	0	1
	History/Geography Comp Maj	2	3	5
	Interdisc Environ Sci/Society	57	21	78
	Philosophy	12	8	20
	Social Stu/Economics Comp			
	Maj	1	0	1
	Social Stu/Geography Comp			
	Maj	3	3	6
	Social Stu/History Comp Maj	57	15	72
	Social Stu/Poli Sci Comp Maj	6	1	7
	Social Studies	1	2	3
	Social Studies - Secndry Tchng	1	5	6
Interdiscip Arts & Sciences	Interdisc Environ Sci/Society	2	1	3
	Actuarial Science and			
Mathematics	Economic	20	11	31
	Mathematics	47	13	60
	Mathematics/ConcentrStatistics	7	3	10
	Mathematics-Secondary Educ	36	14	50
Music and Dance	Dance	23	1	24
	Music	40	20	60
	Music Education - Intent	8	2	10
	Music Education, Instrumental	74	10	84

**Eastern Michigan University
Capital Outlay Plan FY2017**

		Music Education, Vocal	20	1	21
		Music Performance	23	4	27
		Music Therapy	61	16	77
Physics and Astronomy		General Science	3	2	5
		Integrated Science Sec Teach	3	4	7
		Physical Science Compr Tchg	0	1	1
		Physics	8	1	9
		Physics - Teaching	3	1	4
		Physics:Engineering	29	10	39
		Physics-Research	18	8	26
		Pre-Engineering	11	0	11
Political Science		International Affairs	51	7	58
		Political Science	137	29	166
		Pre-Law Undeclared	40	5	45
		Public Administration	12	5	17
		Public and Nonprofit Administr	8	2	10
		Public Law and Government	8	2	10
		Public Safety Administration	18	23	41
		Psychology	770	194	964
Sociology/Anthro/Criminology		Anthropology	53	15	68
		Criminology and Criminal Justc	500	114	614
		Sociology	53	17	70
Women's and Gender Studies		Women's and Gender Studies	12	8	20
World Languages		French	6	0	6
		French - Teaching	4	1	5
		German Language and Literature	5	0	5
		Japanese Lang, Cult -Teaching	4	0	4
World Languages (continued)		Japanese Language & Culture	25	12	37
		K12 Certification in French	2	0	2
		K12 Certification in German	2	0	2
		K12 Certification in Spanish	5	0	5
		Language & Int'l Careers	23	9	32
		Language and Internatnl Trade	9	3	12
		Spanish	9	3	12
		Spanish - Teaching	6	1	7
		Actuarial Science and Economic	0	1	1
		(blank)			
	AS Total		5,067	1,464	6,531
BU	Accounting & Finance	Accounting	70	82	152
		Accounting Information Sys-Int	8	1	9
		Accounting Information Systems	6	2	8
		Accounting/Accounting 150 hrs	66	26	92
		Accounting/Accounting 150 Int	2	0	2
		Accounting-Int	172	41	213
		AIS/Accounting 150 hrs	7	1	8
		Finance	62	33	95
		Finance-Intent	106	10	116

**Eastern Michigan University
Capital Outlay Plan FY2017**

Business Administration	Business Administration-Undecl	262	87	349
	International Business	4	0	4
Computer Information Systems	International Business-Intent	41	7	48
	Computer Information Sys-Intnt	55	19	74
Management	Computer Information Systems	30	23	53
	Entrepreneurship	22	9	31
Marketing	Entrepreneurship-Intent	40	15	55
	General Business	20	27	47
	General Business-Intent	115	25	140
	Management	96	73	169
	Management-Intent	126	47	173
	International Bus/Accounting	1	0	1
	International Bus/Economics	0	1	1
	International Bus/Entrepreneur	2	0	2
	International Bus/Finance	1	0	1
	International Bus/Management	7	0	7
	International Bus/Marketing	2	2	4
	International Bus/SupplChnMgmt	4	2	6
	Marketing	117	36	153
	Marketing-Intent	197	48	245
	Supply Chain Management	63	32	95
	SupplyChain Management Intent	47	27	74
University - General Studies	Honors College	1	0	1
BU Total		1,752	676	2,428
ED	Special Education			
	Elem Cognitive Impairment	12	4	16
	Elem Emotional Impairment	1	2	3
	Elem Phy/Other Health Impair	1	1	2
	Elem Speech/Language Impair	3	0	3
	Secdry Cognitive Impairment	39	24	63
	Secdry Emotional Impairment	8	7	15
	Secdry Hearing Impairment	1	0	1
	Secdry Phy/Other Health Impair	3	1	4
	Secdry Speech/Language Impair	3	1	4
	Secdry Visual Impairment	0	2	2
	Special Education-Undeclared	78	18	96
	Speech/Lang Imp – Clinical	102	15	117
Teacher Education	Early Childhood Education	2	0	2
	Elementary Education-Intent	189	72	261
	Integrated Science El Tchg	2	0	2
	Language Arts Group	0	1	1
	Liberal Arts Elementary Tchg	581	218	799
	Reading	0	1	1
	Secondary Education-Intent	137	26	163
	Social Studies Grp for Elem Ed	4	1	5

**Eastern Michigan University
Capital Outlay Plan FY2017**

		Teacher Prep – Elementary	9	7	16
		Teacher Prep – Secondary	14	28	42
ED					
Total			1,189	429	1,618
HH	School of Health Sciences	Clinical Lab Sciences (Clinic)	46	28	74
		Clinical Lab Sciences (Profes)	6	4	10
		Dietetics	34	3	37
		Dietetics-Intent	63	114	177
		Health Administration	76	79	155
		Health Administration Intent	105	51	156
		Pre-OT	196	25	221
		Public Health	49	11	60
		Therapeutic Recreation	105	35	140
		Therapeutic Recreation-Intent	1	0	1
	School of Hlth Prom/Human Perf	Athletic Training	22	3	25
		Athletic Training Educ-Intent	104	11	115
		Exercise Science	33	9	42
		Exercise Science-Intent	142	33	175
		K-12 Physical Education Tchng	7	5	12
		Physical Education	5	7	12
		Physical Education Teaching	9	11	20
		Sport Management	38	16	54
		Sport Management – Intent	122	14	136
		Sport Perf & Fitness Entr	69	8	77
		Sports Medicine-Intent	5	4	9
	School of Nursing	Nursing	232	38	270
		Nursing - 2nd Bachelor	47	17	64
	School of Nursing (continued)	Nursing - BSN Completion	0	184	184
		Nursing (Completion)-Intent	0	7	7
		Nursing Intent	610	165	775
		RN to BSN Nursing	0	50	50
	School of Social Work	Social Work	296	82	378
		Social Work - Intent	241	81	322
HH					
Total			2,663	1,095	3,758
TC	Coll of Technology Interdisc	Technology, Design Education	0	3	3
	School of Engineering Tech	Applied Tech (Transfer)	11	36	47
		Computer Engineering Tech	96	20	116
		Electronic Engineering Technol	64	33	97
		Industrial Technology-Undeclrd	9	6	15
		Mechanical Eng Tech - Intent	118	20	138
		Mechanical Engineering			
		Technol	65	25	90
		Pre-Architecture	4	0	4
		Pre-Engineering	3	0	3
		Product Design & Development	69	23	92
	School of Info Sec & App Comp	Information Assurance	127	72	199
		Information Assurance Intent	2	0	2

Eastern Michigan University

Capital Outlay Plan FY2017

	School of Tech & Prof Serv Mgt	Network, Info Tech Admin Pgm	1	4	5
		Aviation Flight Tech	79	22	101
		Aviation Management Technology	27	15	42
		Bus, Mgmt, Mktg, Tech	2	1	3
		Distribution Oper & Tech Sales	3	4	7
		Hotel and Restaurant Mgmt	74	39	113
		Legal Assistant	20	11	31
		Legal Assistant Intent	17	5	22
		Technology Management	22	76	98
	School of Visual & Built Envmnt	Apparel, Textile Merchandising	69	23	92
		Communication Technology	37	18	55
		Construction Management	85	44	129
		Interior Design	64	11	75
		Pre-Architecture	6	3	9
		Simulation, Animation & Gaming	171	37	208
		TC Total	1,245	551	1,796
AA	Continuing Education University - General Studies	Continuing Education	1	9	10
		Early College Alliance	146	159	305
		ESL Intensive English Language	36	4	40
		Exploratory	8	0	8
		Guest/Self Improvement	30	31	61
		Individualized Studies Program	34	49	83
		Undeclared	900	242	1,142
		AA Total	1,155	494	1,649
		UG Total	13,071	4,709	17,780

Fall 2015 Opening-Term Student Headct
by Student Level, College, Department, Major and Full/Part-Time

GRADUATE			Full-Time	Part-Time	Grand Total
College	Department	Major			
AS	Art	Studio Art – MA	1	9	10
		Studio Art - MFA	12	1	13
		Visual Arts Education	0	6	6
	Biology	Biology General	3	11	14
		Ecology, Evolution & Organ Bio	4	10	14
		Molecular/Cellular Biology	7	12	19
		Chemistry	5	23	28
	Comm, Media & Theatre Arts	Chemistry	5	23	28
		Applied Drama/Theatre Young	4	3	7

**Eastern Michigan University
Capital Outlay Plan FY2017**

	Arts Administration	1	0	1
	Communication	12	27	39
	Interp/Performance Studies	0	2	2
	Theatre Arts	1	3	4
	Theatre Arts - Arts Admin	0	5	5
	Theatre Arts - Drama/Theat/Yng	3	4	7
	Theatre Arts - General	0	1	1
	Theatre Arts - Interp/Perform	0	2	2
Computer Science	Computer Science	43	19	62
Economics	Applied Economics	7	9	16
	Economics	6	7	13
	Health Economics	2	7	9
	International Econ & Devlpmnt	5	0	5
	Trade & Development	1	0	1
English	Children's Literature	2	7	9
	Creative Writing	3	9	12
	English Linguistics	5	8	13
	English Studies for Teachers	0	6	6
	Literature	6	13	19
	Written Communication	6	13	19
Geography & Geology	Geographic Info Systems	12	15	27
	GIS Professional	0	1	1
	Heritage Interp/Tour/Admin	0	1	1
	Historic Preservation	20	48	68
	Urban and Regional Planning	1	11	12
History & Philosophy	History	6	51	57
	Philosophy	5	5	10
	Social Science	2	4	6
Mathematics	Applied Statistics	2	8	10
	Mathematics	7	13	20
Music and Dance	Music Composition	0	3	3
	Music Education	0	5	5
	Music Performance	5	8	13
	Piano Pedagogy	0	2	2
Physics and Astronomy	Physics	3	8	11
Political Science	Nonprofit Management	0	2	2
	Public Admin Bach/MPA	1	1	2
Political Science (continued)	Public Administration	8	40	48
	Public Land Planning	0	1	1
Psychology	Clinical Behavioral Psychology	15	4	19
	Clinical Psychology	10	10	20
	Clinical Psychology - PhD	14	32	46
	Psychology	1	5	6
Sociology/Anthro/Criminology	Criminology and Criminal Justc	4	15	22
	Cultural Museum Studies	0	2	2
	Schools, Society and Violence	0	3	3
	Sociology	8	4	12
Women's and Gender Studies	Women's and Gender Studies	6	15	21
World Languages	French	0	6	6
	German	1	0	1
	Language and Internatnl Trade	1	0	1

**Eastern Michigan University
Capital Outlay Plan FY2017**

		Spanish	1	11	12
		TESOL	3	22	25
AS Total			275	576	851
BU	Accounting & Finance	Accounting	19	22	41
		Accounting/Accounting 150 hrs	24	11	35
		Accounting/Taxation 150 hrs	2	0	2
		ALS/Accounting 150 hrs	4	1	5
		Taxation	0	2	2
	Business Administration	Business Administration	22	108	130
		Business Analytics	1	2	3
		E-Business	2	5	7
		Enterprise Bus Intelligence	2	2	4
		Entrepreneurship	0	4	4
		Finance	13	30	43
		Human Resources	4	62	66
		Information Systems	5	19	24
		Information Tech Governance	0	1	1
		Internal Auditing	0	2	2
		International Business	0	5	5
		Management	6	25	31
		Marketing	4	20	24
		Nonprofit Management	1	3	4
		Organizational Development	0	15	15
		Sport Management	2	1	3
		Supply Chain Management	9	33	42
	Computer Information Systems Management	Information Systems	40	19	59
		Entrepreneurship	1	9	10
		Human Resource/Org Dev- China	30	0	30
		Human Resource/Org Develpmnt	16	74	90
	Marketing	Integrated Marketing Comm	20	40	60
BU Total			227	515	742
ED	Leadership & Counseling	Academic Advising	0	6	6
		Basic School Admin	0	27	27
		Clinical Mental Health Counsel	6	30	36
		College Counseling	4	10	14
		Educational Leadership	0	146	146
		Higher Ed General Admin	1	9	10
		Higher Ed Student Affairs	44	60	104
		K12 Administration	9	88	97
		School Counseling	4	31	35
	Special Education	Autism Spectrum Disorders	2	28	30
		Cognitive Impairment	0	12	12
		Emotionally Impaired	2	9	11
		Hearing Impaired	0	1	1
		Learning Disabilities	0	25	25
		Learning Disabled/Emot Imp	0	1	1

**Eastern Michigan University
Capital Outlay Plan FY2017**

		Physic,Otherwise Hlth Impaired	1	3	4
		SEM-T EI Ed Cognitive Impair	9	6	15
		SEM-T EI Ed Emotional Impair	3	2	5
		SEM-T EI Ed Hearing Impair	1	0	1
		SEM-T Sec Ed Cognitive Impair	5	4	9
		SEM-T Sec Ed Emotional Impair	0	3	3
		Sp Ed Admin & Supervision	0	21	21
		Special Education	1	6	7
		Speech & Language Pathology	83	25	108
	Teacher Education	Curriculum & Instruction	0	29	29
		Early Childhood Education	1	38	39
		Ed Psy - Developing Learner	0	1	1
		Educational Assessment	0	2	2
		Educational Media & Technology	1	41	42
		Educational Psychology	3	40	43
		Educational Studies	0	35	35
		Elementary Education	1	3	4
		Online Teaching	0	1	1
		Prof Cert Elementary Ed	0	2	2
		Prof Cert Secondary Ed	0	2	2
		Reading	4	35	39
		Scdary Tchng - Int Sci Conc	4	0	4
		Secdry Tchng - Bio Conc	1	1	2
		Secdry Tchng - Engl Conc	4	1	5
		Secdry Tchng - Math Conc	0	1	1
		Secondary School Teaching	0	3	3
		Social Foundations	0	16	16
		Teacher Certification Renewal	1	6	7
		Teacher Endorsement	2	13	15
		Urban/Diversity Education	0	4	4
	(blank)	Speech & Language Pathology	1	0	1
ED Total			198	827	1,025
HH	School of Health Sciences	Clinical Research Admin	6	20	26
		Combined OT (BS/MOT)	18	1	19
		Dementia	0	1	1
		Dietetics	34	1	35
		Gerontology	0	4	4
		Good Clinical Practices	0	2	2
		Health Administration	9	51	60
		Health Informatics	0	1	1
		Human Nutrition	8	34	42
		Occupational Therapy	42	0	42
	School of Hlth Prom/Human Perf	Exercise Physiology	10	31	41
		Health Education	2	25	27
		Orthotics/Prosthetics	38	1	39
		Physical Education Pedagogy	0	4	4
		Physician Assistant Studies	29	19	48

**Eastern Michigan University
Capital Outlay Plan FY2017**

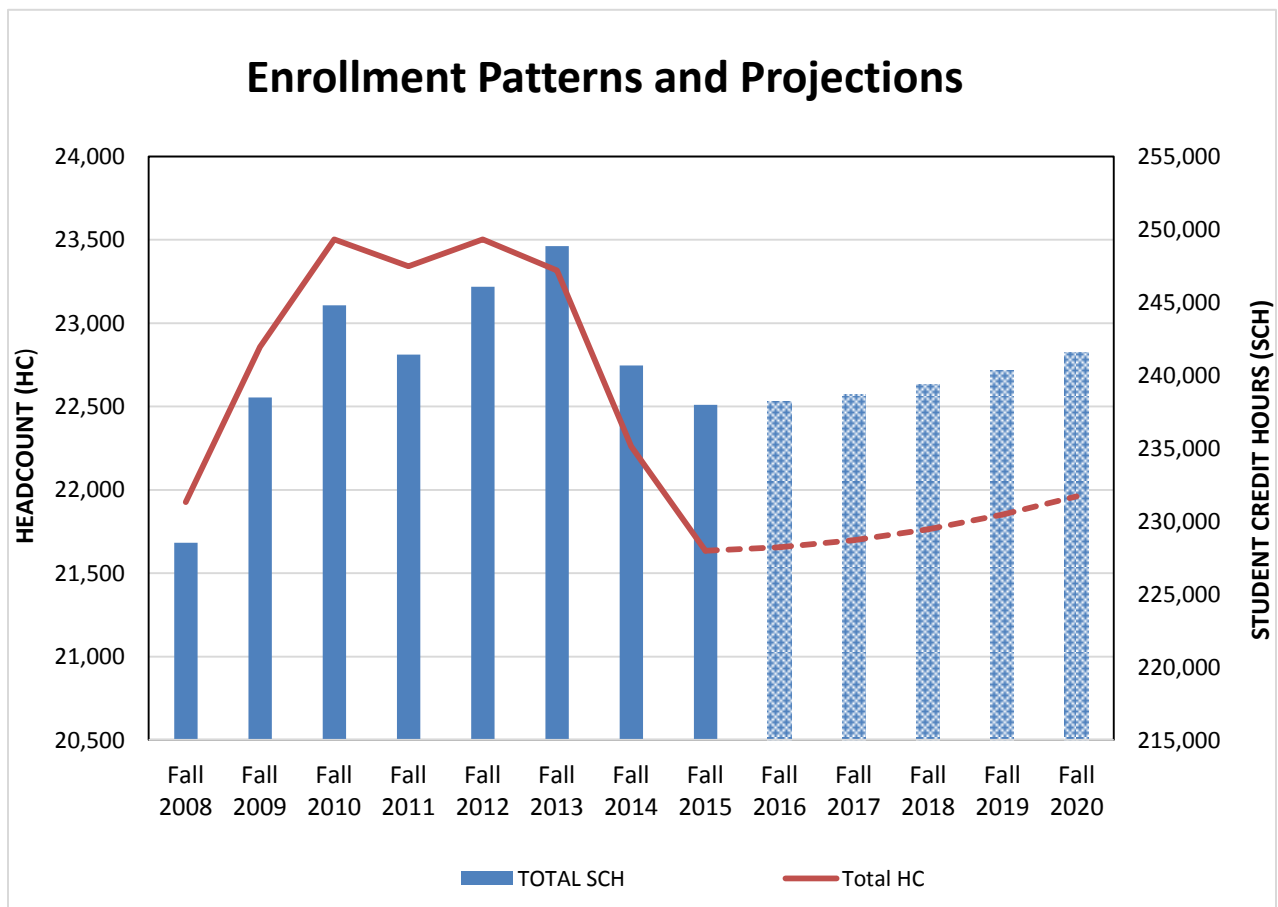
		Sport Management	18	27	45
	School of Nursing	Nursing	6	20	26
	School of Social Work	Family & Children's Services	4	97	101
		Mental Health & Chemical Dep	3	94	97
		Services to the Aging	2	28	30
HH Total			229	461	690
TC	Coll of Technology Interdisc	Technology Doctorate	13	44	57
	School of Engineering Tech	Computer Aided Engineering	13	11	24
		Engineering Management	23	66	89
		Polymer Technology	0	2	2
		Polymers and Coatings			
		Technlgy	3	18	21
		Project Leadership	0	1	1
		Quality	1	2	3
		Quality Management	3	59	62
	School of Info Sec & App				
	Comp	Information Assurance Mgmt	0	1	1
	School of Tech & Prof Serv				
	Mgt	Hotel and Restaurant Mgmt	0	6	6
		Technology Studies	8	84	92
	School of Visual & Built				
	Envmt	Apparel, Textile Merchandising	1	13	14
		Construction Management	7	10	17
		Interior Design	13	4	17
TC Total			85	321	406
AA	Continuing Education	Continuing Education	2	41	43
	Graduate Studies - University	Undeclared	8	70	78
	Undeclared	Undeclared	1	2	3
	University - General Studies	Guest/Self Improvement	5	11	16
AA Total			16	124	140
GR Total			1,030	2,824	3,854
GRAND TOTAL			14,101	7,533	21,634

Eastern Michigan University Capital Outlay Plan FY2017

ENROLLMENT PATTERNS

Eastern Michigan University expects to see student enrollment remain steady and then increase slowly over the course of the next five years. Despite some decrease in total enrollment in recent years, the undergraduate enrollment of First-Time in Any College (FTIAC) students has seen rather large increases compared to prior years, which has set up a foundation for potential growth in total enrollment. We expect to see the significant increase of FTIAC students to have a long-term impact on the overall student credit hours for the next few years. The fast expansion of our Honors College provides positive momentum to improve student's persistence. Additionally, EMU has launched high-demand new programs, such as Physician Assistant and online RN to BSN programs. Several other new online programs are already in the planning phase. Total enrollment is expected to increase around 1.5% for the next five years.

PRIOR ENROLLMENT PATTERNS



**Eastern Michigan University
Capital Outlay Plan FY2017**

Fall Headcount Enrollment			Fall Credit Hours	
Term	Undergraduate Students	Graduate Students	Undergraduate Credit Hours	Graduate Credit Hours
Fall 2011	18,621	4,820	217,690	25,120
Fall 2012	18,927	4,620	222,369	24,762
Fall 2013	19,189	4,288	226,565	23,545
Fall 2014	18,340	4,090	218,636	23,279
Fall 2015	17,780	3,854	215,145	22,820

Term	New FTIAC
Fall 2011	2,130
Fall 2012	2,595
Fall 2013	2,872
Fall 2014	2,555
Fall 2015	2,857

AVERAGE CLASS SIZE

The average class size is based on total course enrollment divided by the total number of course sections, excluding courses which are lecture-based or involve individual advising. The decrease of undergraduate enrollment in 2011 had impacted the average class size, while the steady increase of FTIAC students in recent years contributed to the slight increase of class size. Overall it has remained at a stable rate for the past five years.

Fall Terms	Average Class Size
2015	23.5
2014	23.1
2013	23.4
2012	22.9
2011	22.0

The expected increase in enrollment over the next few years combined with the number of distance-learning courses being taught may negate any increase in the overall class size in future years.

Eastern Michigan University

Capital Outlay Plan FY2017

INSTRUCTIONAL STAFF/STUDENT AND ADMINISTRATIVE STAFF/STUDENT RATIOS

Eastern Michigan University
Full-Time-Equated (FTE)
Faculty, Staff, and Students
Fall 2014 Official Record

FACULTY FTE			Total	Ratio
College Description	FT Headcount	PT FTE	Faculty FTE	Student FTE to Faculty FTE
College of Arts & Sciences	408	122.33	530.33	12.20
College of Business	84	9.33	9.33	26.54
College of Education	83	7.33	90.33	23.19
College of Health & Human Serv	113	47.67	160.67	22.67
College of Technology	57	12.67	69.67	25.87
Grand Total	745	199.33	944.33	18.91

Instructional Faculty FTE includes full-time faculty, full-time lecturers, instructional part-time lecturers, and instructional graduate assistants. It does not include Library personnel.

Full-time Headcount equals 1 FTE

Part-time FTE equals the number of headcount divided by three.

STAFF FTE			Total	Ratio
College Description	FT Headcount	PT FTE	Staff FTE	Student FTE to Staff FTE
College of Arts & Sciences	70	136.45	206.45	31.34
College of Business	16	25.58	41.58	59.57
College of Education	25	22.22	47.22	44.36
College of Health & Human Serv	23	23.12	46.12	78.99
College of Technology	11	17.66	28.66	62.89
Grand Total	145	225.03	370.03	48.25

Instructional Staff FTE includes administrative, professional-technical, clerical, non-instructional

Part-time Lecturers (Adjuncts), and non-instructional graduate assistants. It does not include Library personnel.

Full-time Headcount equals 1 FTE.

Part-time FTE equals the sum of the percent of appointments.

STUDENT FTE			Total
College Description	FT Headcount	PT FTE	Student FTE
College of Arts & Sciences	5,438	1,031.22	6,469.22
College of Business	1,947	530.08	2,477.08
College of Education	1,532	562.82	2,094.82
College of Health & Human Serv	2,865	777.90	3,642.90
College of Technology	1,386	416.37	1,802.37
Academic Affairs	977	391.93	1,368.93
Grand Total	14,145	3,710.32	17,855.32

FT Student Headcount equals 1 FTE

PT Student FTE equals the total number of credit hours divided by the number of hours for the semester

All undergraduate credit hours were divided by 15 and all graduate credit hours were divided by 12

Eastern Michigan University makes great effort to improve institutional effectiveness and operational efficiency. One of the four overarching themes in the EMU's new strategic plan is

Eastern Michigan University
Capital Outlay Plan FY2017

institutional effectiveness. As part of this effort, EMU constantly assesses its staffing needs based on enrollment, and delivery method of education. It is expected that EMU will maintain a relatively stable number of staff members, with some increase of full-time faculty. On-line courses and degree offering will continue to grow, which may shift some priorities of staffing in support units.



FACILITY ASSESSMENT

EXECUTIVE SUMMARY

BUILDING AND CLASSROOM UTILIZATION RATES

ARCHITECTURAL SYSTEMS

MECHANICAL SYSTEMS

ELECTRICAL SYSTEMS (BUILDINGS)

ELEVATOR SYSTEMS

FIRE PROTECTION SYSTEMS

ELECTRIC SUPPLY AND DISTRIBUTION SYSTEMS

SITE WORK AND DRAINAGE SYSTEMS

ENERGY PLAN GOALS

ROADS, PARKING LOTS AND STRUCTURES

Eastern Michigan University Capital Outlay Plan FY2017

EXECUTIVE SUMMARY

The Physical Plant department at Eastern Michigan University continues to develop and implement what is clearly stated in our motto: “providing an environment for education first”.

Our comprehensive approach to managing the facilities portfolio starts with conceptual campus planning reflective of our collegian mission. We recognize and embrace the benefits of efficiency, by constructing, augmenting and maintaining facilities that are functional, adaptable and energy efficient. This results in the implementation of construction and renovation projects that take into consideration all the operational aspects of building and facilities management for years to come.

Our administrative team understands the real constraints associated with available funding and recognizes the potential to financially neglect the facility’s needs to meet available budget funding. Consequently, we have collectively formulated a plan to prioritize and balance our facility’s needs with budget. This remains a prudent path to take, both financially and operationally.

The tendency to ignore or postpone the needs of the University’s physical assets as we go through these times of fiscal constraint is recognized by this same team. In support of our mission today, and for years to come, our team emphasizes and promotes the need to retain a realistic financial commitment to the relative long-term soundness and effectiveness of our facilities.

By establishing a detailed base line database that is reflective of our existing facilities conditions, we have completed the essential first step in developing a sound facilities management strategy. Our database is well organized, realistic, defensible, and is used as our foundation to plan, fund and execute realistic and meaningful facilities improvements for the benefit of our students, faculty and staff.

As a part of a continuous improvement process, all identification and documenting of existing conditions of University equipment and building components continues to be recorded within the Asset Preservation module of our Computerized Maintenance Management System. Hence, the establishment of our detailed base line database that is reflective of our existing facilities conditions.

It is important to emphasize that we have field verified this deferred maintenance calculation by undergoing a rigorous review of the existing facilities conditions. This auditing process continues to be ongoing and that any adjustments that were made within this Capital Outlay submission were based on actual conditions found.

This Capital Outlay submission, as with others in the past, is inclusive of projects of over \$1M dollars in capital that is considered essential for the day to day operations of the University’s facilities. Mandated actions, required for code compliance, such as the testing of life safety

Eastern Michigan University Capital Outlay Plan FY2017

equipment, and in some cases chemical treatments that are required to operate and maintain essential equipment and building components, have been itemized and included within this report.

Lastly, as was mentioned in previous submissions, a significant reduction in deferred maintenance was accomplished with the \$90 million self-funded Mark Jefferson Science Complex Project and the State supported Pray-Harold Building Renovation. These two projects have made a significant dent into the University's deferred maintenance schedule. While we continue to work towards reduction of deferred maintenance through smaller local capital efforts such as out renovation of Rackham Hall and the Sculpture Studio, our goal now is to continue this significant reduction in deferred maintenance by modernizing Strong Hall. Strong Hall presents the largest liability of deferred maintenance needs on campus.

**Eastern Michigan University
Capital Outlay Plan FY2017**

BUILDING AND CLASSROOM UTILIZATION RATES

Identify building/classroom usage rates for peak (M-F, 10-3), and off-peak (M-F, 8-10am, 3-5pm), evening, and weekend periods.

During 2008 and 2009, a Space Utilization study was conducted regarding building and classroom utilization rates; that is, the percentage of rooms used and the percentage that are at capacity relative to academic facilities. Results of the study, based on student enrollment counts from the Fall 2007 semester are as follows:

	<u>Average %</u>	<u>Range in %</u>
Peak Hours (M to F, 10 am to 3 pm)	63% ¹	5% (F at 3) to 78% (T at 11)
Non Peak Mornings (M to F, 8 to 10 am)	36%	16% (F at 8) to 60% (T at 9:30)
Non-Peak Afternoon (M to F, 3 to 5 pm)	46% ²	5% (F at 3) to 63% (T at 3)
Non-Peak Evenings (M to F, after 5 pm)	50% ³	4% (F at 8) to 75% (T at 6:30)
Non-Peak Weekends (Sat. and Sun.)	3%	0% to 10% (St at 10)

Notes: ¹ = Classes are primarily scheduled Monday through Thursday, which for the same time period has an average utilization rate of 71%. The Friday utilization is significantly lower due to fewer classes on these days.

² = Classes are primarily scheduled Monday through Thursday, which for the same time period has an average utilization rate of 57%. The Friday utilization is significantly lower due to fewer classes on these days.

³ = Classes are primarily scheduled Monday through Thursday, which for the same time period has an average utilization rate of 61%. The Friday utilization is significantly lower due to fewer classes on these days.

In Fall 2009, the overall University average seat capacity in classrooms is 71%. The consultant preparing this study indicated that “when an institution reaches and exceeds the 80% level of classroom use, the more difficult it becomes to find available classrooms in the right geographical locations with the right classroom capacities.”

Due to the construction activities of the two largest classroom buildings on campus during the time of this study (Pray-Harrold and Mark Jefferson), the Space Utilization rates are slightly skewed to heavier uses than normal conditions. Furthermore, a centralized room scheduling system has been implemented and the utilization rates classroom seat capacities is estimated over 80% for traditional classrooms. We anticipate a more naturalized utilization rate can be developed in future studies, and indeed preliminary data indicates this trend. Examples of increased and adjusted utilization rates include:

	<u>Average % Occupancy for Fall 2011</u>
Peak Hours (M to F, 10 am to 3 pm)	95% rooms scheduled for use
Non Peak Mornings (M to F, 8 to 10 am)	77% of rooms scheduled for use

Eastern Michigan University Capital Outlay Plan FY2017

**General Fund Building
Age / Replacement Report
Table 1**

<i>Name</i>	<i>Primary Use</i>	<i>Floors</i>	<i>Sq./ft.</i>	<i>Date Built</i>	<i>Architectural</i>	<i>Mechanical</i>	<i>Electrical</i>	<i>2017 Building Replacement Value</i>
Mark Jefferson**	academic	5	262,273	1969	2011	2011	2011	\$ 120,546,711
Halle Library	academic	5	273,715	1998	1998	1998	1998	87,154,988
Pray Harrold	academic	7	237,108	1967	2011	2011	2011	75,498,767
Owen C.O.B**	academic	5	126,000	1990	1990	1990	1990	48,522,805
John W. Porter	academic	3	143,775	1966	1999	1999	1999	45,780,131
Warner	academic	2	95,349	1964	1964	1964	1964	30,360,561
Sill Hall	academic	2	92,635	1965	1965	1965	1965	29,496,382
Alexander	academic	4	86,900	1980	1980	1998	1980	27,670,272
Strong	academic	3	80,713	1957	1957	1957	1957	25,700,238
Roosevelt	academic	2	75,639	1924	1973	1973	1973	24,084,600
Everett C. Marshall	academic	3	70,324	2000	2000	2000	2000	22,392,223
Quirk	academic	2	58,205	1959	1959	1959	1959	18,533,351
Rackham***	academic	2	45,890	1938	2015	2015	2015	14,612,069
Sherzer	academic	3	35,253	1903	1990	2011	1990	11,225,087
Ford Hall	academic	2	33,333	1929	1968	1968	1968	10,613,730
Kresge Center	academic	1	12,606	1974	1974	1974	1974	4,013,941
Paint Research**	academic	1	8,000	1987	1987	1987	1987	3,556,157
Briggs	academic	1	9,500	1937	1990	1990	1990	3,024,943
Greenhouse & Aquatic Biology	academic	1	5,200	1998	1998	1998	1998	1,655,758
Sculpture Studio***	academic	1	4,648	1959	2015	2015	2015	1,479,993
Honors College	academic	2	21,405	1965	2005	2005	2005	950,000
Rynearson Stadium	non-academic	1	49,595	1968	1968	1968	2005	78,750,000
Convocation Center	non-academic	3	198,385	1998	1998	1998	1998	63,168,779
Heating Plant**	non-academic	3	23,856	1951	1951	1951	1951	52,940,417
McKenny	non-academic	4	107,103	1931	1992	1992	1992	34,103,212
Bowen	non-academic	2	89,220	1955	1955	1955	1955	28,408,995
King	non-academic	4	61,450	1939	1939	1939	1939	21,725,619
Pierce Hall	non-academic	4	61,275	1948	1990	1990	1990	19,510,885
Boone Hall	non-academic	3	45,210	1914	2000	2000	2000	14,395,547
Snow**	non-academic	2	30,035	1959	1959	1959	1959	13,684,927
Welch Hall	non-academic	4	36,840	1896	1986	1986	1986	11,730,412
Pease	non-academic	2	30,181	1914	1994	1994	1994	9,610,086
Physical Plant	non-academic	1	25,300	1995	1995	1995	1995	8,055,902
Hover***	non-academic	2	11,021	1941	2002	2002	2002	4,897,418
Team Building	non-academic	1	13,536	1995	1995	1995	1995	4,310,067
University House	non-academic	2	10,700	2003	2003	2003	2003	4,085,330
Central Stores	non-academic	1	10,140	1972	1972	1972	1972	3,228,729
Starkweather Hall	non-academic	2	8,706	1896	1996	1991	1991	2,772,122
Oestrike Stadium**	non-academic	1	1,312	1968	1968	1968	1968	2,201,989
Central Operations	non-academic	1	5,665	1969	2012	2012	2012	1,415,000
611 W. Cross Street	non-academic	2	4,050	1970	1970	1970	1970	1,289,581
School House**	non-academic	1	900	1905	1988	1988	1988	798,591
emu House	non-academic	2	1,434	1925	2014	2014	2014	215,000
TOTAL			2,604,385					\$ 988,171,316
							Average Cost/sq. ft.	\$ 379

Average Year Built	1957			
Average Building Age (Years)	58			
Average Year Built Weighted by Sq. Ft.	1966	1989	1990	1990
Average Age Weighted by Sq. Ft. (Years)	49	26	25	25
Average Architectural, Elect., Mech. (Years)	25			

**** Indicates Unique Building Replacement Costs**

*****Recent Major Renovation/Addition**

Note:

Replacement costs reflect the cost to replace a building with "like-kind" systems. They do not include system upgrades to deliver more sophisticated curriculum or the "soft costs" and staging/phasing costs.

**Eastern Michigan University
Capital Outlay Plan FY2017**

**Building Deficiencies Priorities by Category
Table 2**

I. Urgent

1. If not accomplished, will jeopardize the continued usefulness of the facility and may result in serious and irrevocable loss or damage

II. Required

1. If not accomplished, may jeopardize the continued usefulness of the facility

**Eastern Michigan University
Capital Outlay Plan FY2017**

Table 3

General Fund Building Deficiency Cost Summary for FY 2017 by System

	<u>Architectural</u>	<u>Electrical</u>	<u>Elevators</u>	<u>Fire Protection</u>	<u>Mechanical</u>	<u>Site Work</u>	<u>Total</u>
General Fund Buildings	\$69,526,500	\$56,282,000	\$4,246,000	\$26,263,500	\$84,986,500	\$24,453,500	\$265,758,000

General Fund Building Deficiencies Cost Summary for FY 2017 by Priority

<u>Table 3 Rating System</u>	<u>Urgent</u>	<u>Required</u>	<u>Total</u>
Total Campus Deficiencies Incl; Sitework, Drains & Utility	\$178,435,500	\$87,322,500	\$265,758,000

Eastern Michigan University Capital Outlay Plan FY2017

General Fund Building Deficiency Cost Summary by System Table 4

Building	Primary Use	Architectural	Electrical	Elevators	Life Safety	Mechanical	Site Work	Grand Total
Strong	academic	\$ 10,416,000	\$ 4,440,000	\$ 410,000	\$ 2,712,000	\$ 6,989,000	\$ 110,000	\$ 25,077,000
Warner	academic	7,631,000	3,270,000	-	1,030,000	6,466,000	-	18,397,000
Owen C.O.B.	academic	3,925,000	1,005,000	315,000	1,008,000	5,711,000	470,000	12,434,000
Sill Hall	academic	3,257,000	1,340,000	270,000	2,325,000	4,610,000	-	11,802,000
Alexander	academic	6,535,000	665,000	270,000	82,000	2,031,500	-	9,583,500
Roosevelt	academic	3,339,000	525,000	-	980,000	3,000,000	160,000	8,004,000
Quirk	academic	1,789,000	1,013,000	82,000	505,000	1,590,000	105,000	5,084,000
Ford Hall	academic	1,089,000	1,525,000	-	485,000	1,597,000	-	4,696,000
Halle Library	academic	1,290,000	265,000	770,000	122,000	482,000	-	2,929,000
Sherzer	academic	1,864,000	109,000	80,000	357,000	-	-	2,410,000
John W. Porter	academic	125,000	160,000	78,000	55,000	1,575,000	-	1,993,000
Pray Harrold	academic	162,000	50,000	430,000	-	593,000	-	1,235,000
Briggs	academic	800,000	-	-	214,000	178,000	-	1,192,000
Kresge Center	academic	445,000	130,000	-	139,000	55,000	65,000	834,000
Paint Research	academic	223,000	-	-	53,000	530,000	-	806,000
Rackham	academic	-	-	-	-	750,000	-	750,000
Mark Jefferson	academic	81,000	154,000	315,000	55,000	-	-	605,000
Everett C. Marshall	academic	485,000	35,000	27,000	55,000	-	-	602,000
Greenhouse & Aquatic Biology	academic	172,000	63,000	-	78,000	250,000	-	563,000
Honors College	academic	175,000	50,000	-	150,000	100,000	-	475,000
Sculpture Studio	academic	-	-	-	-	-	-	-
Campus	non-academic	4,429,000	18,567,000	-	5,207,000	9,562,000	21,749,000	59,514,000
Heating Plant	non-academic	1,192,000	6,616,000	-	925,000	15,350,000	65,000	24,148,000
King	non-academic	2,480,000	1,800,000	275,000	1,570,000	5,527,000	-	11,652,000
McKenny	non-academic	515,000	1,885,000	285,000	2,155,000	5,903,000	-	10,743,000
Welch Hall	non-academic	3,363,000	595,000	82,000	1,682,000	1,825,000	117,000	7,664,000
Bowen	non-academic	1,058,000	4,010,000	85,000	360,000	2,145,000	-	7,658,000
Snow	non-academic	3,040,000	188,000	-	825,000	3,120,000	-	7,173,000
Pierce Hall	non-academic	782,000	1,625,000	157,000	890,000	1,403,000	-	4,857,000
Starkweather Hall	non-academic	1,844,000	847,000	-	324,000	1,460,000	-	4,475,000
Rynearson Stadium	non-academic	1,492,000	1,865,000	78,000	365,000	-	575,000	4,375,000
Pease	non-academic	1,667,000	705,000	162,000	417,000	597,000	-	3,548,000
Convocation Center	non-academic	910,000	1,898,000	-	110,000	343,000	-	3,261,000
University House	non-academic	1,182,000	375,000	-	-	177,000	472,000	2,206,000
Team Building	non-academic	748,000	92,000	-	109,000	386,000	542,000	1,877,000
Physical Plant	non-academic	105,000	114,000	-	42,000	418,000	-	679,000
611 W. Cross Street	non-academic	220,000	57,000	-	137,000	27,000	-	441,000
Oestrike Stadium	non-academic	278,000	26,000	-	135,000	-	-	439,000
Boone Hall	non-academic	84,000	-	-	325,000	-	-	409,000
Central Operations	non-academic	50,000	150,000	-	-	200,000	-	400,000
Hover	non-academic	55,000	-	75,000	162,000	36,000	-	328,000
Central Stores	non-academic	145,000	68,000	-	55,000	-	-	268,000
School House	non-academic	68,000	-	-	52,000	-	-	120,000
emu House	non-academic	16,500	-	-	11,500	-	23,500	51,500

Total Building Deficiencies	\$ 69,526,500	\$ 56,282,000	\$ 4,246,000	\$ 26,263,500	\$ 84,986,500	\$ 24,453,500	\$ 265,758,000
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Eastern Michigan University Capital Outlay Plan FY2017

General Fund Building Deficiency Cost Summary by Priority Table 5

Building	Primary Use	Urgent	Required	Grand Total
Strong	academic	\$ 25,077,000	\$ -	\$ 25,077,000
Warner	academic	12,943,000	5,454,000	18,397,000
Owen	academic	9,633,000	2,801,000	12,434,000
Sill Hall	academic	4,615,000	7,187,000	11,802,000
Alexander	academic	2,832,000	6,751,500	9,583,500
Roosevelt	academic	3,431,000	4,573,000	8,004,000
Quirk	academic	2,309,000	2,775,000	5,084,000
Ford Hall	academic	2,032,000	2,664,000	4,696,000
Halle Library	academic	160,000	2,769,000	2,929,000
Sherzer	academic	1,401,000	1,009,000	2,410,000
Porter	academic	55,000	1,938,000	1,993,000
Pray Harrold	academic	646,000	589,000	1,235,000
Briggs	academic	487,000	705,000	1,192,000
Kresge Center	academic	520,000	314,000	834,000
Paint Research	academic	173,000	633,000	806,000
Rackham	academic	-	750,000	750,000
Mark Jefferson	academic	-	605,000	605,000
Marshall	academic	485,000	117,000	602,000
Greenhouse & Aquatic Biology	academic	370,000	193,000	563,000
Honors College	academic	325,000	150,000	475,000
Sculpture Studio	academic	-	-	-
Campus	non-academic	57,464,000	2,050,000	59,514,000
Heating Plant	non-academic	2,876,000	21,272,000	24,148,000
King	non-academic	10,382,000	1,270,000	11,652,000
McKenny	non-academic	8,658,000	2,085,000	10,743,000
Welch Hall	non-academic	2,417,000	5,247,000	7,664,000
Bowen	non-academic	4,663,000	2,995,000	7,658,000
Snow	non-academic	6,363,000	810,000	7,173,000
Pierce Hall	non-academic	2,267,000	2,590,000	4,857,000
Starkweather Hall	non-academic	2,640,000	1,835,000	4,475,000
Rynearson Stadium	non-academic	4,299,000	76,000	4,375,000
Pease	non-academic	2,789,000	759,000	3,548,000
Convocation Center	non-academic	2,868,000	393,000	3,261,000
University House	non-academic	1,494,000	712,000	2,206,000
Team Building	non-academic	787,000	1,090,000	1,877,000
Physical Plant	non-academic	-	679,000	679,000
611 W. Cross Street	non-academic	167,000	274,000	441,000
Oestrike Stadium	non-academic	213,000	226,000	439,000
Boone Hall	non-academic	-	409,000	409,000
Central Operations	non-academic	150,000	250,000	400,000
Hover	non-academic	162,000	166,000	328,000
Central Stores	non-academic	213,000	55,000	268,000
One Room School House	non-academic	52,000	68,000	120,000
emu House	non-academic	17,500	34,000	51,500
Total Campus Deficiencies		\$ 178,435,500	\$ 87,322,500	\$ 265,758,000

Eastern Michigan University Capital Outlay Plan FY2017

Total System Deficiencies by Building Age Table 6

Building Name	Primary Use	Building Sq. Ft.	Year Built	2017 Building Replacement Value	Anticipated 2017 Backlog Deficiency	Facility Condition Index
<u>Before 1900</u>						
Starkweather Hall	non-academic	8,706	1896	\$ 2,772,122	\$ 4,475,000	1.61
Welch Hall	non-academic	36,840	1896	11,730,412	7,664,000	0.65
Total		45,546		\$ 14,502,534	\$ 12,139,000	
<u>1900-1949</u>						
Ford Hall	academic	33,333	1929	\$ 10,613,730	\$ 4,696,000	0.44
Briggs	academic	9,500	1937	3,024,943	1,192,000	0.39
Roosevelt	academic	75,639	1924	24,084,600	8,004,000	0.33
Sherzer	academic	35,253	1903	11,225,087	2,410,000	0.21
Rackham	academic	45,890	1938	14,612,069	750,000	0.05
King	non-academic	61,450	1939	21,725,619	11,652,000	0.54
emu House	non-academic	1,434	1925	215,000	91,500	0.43
Pease	non-academic	30,181	1914	9,610,086	3,548,000	0.37
McKenny	non-academic	107,103	1931	34,103,212	10,743,000	0.32
Pierce Hall	non-academic	61,275	1948	19,510,885	4,857,000	0.25
School House	non-academic	900	1905	798,591	120,000	0.15
Hover	non-academic	11,021	1941	4,897,418	328,000	0.07
Boone Hall	non-academic	45,210	1914	14,395,547	409,000	0.03
Total		518,189		\$ 168,816,787	\$ 48,800,500	
<u>1950-1969</u>						
Strong	academic	80,713	1957	\$ 25,700,238	\$ 25,077,000	0.98
Warner	academic	95,349	1964	30,360,561	18,397,000	0.61
Honors college	academic	21,405	1965	950,000	475,000	0.50
Sill Hall	academic	92,635	1965	29,496,382	11,802,000	0.40
Quirk	academic	58,205	1959	18,533,351	5,084,000	0.27
John W. Porter	academic	143,775	1966	45,780,131	1,993,000	0.04
Pray Harrold	academic	237,108	1967	75,498,767	1,235,000	0.02
Mark Jefferson	academic	262,273	1969	120,546,711	605,000	0.01
Sculpture Studio	academic	4,648	1959	1,479,993	-	-
Snow	non-academic	30,035	1959	13,684,927	7,173,000	0.52
Heating Plant	non-academic	23,856	1951	52,940,417	24,148,000	0.46
Central Operations	non-academic	5,665	1969	1,415,000	400,000	0.28
Bowen	non-academic	89,220	1955	28,408,995	7,658,000	0.27
Oestrike Stadium	non-academic	1,312	1968	2,201,989	439,000	0.20
Rynearson Stadium	non-academic	49,595	1968	78,750,000	4,375,000	0.06
Total		1,195,794		\$ 525,747,462	\$ 108,861,000	
<u>1970-1979</u>						
Kresge Center	academic	12,606	1974	\$ 4,013,941	\$ 834,000	0.21
611 W. Cross Street	non-academic	4,050	1970	1,289,581	441,000	0.34
Central Stores	non-academic	10,140	1972	3,228,729	268,000	0.08
Total		26,796		\$ 8,532,251	\$ 1,543,000	
<u>1980-1989</u>						
Alexander	academic	86,900	1980	\$ 27,670,272	\$ 9,583,500	0.35
Paint Research	academic	8,000	1987	3,556,157	806,000	0.23

Eastern Michigan University Capital Outlay Plan FY2017

Total		94,900		\$	31,226,429	\$	10,389,500	
<u>1990-1999</u>		-						
Greenhouse & Aquatic Biology	academic	5,200	1998	\$	1,655,758	\$	563,000	0.34
Owen C.O.B.	academic	126,000	1990		48,522,805		12,434,000	0.26
Halle Library	academic	273,715	1998		87,154,988		2,929,000	0.03
Team Building	non-academic	13,536	1995		4,310,067		1,877,000	0.44
Physical Plant	non-academic	25,300	1995		8,055,902		679,000	0.08
Convocation Center	non-academic	198,385	1998		63,168,779		3,261,000	0.05
Total		642,136		\$	212,868,299	\$	21,743,000	
<u>Post 2000</u>		-						
Everett C. Marshall	academic	70,324	2000	\$	22,392,223	\$	602,000	0.03
University House	non-academic	10,700	2003		4,085,330		2,206,000	0.54
Total		81,024		\$	26,477,554	\$	2,808,000	
<u>Sitework, Drains, & Infrastructure</u>		-						
Campus	non-academic	n/a	n/a		n/a	\$	59,514,000	#N/A
Total		n/a			n/a	\$	59,514,000	
Total Building Deficiencies		2,604,385		\$	988,171,316	\$	265,798,000	

Eastern Michigan University Capital Outlay Plan FY2017

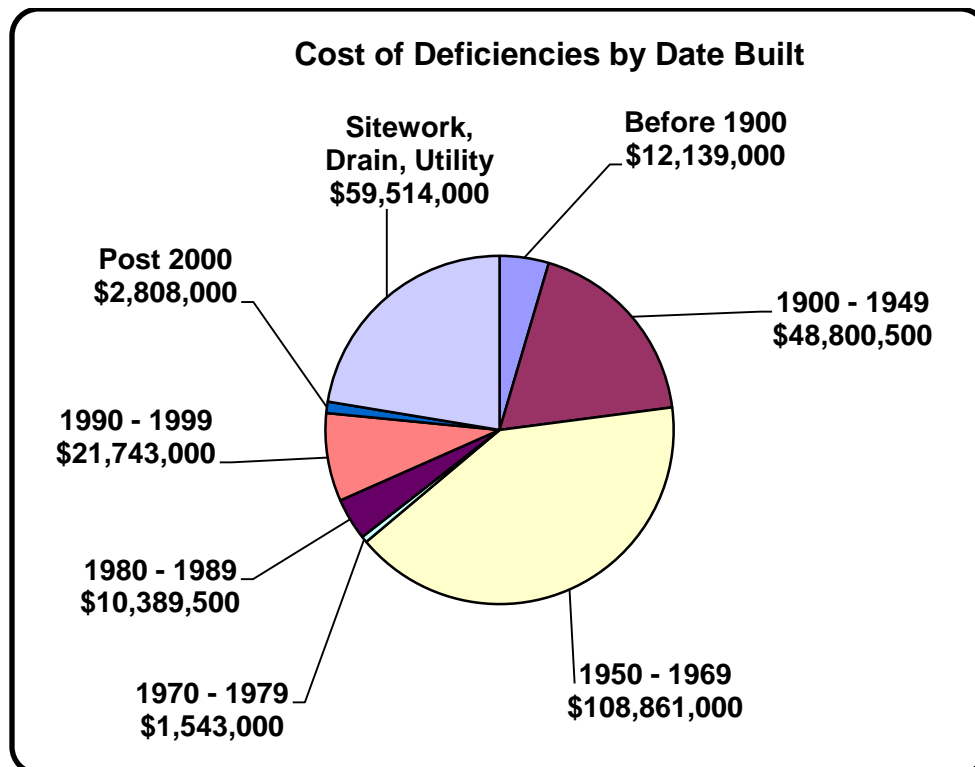
Building System Deficiencies by Age Table 7

General Fund Building Profile Data

Total number of General Fund Facilities	43
Current Replacement Value	\$ 988,171,316
Total Gross Sq. ft.	2,604,385
Total Cost of General Fund Building Deficiencies (to date)	\$ 265,798,000

General Fund Building Age Summary

Date Built	No. of Facilities	Gross Sq. Ft.	Cost of Deficiencies
Before 1900	2	45,546	12,139,000
1900 - 1949	13	518,189	48,800,500
1950 - 1969	15	1,195,794	108,861,000
1970 - 1979	3	26,796	1,543,000
1980 - 1989	2	94,900	10,389,500
1990 - 1999	6	642,136	21,743,000
Post 2000	2	81,024	2,808,000
Sitework, Drain, Utility	1	n/a	59,514,000



Eastern Michigan University Capital Outlay Plan FY2017

**General Fund Facility Condition Index
Table 8**

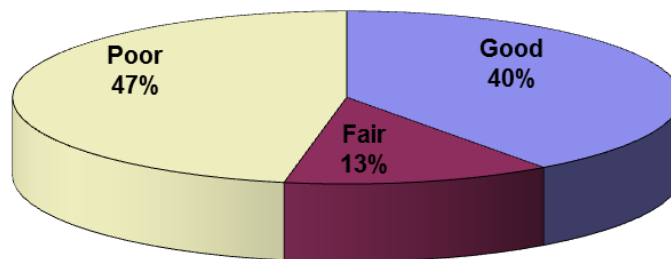
General Fund Facility Condition Index

Facility Condition Index =		<u>Backlog Deficiency</u>	=	<u>\$265,798,000</u>
		Current Replacement Value		\$988,171,316
Facility Condition Index (All Facilities) 0.27				

General Fund Facility Condition Index Summary

	Facility Condition Index		
	Good (Under .05)	Fair (.05 - .10)	Poor (Over .10)
Number of Facilities	7	6	30
Gross Square ft.	1,037,053	340,331	1,227,001
Percentage of Campus Gross Sq. ft.	40%	13%	47%

Campus Condition Based On Gross Sq. Ft.



Eastern Michigan University Capital Outlay Plan FY2017

Facility Condition Index (FCI) by Building Table 9

Building Name	Primary Use	Building Sq. Ft.	Year Built	2017 Building Replacement Value	Building Deficiencies (All Systems)	Facility Condition Index
Poor (Over .10)						
Strong	academic	80,713	1957	\$ 25,700,238	\$ 25,077,000	0.9757
Warner	academic	95,349	1964	30,360,561	18,397,000	0.6060
Honors College	academic	21,405	1965	950,000	475,000	0.5000
Ford Hall	academic	33,333	1929	10,613,730	4,696,000	0.4424
Sill Hall	academic	92,635	1965	29,496,382	11,802,000	0.4001
Briggs	academic	9,500	1937	3,024,943	1,192,000	0.3941
Alexander	academic	86,900	1980	27,670,272	9,583,500	0.3463
Greenhouse & Aquatic Biology	academic	5,200	1998	1,655,758	563,000	0.3400
Roosevelt	academic	75,639	1924	24,084,600	8,004,000	0.3323
Quirk	academic	58,205	1959	18,533,351	5,084,000	0.2743
Owen C.O.B.	academic	126,000	1990	48,522,805	12,434,000	0.2563
Paint Research	academic	8,000	1987	3,556,157	806,000	0.2266
Sherzer	academic	35,253	1903	11,225,087	2,410,000	0.2147
Kresge Center	academic	12,606	1974	4,013,941	834,000	0.2078
Starkweather Hall	non-academic	8,706	1896	2,772,122	4,475,000	1.6143
Welch Hall	non-academic	36,840	1896	11,730,412	7,664,000	0.6533
University House	non-academic	10,700	2003	4,085,330	2,206,000	0.5400
King	non-academic	61,450	1939	21,725,619	11,652,000	0.5363
Snow	non-academic	30,035	1959	13,684,927	7,173,000	0.5242
Heating Plant	non-academic	23,856	1951	52,940,417	24,148,000	0.4561
Team Building	non-academic	13,536	1995	4,310,067	1,877,000	0.4355
emu House	non-academic	1,434	1925	215,000	91,500	0.4256
Pease	non-academic	30,181	1914	9,610,086	3,548,000	0.3692
611 W. Cross Street	non-academic	4,050	1970	1,289,581	441,000	0.3420
McKenny	non-academic	107,103	1931	34,103,212	10,743,000	0.3150

Eastern Michigan University Capital Outlay Plan FY2017

Central Operations	non-academic	5,665	1969	1,415,000	400,000	0.2827
Bowen	non-academic	89,220	1955	28,408,995	7,658,000	0.2696
Pierce Hall	non-academic	61,275	1948	19,510,885	4,857,000	0.2489
Oestrike Stadium	non-academic	1,312	1968	2,201,989	439,000	0.1994
School House	non-academic	900	1905	798,591	120,000	0.1503
Total		1,227,001		\$ 448,210,059	\$ 188,850,000	
Fair (.05 -.10)						
Rackham	academic	45,890	1938	\$ 14,612,069	\$ 750,000	0.0513
Physical Plant	non-academic	25,300	1995	8,055,902	679,000	0.0843
Central Stores	non-academic	10,140	1972	3,228,729	268,000	0.0830
Hover	non-academic	11,021	1941	4,897,418	328,000	0.0670
Rynearson Stadium	non-academic	49,595	1968	78,750,000	4,375,000	0.0556
Convocation Center	non-academic	198,385	1998	63,168,779	3,261,000	0.0516
Total		340,331		\$ 172,712,897	\$ 9,661,000	
Good (Under .05)						
John W. Porter	academic	143,775	1966	\$ 45,780,131	\$ 1,993,000	0.0435
Halle Library	academic	273,715	1998	87,154,988	2,929,000	0.0336
Everett C. Marshall	academic	70,324	2000	22,392,223	602,000	0.0269
Pray Harrold	academic	237,108	1967	75,498,767	1,235,000	0.0164
Mark Jefferson	academic	262,273	1969	120,546,711	605,000	0.0050
Sculpture Studio	academic	4,648	1959	1,479,993	-	0.0000
Boone Hall	non-academic	45,210	1914	14,395,547	409,000	0.0284
Total		1,037,053		\$ 367,248,360	\$ 7,773,000	
Sitework, Drains, Utilities I/F						
Campus	non-academic	n/a	n/a	n/a	\$ 59,514,000	n/a
Total		n/a		n/a	\$ 59,514,000	
Total Building Deficiencies						
		2,604,385		\$ 988,171,316	\$ 265,798,000	0.2690

Eastern Michigan University Capital Outlay Plan FY2017

ARCHITECTURAL SYSTEMS

Overview

Architectural systems are primary building systems and components such as foundations, substructure, superstructure and building envelope. Secondary “exterior” systems include roofing, siding, glass, glazing, windows, exterior doors, flashings, painting and caulking. Secondary “interior” systems include interior partitions, doors, walls, wall finishes, floors, floor finishes, ceilings and ceiling finishes. Maintaining integrity in the primary systems is fundamental to long-term preservation of a building. Architectural systems not only protect the more sensitive mechanical and electrical systems but also reflect on the image of the owner and the quality of the activities and programs performed within the building.

System Condition and Adequacy

The average age of the general fund buildings architectural systems is 27 years. The oldest systems date back to 1896 and include Starkweather and Welch Halls. Both buildings, however, have been restored several times since their construction. Most campus buildings more than 20 years old have had major roofing repairs and/or new roofing at least once. All, but the newest buildings have some building envelope deficiencies. Repairs that have been made to deficiencies in buildings renovated or newly constructed since 1990 have been limited primarily to interior walls, doors, floors and finishes.

Since 2006, the University has spent over \$20 million preserving and renewing the architectural assets of campus facilities. EMU’s future investments in the architectural systems of campus buildings are detailed in the 2017-2021 Asset Preservation listing within the Implementation Plan later in this document.

Improvements Completed

Recent Architectural System improvements on campus include, but are not limited to the following:

• Bowen Windows	Completed April 2009
• Heating Plant High Roof	Completed November 2009
• Central Stores	Completed December 2009
• Roosevelt Re-Roof	Completed May 2010
• Ford Re-Roof	Completed May 2010
• Starkweather Foundation Repairs	Completed June 2010
• Welch Foundation Repairs	Completed July 2010
• Halle Library Foundation Repairs	Completed August 2010
• McKenny Union Foundation Repairs	Completed September 2010
• Pray-Harrold Re-Roof	Completed August 2011

Eastern Michigan University Capital Outlay Plan FY2017

• Pray-Harrold Windows	Completed August 2011
• Mark Jefferson Windows	Completed August 2012
• Mark Jefferson Re-Roof	Completed August 2012
• Rackham Windows	Completed August 2012
• Rackham Re-Roof	Completed August 2013
• Sherzer Re-Roof and dormer siding	Completed August 2013
• Alexander Re-Roof	Completed August 2013
• Sill Hall partial Re-Roof	Completed August 2013
• Rackham Hall Upper Level Renovations	Completed May 2014
• Snow Health Center foundation repairs	Completed July 2014
• Rynearson Stadium concrete repairs	Completed August 2014
• Rackham Hall Lower Level and Façade	Completed August 2015
• Sculpture Studio Renovation	Completed August 2015
• Rynearson Stadium concrete repairs	Completed August 2015

The University has completed a number of ADA Improvements as follows:

• Bowen ADA Ramp	Completed July 2009
• Ford ADA Ramp	Completed August 2010
• Pray-Harrold Chair Lifts	Completed October 2011
• Porter Bathroom Renovation	Completed November 2011
• Oestrike Stadium ADA Accessibility	Completed July 2013
• Bowman-Roosevelt Lot ADA Renovations	Completed July 2014
• CD-1 Restrooms	Completed April 2015
• Rynearson Stadium Home Restrooms	Completed August 2015
• Power Assist Doors Various Buildings	Continuous and Ongoing
• Sidewalk and ADA curb cut repairs	Continuous and Ongoing

Eastern Michigan University Capital Outlay Plan FY2017

Architectural System Deficiencies by Building Table 10

Building Name	Primary Use	Building Sq. Ft.	Year Built	2017 Building Replacement Value	Architectural System Deficiencies
<u>Before 1900</u>					
Welch Hall	non-academic	36,840	1896	\$ 11,730,412	\$ 3,363,000
Starkweather Hall	non-academic	8,706	1896	2,772,122	1,844,000
Total		45,546		\$ 14,502,534	\$ 5,207,000
<u>1900-1949</u>					
Roosevelt	academic	75,639	1924	\$ 24,084,600	\$ 3,339,000
Sherzer	academic	35,253	1903	11,225,087	1,864,000
Ford Hall	academic	33,333	1929	10,613,730	1,089,000
Briggs	academic	9,500	1937	3,024,943	800,000
Rackham	academic	45,890	1938	14,612,069	-
King	non-academic	61,450	1939	21,725,619	2,480,000
Pease	non-academic	30,181	1914	9,610,086	1,667,000
Pierce Hall	non-academic	61,275	1948	19,510,885	782,000
Mckenny	non-academic	107,103	1931	34,103,212	515,000
Boone Hall	non-academic	45,210	1914	14,395,547	84,000
School House	non-academic	900	1905	798,591	68,000
emu House	non-academic	1,434	1925	215,000	16,500
Total		507,168		\$ 163,919,369	\$ 12,704,500
<u>1950-1969</u>					
Strong	academic	80,713	1957	\$ 25,700,238	\$ 10,416,000
Warner	academic	95,349	1964	30,360,561	7,631,000
Sill Hall	academic	92,635	1965	29,496,382	3,257,000
Quirk	academic	58,205	1959	18,533,351	1,789,000
Honors College	academic	21,405	1965	950,000	175,000
Pray Harrold	academic	237,108	1967	75,498,767	162,000
John W. Porter	academic	143,775	1966	45,780,131	125,000
Mark Jefferson	academic	262,273	1969	120,546,711	81,000
Sculpture Studio	academic	4,648	1959	1,479,993	-
Snow	non-academic	30,035	1959	13,684,927	3,040,000
Rynearson Stadium	non-academic	49,595	1968	78,750,000	1,492,000
Heating Plant	non-academic	23,856	1951	52,940,417	1,192,000
Bowen	non-academic	89,220	1955	28,408,995	1,058,000
Oestrike Stadium	non-academic	1,312	1968	2,201,989	278,000
Central Operations	non-academic	5,665	1969	1,415,000	50,000
Total		1,195,794		\$ 525,747,462	\$ 30,746,000
<u>1970-1979</u>					
Kresge Center	academic	12,606	1974	\$ 4,013,941	\$ 445,000
611 W. Cross Street	non-academic	4,050	1970	1,289,581	220,000
Central Stores	non-academic	10,140	1972	3,228,729	145,000
Total		26,796		\$ 8,532,251	\$ 810,000
<u>1980-1989</u>					
Alexander	academic	86,900	1980	\$ 27,670,272	\$ 6,535,000
Paint Research	academic	8,000	1987	3,556,157	223,000
Total		94,900		\$ 31,226,429	\$ 6,758,000

Eastern Michigan University Capital Outlay Plan FY2017

1990-1999

Owen C.O.B.	academic	126,000	1990	\$	48,522,805	\$	3,925,000
Halle Library	academic	273,715	1998		87,154,988		1,290,000
Greenhouse & Aquatic Biology	academic	5,200	1998		1,655,758		172,000
Convocation Center	non-academic	198,385	1998		63,168,779		910,000
Team Building	non-academic	13,536	1995		4,310,067		748,000
Physical Plant	non-academic	25,300	1995		8,055,902		105,000
Total		642,136		\$	212,868,299	\$	7,150,000

Post 2000

Everett C. Marshall	academic	70,324	2000	\$	22,392,223	\$	485,000
University House	non-academic	10,700	2003		4,085,330		1,182,000
Hover	non-academic	11,021	1941		4,897,418		55,000
Total		92,045		\$	31,374,971	\$	1,722,000

Sitework, Drains, & Infrastructure

Campus	non-academic	n/a	n/a		n/a	\$	4,429,000
Total		n/a			n/a	\$	4,429,000

Total Building Deficiencies		2,604,385		\$	988,171,316	\$	69,526,500
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Eastern Michigan University Capital Outlay Plan FY2017

MECHANICAL SYSTEMS

Overview

Mechanical systems and sub-systems are vital, diverse and complex building systems. Preventative and predictive maintenance programs have been developed and implemented to preserve these critical systems and provide a quality learning environment. Failure in any one of the multiple sub-systems can create reactive deficiencies in other sub-systems and seriously detract from the quality of the learning environment and lead to premature depletion of a building.

Mechanical sub-systems include:

- Heating, Ventilation, Air Conditioning and Refrigeration (HVACR)
- Storm and Sanitary Drain Systems
- Chilled Water Systems
- Domestic Water Supply Systems

Heating Ventilating and Air Conditioning Sub-System

Overview

Heating Ventilation and Air Conditioning (HVAC) systems encompass a broad, complex, intertwined array of equipment and components including exhaust fans, laboratory fume hoods, air handling units, steam absorbers, electric chillers, rooftop units, base board heat, heating coils, cooling coils, heat exchangers, duct work, fire dampers, direct expansion chillers, radiant ceiling panels, pneumatic controls, electro-mechanical controls, direct digital controls, programmable controllers, thermostats, transducers, and others too numerous to mention. The HVAC systems operate in concert with the building envelope, interior floor plan, and the space utilization program to maintain a comfortable environment for the end user (students, faculty, and staff) of the various areas of the building. Alterations or failures of any one of these systems and/or components can adversely impact occupant comfort and potentially shorten the useful life of the building.

System Condition and Adequacy

A partial deferred maintenance list showing major components of HVAC systems for the state buildings on campus has been compiled. Based on useful service life expectancy, the total deferred maintenance cost for the HVAC systems for these buildings is over \$70 million. Normal life expectancy of various HVAC system components ranges from 10 to 30 years. Currently there are three (3) buildings that have been renovated or newly constructed since 2002 that have HVAC systems in good working condition. Some components of these systems are approaching the end of their useful life and will begin to require maintenance, repair, upgrades, or replacement to maintain system functionality. All of these systems must have ongoing preventative maintenance programs to avoid costly renovations, premature deterioration and untimely system failure.

Eastern Michigan University Capital Outlay Plan FY2017

The remaining buildings have equipment which has exceeded or is nearing the end of its useful life. These buildings are being kept in service through extraordinary efforts, but are beginning to compromise the quality of the learning environment. EMU's future investments in the mechanical systems of campus buildings are detailed in the 2017-2021 Asset Preservation Listing within the Implementation Plan later in this document.

Storm Drain Sub-Systems

Overview

The University storm drain system consists of 15,500 feet of storm sewer that drains rain water from 480 acres. This system catches all the surface water from roofs, parking lots, and streets on campus. The campus storm system is tied at various points to the City and County systems that eventually drain into the Huron River. City and County systems include a 24-inch main running down Cross Street, which borders the main campus to the south and the 66-inch Owen Drain that runs through the center of campus and collects water from, and intersects with, the 24-inch main, as well as other lines on the northern perimeter.

System Condition and Adequacy

In recent years the University has been experiencing storm water backup into some of its buildings during heavy rains. Initial observations indicate that some building roof drains and perimeter footing drains are backing up because the main lines into which they drain are at capacity. The University is concerned that the storm drainage system has reached or exceeded the design capacity; and that the City and County lines have also become overloaded and exceed their design capacity. Consequently, water pressure builds and forces drains to discharge water rather than accept it and carry it away.

The following engineering studies have been performed on selected portions of campus:

- Map the existing system to include GPS location of manholes
- Review the capacity of the existing storm system
- Determine the elevations of the inverts and building basements
- Calculate the required system capacity
- Compare inlet and outlet capacities at each manhole

Dialogue continues regarding a plan of action and the associated costs for the recommendations of these studies.

A hydrology study was completed for the Owen 66-inch storm system with recommended modifications to divert water prior to entering campus. Modifications were completed in November 2009. Local storm system issues that were associated with the Mark Jefferson Building have been addressed and implemented during the Science Complex Project. In

Eastern Michigan University Capital Outlay Plan FY2017

addition, the Bowen Parking Lot Project storm system has helped to relieve the storm issues for that area of campus.

Chilled Water Sub-Systems

Overview

The University Chilled Water system is a major component of the HVAC system and is used to provide air conditioning for a large portion of campus. The system is composed of six (6) main loops utilizing six (6) steam absorption units totaling 2,973 tons and eleven (11) electric chillers totaling 4,729 tons. Buildings are connected to the loops via chilled water supply and return piping running through the steam tunnels or buried underground. Most University pumping systems include a backup condenser water pump and a backup chilled water pump. Cooling is typically needed from mid-April through the end of October. Halle Library and Mark Jefferson require year-round cooling.

Chilled Water System maintenance requires chiller tube bundles be serviced each winter to keep heat transfer surfaces clean; cooling tower water and chilled water require a constant, active water treatment program to control biological growth and prevent scaling and corrosion; steam absorbers require overhauls at three year intervals to maintain proper operation; and testing is performed every five years on both electric and absorption units to verify the integrity of the internal tubes.

System Condition and Adequacy

The campus chilled water loop system lacks redundancy. Many of the components are approaching the end of their useful lives creating the potential for disruption of service. In particular, cooling towers are requiring more costly repairs due to their age and conditions. Because the components are so inter-dependent, any single equipment failure could take a loop out of service causing the loss of one or more buildings.

Loop 1 is the Pierce Loop and serves nine (9) buildings. Loop 1 cooling includes three (3), 250-ton steam absorption units with three cooling towers and a 250-ton air-cooled electric chiller located at Pierce Hall. All units appear to be in good condition. The distribution piping for Loop 1 has experienced several failures and will require repair to other sections which are in poor condition.

Loop 2 is the Mark Jefferson Loop. It consists of one (1) 781-ton steam absorber and one (1) 1,000-ton electric chiller (installed as part of the Mark Jefferson Project) both located at Mark Jefferson; one 300-ton electric chiller located at McKenny Hall; and one (1) 852-ton steam absorber located at Halle Library. This loop serves seven (7) buildings. A large portion of this system was refurbished as part of the Mark Jefferson Project; however, significant portions of the distribution piping remain in poor condition. Additional load was added to this loop as part

Eastern Michigan University Capital Outlay Plan FY2017

of the Rackham renovation in 2012. The Halle cooling tower has experienced major component failure (gearbox and fan motor) and is currently being repaired.

Loop 3 serves nine (9) buildings. Chillers included in this loop are located in Pray-Harrold, Alexander, and Porter College of Education Building. Porter C.O.E. has one (1), 590-ton steam absorber and one (1), 600-ton electric chiller, both in good condition. Pray Harrold has one (1), 500-ton electric chiller which was installed as part of the building renovation. Alexander has one (1), 255-ton electric chiller which is in good condition. The cooling towers for the units at Porter C.O.E. and Alexander are in poor condition.

Loop 4 is the College of Business Loop and serves one building. It contains one (1), 320-ton electric chiller. This unit uses Freon 11 which has environmental issues. The cooling tower had the basin replaced in 2012, extending the life of the equipment.

Loop 5 is the Convocation Center Loop and serves one building. It contains two (2), 380-ton electric chillers which are in good condition.

Loop 6 is the Student Center Loop. It contains two (2), 372- ton centrifugal chillers utilizing R 134-a. These units are in good condition.

**Eastern Michigan University
Capital Outlay Plan FY2017**

**Chilled Water Loop
Equipment Data Sheet
Table 11**

		CHILLER MODEL & SERIAL NUMBERS		Chiller Type				Cooling Tower		
Building		Model Number	Serial Number	Electrical (Tonnage)	(Year)	Absorption (Tonnage)	(Year)	(Tonnage)	(Type)	(Year)
Loop 1	Pierce	ABSC022ALP01AAFA	L99M04867M-TRANE			250	1999	250	Marley	1999
		ABSC022A0101AAADA	L95C03092-TRANE			250	1994	250	Marley	1994
		ABSC022A0101AAADA	L95C03091-TRANE			250	1994	250	Marley	1994
		RTUD 250A 2B02 A1D1	U11J01576-TRANE	250	2011					
			Loop 1 Total	250		750		750		
Loop 2	Halle-Library	ABTE093FLD01AAABAB	L96K07725-TRANE			852	1998	1000	BAC	1997
	Mark Jefferson	ABSC085FLP01AAA	L98H05010-TRANE			781	1998	1600	Marley	1967
		New with M J Project	York	1000	2009					
	McKenny	RTHA300FCN0LDUI2LF	U91C03742-TRANE	300	1991			300	Marley	1991
			Loop 2 Total	1300		1633		2900		
Loop 3	John C. Porter	CVHF064FAIB03UT	L98L06781-TRANE	600	1998			499	Marley	1998
		ABSC05J0LGIFI	L92E13549-TRANE			590	1992	400	Marley	1992
								400	Marley	1992
								400	Marley	1992
	Pray-Harold	CVHR049GA4A0PCP2	L10M07001-TRANE	500	2011			860	Marley	2000
	Alexander	RTHB255FLC00EN	U95C06249-TRANE	255	1994			250	Marley	1994
								250	Marley	1994
Loop 4			Loop 3 Total	1355		590		3059		
	College of Business	CVHE032FAV2JC233	L89K03460-TRANE	320	1989			300	Evapco	1989
Loop 5			Loop 4 Total	320		0		300		
	Convocation Center	RTHB380FLF00	U97K05886-TRANE	380	1997			400	Marley	1997
		RTHB380FMF00	U97K05887-TRANE	380	1997			400	Marley	1997
			Loop 5 Total	760		0		800		
Loop 6	New Student Center	E2612BE2-A	WA5310045	372	2006			375	Evapco	2006
		E2612BE2-A	WA5310046	372	2006			375	Evapco	2006
			Loop 6 Total	744		0		750		
			Combined loop totals	4729		2973		8559		

Eastern Michigan University Capital Outlay Plan FY2017

Domestic Water Supply Sub-Systems

Overview

The University water supply system consists of approximately 13,700 feet of supply line (pipe). Included in this system is a 1,650 foot section of line running through the center of campus. This section was replaced in 1988 in collaboration with the Ypsilanti Community Utilities Authority and is in good condition.

System Condition and Adequacy

The remaining lines on campus are old, and are in an unknown condition with the exception of the following sections:

- Line extending West from Porter on West Circle Drive approximately 900 feet.
- Line extending South from Porter on West Circle Drive approximately 600 feet
- Line extending North from Goddard to East Circle approximately 1200 feet in length
- Line extending West from Goddard to West Circle Drive about 750 feet in length. There are 10 water main shut off valves associated with these that need to be replaced plus 5 additional water-main shut-off valves on campus that are in need of repair.
- Line running North and South under sidewalk between Hover and King approximately 100 feet.

It should be noted that several of the water mains listed above have had “temporary” repairs made on them; as such, the risk of failures increases with time. The future plan is to phase the replacement of these line sections and valves to minimize the impact on connected buildings.

Eastern Michigan University Capital Outlay Plan FY2017

Mechanical System Deficiencies by Building Table 12

Building Name	Primary Use	Building Sq. Ft.	Year Built	2017 Building Replacement Value	Mechanical System Deficiencies
<u>Before 1900</u>					
Welch Hall	non-academic	36,840	1896	\$ 11,730,412	\$ 1,825,000
Starkweather Hall	non-academic	8,706	1896	2,772,122	1,460,000
Total		45,546		\$ 14,502,534	\$ 3,285,000
<u>1900-1949</u>					
Roosevelt	academic	75,639	1924	\$ 24,084,600	\$ 3,000,000
Ford Hall	academic	33,333	1929	10,613,730	1,597,000
Rackham	academic	45,890	1938	14,612,069	750,000
Briggs	academic	9,500	1937	3,024,943	178,000
Sherzer	academic	35,253	1903	11,225,087	-
McKenny	non-academic	107,103	1931	34,103,212	5,903,000
King	non-academic	61,450	1939	21,725,619	5,527,000
Pierce Hall	non-academic	61,275	1948	19,510,885	1,403,000
Pease	non-academic	30,181	1914	9,610,086	597,000
emu House	non-academic	1,434	1925	215,000	-
School House	non-academic	900	1905	798,591	-
Boone Hall	non-academic	45,210	1914	14,395,547	-
Total		507,168		\$ 163,919,369	\$ 18,955,000
<u>1950-1969</u>					
Strong	academic	80,713	1957	\$ 25,700,238	\$ 6,989,000
Warner	academic	95,349	1964	30,360,561	6,466,000
Sill Hall	academic	92,635	1965	29,496,382	4,610,000
Quirk	academic	58,205	1959	18,533,351	1,590,000
John W. Porter	academic	143,775	1966	45,780,131	1,575,000
Pray Harrold	academic	237,108	1967	75,498,767	593,000
Honors College	academic	21,405	1965	950,000	100,000
Sculpture Studio	academic	4,648	1959	1,479,993	-
Mark Jefferson	academic	262,273	1969	120,546,711	-
Heating Plant	non-academic	23,856	1951	52,940,417	15,350,000
Snow	non-academic	30,035	1959	13,684,927	3,120,000
Bowen	non-academic	89,220	1955	28,408,995	2,145,000
Central Operations	non-academic	5,665	1969	1,415,000	200,000
Oestrike Stadium	non-academic	1,312	1968	2,201,989	-
Rynearson Stadium	non-academic	49,595	1968	78,750,000	-
Total		1,195,794		\$ 525,747,462	\$ 42,738,000
<u>1970-1979</u>					
Kresge Center	academic	12,606	1974	\$ 4,013,941	\$ 55,000
611 W. Cross Street	non-academic	4,050	1970	1,289,581	27,000
Central Stores	non-academic	10,140	1972	3,228,729	-
Total		26,796		\$ 8,532,251	\$ 82,000

Eastern Michigan University Capital Outlay Plan FY2017

1980-1989

Alexander	academic	86,900	1980	\$	27,670,272	\$	2,031,500
Paint Research	academic	8,000	1987		3,556,157		530,000
Total		94,900		\$	31,226,429	\$	2,561,500

1990-1999

Owen C.O.B.	academic	126,000	1990	\$	48,522,805	\$	5,711,000
Halle Library	academic	273,715	1998		87,154,988		482,000
Greenhouse & Aquatic Biology	academic	5,200	1998		1,655,758		250,000
Physical Plant	non-academic	25,300	1995		8,055,902		418,000
Team Building	non-academic	13,536	1995		4,310,067		386,000
Convocation Center	non-academic	198,385	1998		63,168,779		343,000
Total		642,136		\$	212,868,299	\$	7,590,000

Post 2000

Everett C. Marshall	academic	70,324	2000	\$	22,392,223	\$	-
University House	non-academic	10,700	2003		4,085,330		177,000
Hover	non-academic	11,021	1941		4,897,418		36,000
Total		92,045		\$	31,374,971	\$	213,000

Sitework, Drains, & Infrastructure

Campus	non-academic	n/a	n/a		n/a	\$	9,562,000
Total		n/a			n/a	\$	9,562,000

Total Building Deficiencies		2,604,385		\$	988,171,315.69	\$	84,986,500
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Eastern Michigan University Capital Outlay Plan FY2017

Steam Supply and Distribution System

Steam Supply

Overview

The EMU Heating Plant supplies steam to campus for all of its heating requirements and that portion of the cooling requirements not supplied with electric chillers. The following steam production equipment is located in the Heating Plant:

- Two (2) 1967 Erie City conventional forced draft boilers rated at 100,000 pounds/hour.
- One (1) 1951 Wickes conventional forced draft boiler rated at 50,000 pounds/hour.
- One (1) 1987 Deltak cogeneration heat recovery boiler rated at 50,000 pounds/hour.

The conventional boilers are capable of burning Natural Gas, No. 6, and No. 2 fuel oil. Presently No. 2 fuel oil is used as a backup because sulfur content of No. 6 oil exceeds the Renewal Operating Permit emissions limitations. The University installed a new fuel storage system in the summer of 2008 consisting of 4 – 40,000 gallon double wall fiberglass tanks with a leak monitoring system including a fill station with a spill collection reservoir; and is now fully code compliant. With completion of the installation of 160,000 gallons of fuel oil capacity, the University is protected from a natural gas interruption which could result in millions of dollars of damage from frozen water lines and heating coils. In addition to physical damage to University assets, without heat normal business operations and classes would have to be canceled, and residents would not be able to stay in the residence halls. EMU affords significant benefits by having an alternative fuel capability available in the event of primary fuel supply loss. Eastern Michigan University's exposure and risks are greatly reduced by the oil tank farm.

System Condition and Adequacy

The two (2) Erie City boilers are 48 years old but serviceable. Experience has shown that at production rates above 85,000 lbs/hours they shake and vibrate to the point that operating staff are using that as the upper limit for each unit. If operated at higher rates it is expected that service problems would rise exponentially and the life expectancy of these units would be seriously impacted. Smoke stacks on both units are experiencing deterioration and will require replacement before the boilers need to be replaced.

The 1951 - 50,000 lb/hr Wickes Boiler while still operable must be fired in a manual base load state. It is inefficient, difficult to operate and control, and is only called into production if no other option is available. This boiler needs to be replaced. Estimated replacement cost is \$3.8 million dollars.

The 50,000 lb/hr Deltak cogeneration boiler can only be used when the cogeneration unit is running. The recent decline in natural gas prices has allowed the University to purchase gas to

Eastern Michigan University Capital Outlay Plan FY2017

run the cogeneration unit below the electrical purchase cost. It is used as back-up to DTE in the event DTE loses one of its two (2) supply lines to campus or during storms for reliability and stability. The boiler and duct burners are in poor condition with the boiler experiencing multiple tube failures.

Auxiliary systems within the plant which are required during steam production are old, but serviceable; or are being replaced on an as needed basis.

Steam Distribution Sub-Systems

Overview

The steam distribution system is a major component of the campus mechanical systems supplying the energy needed to heat the majority of the main campus building from a central Heating Plant. The steam distribution piping runs from the Heating Plant through two tunnel systems: 1) the North loop running from the Heating Plant eastward to Alexander Music Building serves most of the buildings on the North half of campus and is approximately 5,000 feet in length including a six inch spur line serving the Student Center, and 2) the South loop which is approximately 4,600 feet in length and runs from the Heating Plant southeast toward Sherzer then branching off in two directions to Pease and Goddard Hall.

In 2009, the steam tunnel and distribution between the Heating Plant and the Mark Jefferson building was re-routed for the Mark Jefferson building addition.

In 2009, a boiler plant was added in conjunction with the renovation/conversion of the Hoyt Conference Center into the Public Safety building. This new boiler plant allowed a leaking direct buried 2,000 foot 6" steam line to be abandoned; thus removing 7-10% of the steam load from the Heating Plant.

The steam lines transport the steam at 40 pounds per square inch (psi) and vary in diameter from fourteen inches at the Heating Plant to six inches at the far extremity between Goddard and Alexander. While the North and South tunnels are not connected, the steam lines are joined between Goddard and Alexander by this six-inch line. Additionally, an eight inch steam line provides 120 psi steam to the two-stage steam absorber at Halle Library via the South tunnel.

System Condition and Adequacy

The North and South tunnels are cast-in-place concrete, which range from poor to good condition depending on the section of tunnel in question. There is water seepage in the tunnel at various expansion joints. Some areas of the tunnel are showing signs of structural distress in the form of varying degrees of reinforcement corrosion and concrete spalling. Drainage, electrical, and ventilation needs to be improved. Pipe support systems are comprised of painted steel frames, located at twelve to fifteen foot intervals. These frames are experiencing

Eastern Michigan University Capital Outlay Plan FY2017

varying stages of corrosive deterioration. The steam lines, expansion joints, and condensate return lines are in serviceable condition. The asbestos insulation is in serviceable condition but requires frequent maintenance. The ingress and egress points also need repair and modification, as well as security system renovation.

A listing of repairs required in the tunnels includes:

- Repair spalled concrete and corroded reinforcement steel
- Improve drainage by cutting a wider trench and removing mineral deposits
- Install new and/or repair existing sump pumps
- Install new and/or repair existing ventilation fans
- Repair condensate leaks
- Repack steam line expansion joints
- Replace corroded pipe support frames and exposed steel (painted)
- Selective sealing of exterior joints
- Repair the lighting and electrical systems
- Encapsulate insulation systems
- Repair manhole steps and lock down system
- Repair mechanical room entry and exit doors
- Repack/rebuild leaking steam and condensate valves
- Install new isolation valves as needed
- Repair traps as needed

Improvements Completed:

- North Loop lighting/power circuit repair
- Repaired eleven (11) Steam Line expansion joints
- Welch Steam/Condensate Line Replaced
- Replaced one hundred twenty (120) feet of 2" air piping
- Installed new flash tanks in the tunnel at Munson
- Replaced forty (40) feet of 8" fire system piping at Olds Rec-IM building
- Installed new storm drain on the West side of Brown
- Repaired multiple leaks on the steam/condensate system in the crawl space of King
- Modified/Repaired pipe support stanchions in South Tunnel Pierce to Ford
- Physical Plant steam and condensate lines replaced
- Tunnel condensate leaks near Halle and Mark Jefferson repaired.
- Structural repair and cap replacement of Goddard tunnel vault – 2013
- Structural repair of Brown tunnel vault – 2013
- Replaced steam and condensate pipe from tunnel to Warner – 2014
- Structural repair of McKenny tunnel vault - 2014

Eastern Michigan University Capital Outlay Plan FY2017

ELECTRICAL SYSTEMS (BUILDINGS)

Overview

The electrical system components within each building include: power transformers, switchgear, power distribution panel main breakers, electric distribution wiring, branch circuit breaker panels, motor control fuse switches and starters, receptacles, and lighting. Like mechanical systems, these systems are vital, complex and intra-dependent. Failure in one component can result in complete system failure.

System Condition and Adequacy

The average age of Electrical Systems in General Fund buildings is 26 years (18 buildings have electrical systems at least 30 years old). As these electrical systems age, replacement parts have become increasingly difficult to obtain. Furthermore, the older systems were not designed to meet contemporary technology demands. In many instances the systems are at maximum capacity limiting the University's ability to support new educational programs. Electric distribution system deficiencies include outdated inefficient lighting systems, an inadequate number of distribution circuits and panels with no spare breakers, or electric capacity. EMU's future investments in the electrical systems of campus buildings are detailed in the 2017-2021 Asset Preservation Listing within the Implementation Plan later in this document.

Eastern Michigan University Capital Outlay Plan FY2017

Electrical System Deficiencies by Building Table 13

Building Name	Primary Use	Building Sq. Ft.	Year Built	2017 Building Replacement Value	Electrical System Deficiencies
<u>Before 1900</u>					
Starkweather Hall	non-academic	8,706	1896	\$ 2,772,122	\$ 847,000
Welch Hall	non-academic	36,840	1896	11,730,412	595,000
Total		45,546		\$ 14,502,534	\$ 1,442,000
<u>1900-1949</u>					
Ford Hall	academic	33,333	1929	\$ 10,613,730	\$ 1,525,000
Roosevelt	academic	75,639	1924	24,084,600	525,000
Sherzer	academic	35,253	1903	11,225,087	109,000
Rackham	academic	45,890	1938	14,612,069	-
Briggs	academic	9,500	1937	3,024,943	-
Mckenny	non-academic	107,103	1931	34,103,212	1,885,000
King	non-academic	61,450	1939	21,725,619	1,800,000
Pierce Hall	non-academic	61,275	1948	19,510,885	1,625,000
Pease	non-academic	30,181	1914	9,610,086	705,000
emu House	non-academic	1,434	1925	215,000	6,000
School House	non-academic	900	1905	798,591	-
Boone Hall	non-academic	45,210	1914	14,395,547	-
Total		507,168		\$ 163,919,369	\$ 8,180,000
<u>1950-1969</u>					
Strong	academic	80,713	1957	\$ 25,700,238	\$ 4,440,000
Warner	academic	95,349	1964	30,360,561	3,270,000
Sill Hall	academic	92,635	1965	29,496,382	1,340,000
Quirk	academic	58,205	1959	18,533,351	1,013,000
John W. Porter	academic	143,775	1966	45,780,131	160,000
Mark Jefferson	academic	262,273	1969	120,546,711	154,000
Pray Harrold	academic	237,108	1967	75,498,767	50,000
Honors College	academic	21,405	1965	950,000	50,000
Sculpture Studio	academic	4,648	1959	1,479,993	-
Heating Plant	non-academic	23,856	1951	52,940,417	6,616,000
Bowen	non-academic	89,220	1955	28,408,995	4,010,000
Rynearson Stadium	non-academic	49,595	1968	78,750,000	1,865,000
Snow	non-academic	30,035	1959	13,684,927	188,000
Central Operations	non-academic	5,665	1969	1,415,000	150,000
Oestrike Stadium	non-academic	1,312	1968	2,201,989	26,000
Total		1,195,794		\$ 525,747,462	\$ 23,332,000
<u>1970-1979</u>					
Kresge Center	academic	12,606	1974	\$ 4,013,941	\$ 130,000
Central Stores	non-academic	10,140	1972	3,228,729	68,000
611 W. Cross Street	non-academic	4,050	1970	1,289,581	57,000
Total		26,796		\$ 8,532,251	\$ 255,000
<u>1980-1989</u>					
Alexander	academic	86,900	1980	\$ 27,670,272	\$ 665,000
Paint Research	academic	8,000	1987	3,556,157	-

Eastern Michigan University Capital Outlay Plan FY2017

	Total	94,900		\$	31,226,429	\$	665,000
<u>1990-1999</u>							
Owen C.O.B.	academic	126,000	1990	\$	48,522,805	\$	1,005,000
Halle Library	academic	273,715	1998		87,154,988		265,000
Greenhouse & Aquatic Biology	academic	5,200	1998		1,655,758		63,000
Convocation Center	non-academic	198,385	1998		63,168,779		1,898,000
Physical Plant	non-academic	25,300	1995		8,055,902		114,000
Team Building	non-academic	13,536	1995		4,310,067		92,000
	Total	642,136		\$	212,868,299	\$	3,437,000
<u>Post 2000</u>							
Everett C. Marshall	academic	70,324	2000	\$	22,392,223	\$	35,000
University House	non-academic	10,700	2003		4,085,330		375,000
Hover	non-academic	11,021	1941		4,897,418		-
	Total	92,045		\$	31,374,971	\$	410,000
<u>Sitework, Drains, & Infrastructure</u>							
Campus	non-academic	n/a	n/a		n/a	\$	18,567,000
	Total	n/a			n/a	\$	18,567,000
Total Building Deficiencies							
		2,604,385		\$	988,171,316	\$	56,288,000

Eastern Michigan University Capital Outlay Plan FY2017

ELEVATOR SYSTEMS

Overview

The elevator equipment at Eastern Michigan University varies in age and condition. The oldest General Fund building elevator car still in service was installed in 1936. Elevators are a vital component to meet the ADA requirements and provide access to our campus buildings and facilities. There are a total of 49 elevators in General Fund buildings.

System Condition and Adequacy

All 49 elevators in General Fund buildings are maintained by the Physical Plant staff and are continuously evaluated for condition safety. Nine (9) elevators need to be updated to meet current ADA compliance. There are five buildings of two or more stories that do not have elevators.

Since 2006, the University has spent nearly \$2 million preserving the elevator assets of campus facilities.

EMU's future investments in the elevator systems of campus buildings are detailed in the 2017-2021 Asset Preservation Listing within the Implementation Plan later in this document.

Eastern Michigan University Capital Outlay Plan FY2017

Elevator System Deficiencies by Building Table 14

Building Name	Primary Use	Building Sq. Ft.	Year Built	2017 Building Replacement Value	Elevator System Deficiencies
<u>Before 1900</u>					
Welch Hall	non-academic	36,840	1896	\$ 11,730,412	\$ 82,000
Starkweather Hall	non-academic	8,706	1896	2,772,122	-
Total		45,546		\$ 14,502,534	\$ 82,000
<u>1900-1949</u>					
Sherzer	academic	35,253	1903	\$ 11,225,087	\$ 80,000
Rackham	academic	45,890	1938	14,612,069	-
Roosevelt	academic	75,639	1924	24,084,600	-
Ford Hall	academic	33,333	1929	10,613,730	-
Briggs	academic	9,500	1937	3,024,943	-
Mckenny	non-academic	107,103	1931	34,103,212	285,000
King	non-academic	61,450	1939	21,725,619	275,000
Pease	non-academic	30,181	1914	9,610,086	162,000
Pierce Hall	non-academic	61,275	1948	19,510,885	157,000
emu House	non-academic	1,434	1925	215,000	-
School House	non-academic	900	1905	798,591	-
Boone Hall	non-academic	45,210	1914	14,395,547	-
Total		507,168		\$ 163,919,369	\$ 959,000
<u>1950-1969</u>					
Pray Harrold	academic	237,108	1967	\$ 75,498,767	\$ 430,000
Strong	academic	80,713	1957	25,700,238	410,000
Mark Jefferson	academic	262,273	1969	120,546,711	315,000
Sill Hall	academic	92,635	1965	29,496,382	270,000
Quirk	academic	58,205	1959	18,533,351	82,000
John W. Porter	academic	143,775	1966	45,780,131	78,000
Honors College	academic	21,405	1965	950,000	-
Sculpture Studio	academic	4,648	1959	1,479,993	-
Warner	academic	95,349	1964	30,360,561	-
Bowen	non-academic	89,220	1955	28,408,995	85,000
Rynearson Stadium	non-academic	49,595	1968	78,750,000	78,000
Central Operations	non-academic	5,665	1969	1,415,000	-
Heating Plant	non-academic	23,856	1951	52,940,417	-
Snow	non-academic	30,035	1959	13,684,927	-
Oestrike Stadium	non-academic	1,312	1968	2,201,989	-
Total		1,195,794		\$ 525,747,462	\$ 1,748,000
<u>1970-1979</u>					
Kresge Center	academic	12,606	1974	\$ 4,013,941	\$ -
Central Stores	non-academic	10,140	1972	3,228,729	-
611 W. Cross Street	non-academic	4,050	1970	1,289,581	-
Total		26,796		\$ 8,532,251	\$ -
<u>1980-1989</u>					
Alexander	academic	86,900	1980	\$ 27,670,272	\$ 270,000
Paint Research	academic	8,000	1987	3,556,157	-

Eastern Michigan University Capital Outlay Plan FY2017

	Total	94,900		\$	31,226,429	\$	270,000
<u>1990-1999</u>							
Halle Library	academic	273,715	1998	\$	87,154,988	\$	770,000
Owen C.O.B.	academic	126,000	1990		48,522,805		315,000
Greenhouse & Aquatic Biology	academic	5,200	1998		1,655,758		-
Physical Plant	non-academic	25,300	1995		8,055,902		-
Team Building	non-academic	13,536	1995		4,310,067		-
Convocation Center	non-academic	198,385	1998		63,168,779		-
	Total	642,136		\$	212,868,299	\$	1,085,000
<u>Post 2000</u>							
Everett C. Marshall	academic	70,324	2000	\$	22,392,223	\$	27,000
Hover	non-academic	11,021	1941		4,897,418		75,000
University House	non-academic	10,700	2003		4,085,330		-
	Total	92,045		\$	31,374,971	\$	102,000
<u>Sitework, Drains, & Infrastructure</u>							
Campus	non-academic	n/a	n/a		n/a	\$	-
	Total	n/a			n/a	\$	-
Total Building Deficiencies							
		2,604,385.00		\$	988,171,316	\$	4,246,000

Eastern Michigan University Capital Outlay Plan FY2017

FIRE PROTECTION SYSTEMS

Overview

The Fire Protection category, formerly referred to as Life Safety, within the building includes the fire alarm system, central alarm reporting system, fire sprinkler system, fire pumps, standpipes, portable fire extinguishers, special hazard protection systems, components of the means of egress such as exit signs and emergency lighting systems, fire doors, and eye wash/shower systems and exterior Mass Mall Notification Speaker Array System.

Systems Condition and Adequacy

The University Fire Protection systems are functional but many have aged to the point of requiring repair or replacement. The University's central reporting (Fireworks) system that reports fire and trouble alarms to the Department of Public Safety (DPS) has been updated and is complete. The University continues to schedule buildings with old conventional systems to be upgraded giving DPS the ability to receive point-specific information from buildings having addressable fire alarm systems. This information will allow DPS to know the location and nature of the alarm prior to arrival at the facility. This upgrade system will have improved reliability and redundancy with loop connectivity between all buildings.

The following buildings are completed with the ability to send this point-specific information to DPS:

- Alexander Music Building
- Ford
- Halle
- Mark Jefferson
- Parking Structure
- Pray-Harrold
- Sculpture Studio
- Warner
- Buell
- Dining Commons – 3
- Downing
- Goddard
- Indoor Practice Facility
- Pittman
- Wise

The University has completed the installation of an exterior Mass Mall Notification Speaker Array System which is up and fully functional. The system has also been installed and online in several University buildings (Buell, Downing, Goddard, Pittman, Wise, Ford, Warner, Alexander, Halle Library, Convocation Center, Dining Commons III, Mark Jefferson, Central Operations,

Eastern Michigan University Capital Outlay Plan FY2017

Rackham, Pray Harrold, Indoor Practice Facility, Student Center, Rackham, Convocation Center and the Sculpture Studio).

The University has identified over \$5 million in Fire Protection System deficiency needs in General Fund buildings. EMU's future investments in the Fire Protection systems of campus buildings are detailed in the 2017-2021 Asset Preservation Listing within the Implementation Plan later in this document.

Eastern Michigan University Capital Outlay Plan FY2017

Fire Protection System Deficiencies by Building Table 15

Building Name	Primary Use	Building Sq. Ft.	Year Built	2017 Building Replacement Value	Fire Protection System Deficiencies
<u>Before 1900</u>					
Welch Hall	non-academic	36,840	1896	\$ 11,730,412	\$ 1,682,000
Starkweather Hall	non-academic	8,706	1896	2,772,122	324,000
Total		45,546		\$ 14,502,534	\$ 2,006,000
<u>1900-1949</u>					
Roosevelt	academic	75,639	1924	\$ 24,084,600	\$ 980,000
Ford Hall	academic	33,333	1929	10,613,730	485,000
Sherzer	academic	35,253	1903	11,225,087	357,000
Briggs	academic	9,500	1937	3,024,943	214,000
Rackham	academic	45,890	1938	14,612,069	-
Mckenny	non-academic	107,103	1931	34,103,212	2,155,000
King	non-academic	61,450	1939	21,725,619	1,570,000
Pierce Hall	non-academic	61,275	1948	19,510,885	890,000
Pease	non-academic	30,181	1914	9,610,086	417,000
Boone Hall	non-academic	45,210	1914	14,395,547	325,000
School House	non-academic	900	1905	798,591	52,000
emu House	non-academic	1,434	1925	215,000	45,500
Total		507,168		\$ 163,919,369	\$ 7,490,500
<u>1950-1969</u>					
Strong	academic	80,713	1957	\$ 25,700,238	\$ 2,712,000
Sill Hall	academic	92,635	1965	29,496,382	2,325,000
Warner	academic	95,349	1964	30,360,561	1,030,000
Quirk	academic	58,205	1959	18,533,351	505,000
Honors College	academic	21,405	1965	950,000	150,000
John W. Porter	academic	143,775	1966	45,780,131	55,000
Mark Jefferson	academic	262,273	1969	120,546,711	55,000
Sculpture Studio	academic	4,648	1959	1,479,993	-
Pray Harrold	academic	237,108	1967	75,498,767	-
Heating Plant	non-academic	23,856	1951	52,940,417	925,000
Snow	non-academic	30,035	1959	13,684,927	825,000
Rynearson Stadium	non-academic	49,595	1968	78,750,000	365,000
Bowen	non-academic	89,220	1955	28,408,995	360,000
Oestrike Stadium	non-academic	1,312	1968	2,201,989	135,000
Central Operations	non-academic	5,665	1969	1,415,000	-
Total		1,195,794		\$ 525,747,462	\$ 9,442,000
<u>1970-1979</u>					
Kresge Center	academic	12,606	1974	\$ 4,013,941	\$ 139,000
611 W. Cross Street	non-academic	4,050	1970	1,289,581	137,000
Central Stores	non-academic	10,140	1972	3,228,729	55,000
Total		26,796		\$ 8,532,251	\$ 331,000
<u>1980-1989</u>					
Alexander	academic	86,900	1980	\$ 27,670,272	\$ 82,000
Paint Research	academic	8,000	1987	3,556,157	53,000

Eastern Michigan University Capital Outlay Plan FY2017

	Total	94,900		\$	31,226,429	\$	135,000
<u>1990-1999</u>							
Owen C.O.B.	academic	126,000	1990	\$	48,522,805	\$	1,008,000
Halle Library	academic	273,715	1998		87,154,988		122,000
Greenhouse & Aquatic Biology	academic	5,200	1998		1,655,758		78,000
Convocation Center	non-academic	198,385	1998		63,168,779		110,000
Team Building	non-academic	13,536	1995		4,310,067		109,000
Physical Plant	non-academic	25,300	1995		8,055,902		42,000
	Total	642,136		\$	212,868,299	\$	1,469,000
<u>Post 2000</u>							
Everett C. Marshall	academic	70,324	2000	\$	22,392,223	\$	55,000
Hover	non-academic	11,021	1941		4,897,418		162,000
University House	non-academic	10,700	2003		4,085,330		-
	Total	92,045		\$	31,374,971	\$	217,000
<u>Sitework, Drains, & Infrastructure</u>							
Campus	non-academic	n/a	n/a		n/a	\$	5,207,000
	Total	n/a			n/a	\$	5,207,000
<hr/>							
Total Building Deficiencies		2,604,385		\$	988,171,316	\$	26,297,500

Eastern Michigan University Capital Outlay Plan FY2017

ELECTRIC SUPPLY AND DISTRIBUTION SYSTEMS

Overview

The Electrical Supply and Distribution System consists of an electric substation (Coral Substation) containing two 15/20/25,000 kVa transformers supplied by two separate DTE 40 kV feeder lines. The substation is supplying the campus with power at 13,200-volts (13.2 kV). Two new 13.2 kV distribution loops are served directly from the new substation, and two 13.2 kV tie lines connect the new substation to the Heating Plant 4800-volt buss through 2 step-down transformers. One distribution loop served from the Heating Plant is operated at 4,800-volts. The Heating Plant includes a 3.5-megawatt turbine cogeneration unit. These improvements were the result of a University \$5.5 million dollar self-funded project in fiscal year 1999. This phase I electrical distribution project relieved many of the critical deficiencies in the Electrical Supply and Distribution system.

System Condition and Adequacy

The University has taken steps to limit or contain increased loading on the all campus feeders, by selective use of steam versus electric chillers during the expected peak period, and load shedding selective motors and chillers. The University has a lighting retrofit program that will reduce energy consumption

The 1999 Utility Master Plan prepared by Stanley Consultants, Inc. identified a number of deficiencies in the electric supply and distribution system. Master Plan recommendations included a phased construction approach, to meet the long-term projected campus load growth. Future planning includes:

- Extend the new 13.2 kV distribution circuits to supply all existing and new loads on the Main Campus. – Implementation in Progress
- All new construction will be developed using the 13.2 kV sub-station.
- Mapping to include manhole surveys with GPS locations on as-built drawings. - Completed
- Continue to implement a power monitoring system. - Completed
- Conversion of the Heating Plant, all conductors, and all building transformers in the campus distribution system. A phased approach will be used to avoid disruptions in normal business.
- Future building additions on main campus at EMU will require conversion of the Loop serving the project in order to insure the electrical system will have adequate capacity during the peak loading period and provide a reliable source of power for the building project.

Construction of the new 40/13.2 kV Coral substation with two 15/20/25,000 kVa transformers fed from two (2) DTE Energy 40 kV transmission lines, construction of the 12-cell duct bank between the substation and the Heating Plant and installation of two new 13,200-volt feeders

Eastern Michigan University Capital Outlay Plan FY2017

from Coral Substation to the Heating Plant eliminated the first major issue of DTE Supply capacity and reliability. Additionally, conversion of Campus Loops 2, 3 and 4 to 13.2 kV served directly from the Coral substation eliminated another identified deficiency.

Loop 1 continues to supply main campus from the Heating Plant at 4800-volts, with the loop being normally open at its mid-point. Loop cables in the underground duct bank are the old 450-kcmil lead paper insulation cable. The 4800-volt distribution cables have outlived their useful lives. Inspections/testing of the cables have indicated that several of the cables are below manufacturers' rating recommendations. Each building has its own 4800-volt service transformer and loop switches, which require upgrading to 13.2 kV.

Loop loading continues to be a concern for Loop 1. Loop metering has been upgraded at the Heating Plant on Loop 1 in order to more accurately track loop loading. The new metering connects to the Heating Plant SCADA system which was installed with the Coral Substation. Loop 1 has minimal growth capacity. Construction of new facilities on this distribution feeder will necessitate upgrading the feeder to 13,200 volts to eliminate the potential for overloading, and ultimately cable failure.

As a result of these deficiencies and recommendations the University constructed a new 13.2 kV loop from Coral substation to serve the Mark Jefferson and Pray-Harrold buildings. This new loop, funded by a combination of self and state funds, was completed during the summer of 2010. Additionally, the University self-funded the conversion of the remaining Loop 2 buildings from 4800-volts to 13.2 kilovolts in 2011.

Eastern Michigan University Capital Outlay Plan FY2017

SITE WORK and DRAINAGE SYSTEMS

Overview

Site work and drainage systems are integral components of primary building systems and include sidewalks, loading docks, exterior ADA improvements, and signage. An assessment of these systems has identified over \$20 million in needed improvements. Improving these systems will protect the University's assets and enhance the image of the owner and the quality of life on campus.

System Condition and Adequacy

Since 2008, the University has spent over \$1.25 million preserving the site work and draining assets of the campus systems. These systems have been continually evaluated and consequently ten (10) miles of sidewalks has been replaced in the past seven (7) years with additional walks to be completed in the next year. Drainage repairs have been accomplished to prevent flooding, minimize damage to building systems and landscaping. This work has included installation of new drain tile, repair of catch basins, curbing, and re-grading of certain areas. A continual campus landscape evaluation takes place to install new trees, repair turf, and revitalize landscaping on an as needed basis. Improvements adhere to ADA and building code requirements, resulting in a safer and more accessible campus.

• Warner Retaining Wall	Completed	August 2008
• Westview Rain Garden	Completed	Spring 2009
• Eateries Plaza and Steps	Completed	July 2009
• Snow/ReclIM Plaza and Steps	Completed	September 2009
• Miscellaneous Retaining Walls	Completed	Summer 2010
• Quirk/Sponberg Retaining Walls	Completed	Summer 2013
• Porter Retaining Wall/Steps	Completed	Summer 2014
• Alexander steps, walks and drainage	Completed	Summer 2015
• Sculpture Studio drainage	Completed	Summer 2015
• Rackham retaining walls/drainage	Completed	Summer 2015

**Eastern Michigan University
Capital Outlay Plan FY2017**

**Site Work and Drainage System Deficiencies by Building
Table 16**

Building Name	Primary Use	Building Sq. Ft.	Year Built	2017 Building Replacement Value	Site Work & Drainage System Deficiency
<u>Before 1900</u>					
Welch Hall	non-academic	36,840	1896	\$ 11,730,412	\$ 117,000
Starkweather Hall	non-academic	8,706	1896	2,772,122	-
Total		45,546		\$ 14,502,534	\$ 117,000
<u>1900-1949</u>					
Roosevelt	academic	75,639	1924	\$ 24,084,600	\$ 160,000
Rackham	academic	45,890	1938	14,612,069	-
Sherzer	academic	35,253	1903	11,225,087	-
Ford Hall	academic	33,333	1929	10,613,730	-
Briggs	academic	9,500	1937	3,024,943	-
emu House	non-academic	1,434	1925	215,000	23,500
School House	non-academic	900	1905	798,591	-
Boone Hall	non-academic	45,210	1914	14,395,547	-
Pease	non-academic	30,181	1914	9,610,086	-
King	non-academic	61,450	1939	21,725,619	-
Pierce Hall	non-academic	61,275	1948	19,510,885	-
Mckenny	non-academic	107,103	1931	34,103,212	-
Total		507,168		\$ 163,919,369	\$ 183,500
<u>1950-1969</u>					
Strong	academic	80,713	1957	\$ 25,700,238	\$ 110,000
Quirk	academic	58,205	1959	18,533,351	105,000
John W. Porter	academic	143,775	1966	45,780,131	-
Sculpture Studio	academic	4,648	1959	1,479,993	-
Warner	academic	95,349	1964	30,360,561	-
Honors College	academic	21,405	1965	950,000	-
Sill Hall	academic	92,635	1965	29,496,382	-
Pray Harrold	academic	237,108	1967	75,498,767	-
Mark Jefferson	academic	262,273	1969	120,546,711	-
Rynearson Stadium	non-academic	49,595	1968	78,750,000	575,000
Heating Plant	non-academic	23,856	1951	52,940,417	65,000
Central Operations	non-academic	5,665	1969	1,415,000	-
Bowen	non-academic	89,220	1955	28,408,995	-
Snow	non-academic	30,035	1959	13,684,927	-
Oestrike Stadium	non-academic	1,312	1968	2,201,989	-
Total		1,195,794		\$ 525,747,462	\$ 855,000
<u>1970-1979</u>					
Kresge Center	academic	12,606	1974	\$ 4,013,941	\$ 65,000
611 W. Cross Street	non-academic	4,050	1970	1,289,581	-
Central Stores	non-academic	10,140	1972	3,228,729	-
Total		26,796		\$ 8,532,251	\$ 65,000

Eastern Michigan University Capital Outlay Plan FY2017

1980-1989

Alexander	academic	86,900	1980	\$	27,670,272	\$	-
Paint Research	academic	8,000	1987		3,556,157		-
Total		94,900		\$	31,226,429	\$	-

1990-1999

Owen C.O.B.	academic	126,000	1990	\$	48,522,805	\$	470,000
Greenhouse & Aquatic Biology	academic	5,200	1998		1,655,758		-
Halle Library	academic	273,715	1998		87,154,988		-
Team Building	non-academic	13,536	1995		4,310,067		542,000
Physical Plant	non-academic	25,300	1995		8,055,902		-
Convocation Center	non-academic	198,385	1998		63,168,779		-
Total		642,136		\$	212,868,299	\$	1,012,000

Post 2000

Everett C. Marshall	academic	70,324	2000	\$	22,392,223	\$	-
University House	non-academic	10,700	2003		4,085,330		472,000
Hover	non-academic	11,021	1941		4,897,418		-
Total		92,045		\$	31,374,971	\$	472,000

Sitework, Drains, & Infrastructure

Campus	non-academic	n/a	n/a		n/a	\$	21,749,000
Total		n/a			n/a	\$	21,749,000

Total Building Deficiencies		2,604,385		\$	988,171,316	\$	24,453,500
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Eastern Michigan University Capital Outlay Plan FY2017

ENERGY PLAN GOALS

The goals of the Eastern Michigan University Energy Plan are as follows:

Conserve electricity on campus by using the following methods:

- Invest in projects that reduce electrical use. Projects may include:
 - Lighting retrofits
 - Lighting controls
 - Motor replacements
 - Equipment scheduling
 - Building use optimization
 - Computer upgrades
 - Variable frequency drive installations
 - Cooling system upgrades
 - Geothermal Heating/Cooling study
- Measure and monitor electricity use throughout campus.
- Monitor and limit peak electrical demand on campus.

Conserve natural gas on campus by using the following methods:

- Invest in projects that will result in reduced natural gas use. Projects may include:
 - Steam trap repairs/replacements
 - Insulation of piping and ductwork
 - Heat recovery
 - Equipment scheduling
 - Building use optimization
 - Boiler replacements
 - Boiler control upgrades
 - Heat exchanger replacements
 - Conversion of steam to hot water
 - Heating reset schedules
 - Window replacements

Eastern Michigan University Capital Outlay Plan FY2017

ROADS, STREETS, PARKING LOTS AND STRUCTURES

Overview

The University Parking and Roadway System contains twenty-eight primary parking lots, multiple specialized parking lots, and two parking structures for a total of 10,402 parking spaces. The System also contains 5.5 miles of roads, 11.0 miles of curbs, and 30 miles of sidewalks, providing access to all points on campus for pedestrian and vehicular traffic.

System Condition and Adequacy

EMU's future investments in the University Parking and Roadway System are detailed in the University's Parking 5 Year Plan.

**Eastern Michigan University
Capital Outlay Plan FY2017**

**University Parking
5-year Plan
2017-2021
Table 17**

<u>Lot Name</u>	<u>Lot Condition</u>	<u>Action</u>	<u>Est. Cost</u>
<u>Fiscal Year 1 - 2017</u>			
Green Lot II	Poor	Replacement	<u>\$ 1,200,000</u>
Estimated Year Total			\$ 1,200,000
<u>Fiscal Year 2 - 2018</u>			
McKenny 2nd Phase	Poor	Replacement	\$ 500,000
Oakwood/Student Center Improvements	Poor	Renovation	<u>\$ 900,000</u>
Estimated Year Total			\$ 1,400,000
<u>Fiscal Year 3 - 2019</u>			
Oakwood Drive	Poor	Replacement	\$ 500,000
East Circle Drive - Phase I	Poor	Replacement	<u>\$ 745,000</u>
Estimated Year Total			\$ 1,245,000
<u>Fiscal Year 4 - 2020</u>			
Oakwood South	Poor	Replacement	\$ 1,000,000
Rynearson 2nd Zone	Poor	Replacement	<u>\$ 250,000</u>
Estimated Year Total			\$ 1,250,000
<u>Fiscal Year 5 - 2021</u>			
Lyman Street (Central Stores Access)	Poor	Replacement	\$ 50,000
Rynearson Zones 3-4	Poor	Replacement	\$ 500,000
East Circle - Phase II	Poor	Replacement	<u>\$ 800,000</u>
Estimated Year Total			\$ 1,350,000
Five Year Project Total			<u>\$ 6,445,000</u>

**Eastern Michigan University
Capital Outlay Plan FY2017**



IMPLEMENTATION PLAN
STRONG HALL RENOVATION
BUILDING MAINTENANCE PROJECTS > \$1 MILLION

Eastern Michigan University Capital Outlay Plan FY2017

STRONG HALL RENOVATION

<i>Is the Project a Renovation or New Construction?</i>	Ren (X) New ()
<i>Is there a 5-Year Master Plan available?</i>	Yes (X) No ()
<i>Are Professionally-Developed Program Statements and/or Schematic Plans Available Now?</i>	Yes (X) No ()
<i>Are Match Resources Currently Available?</i>	Yes (X) No ()
<i>Has the University Identified Available Operating Funds?</i>	Yes (X) No ()

Introduction

Established in 1849, Eastern Michigan University has one of the oldest campuses in the State of Michigan. By the mid 2000's, the Pray-Harrold classroom building, having been built in 1969 as the largest classroom building in the country, was in need of repair. It had been Eastern's number one capital outlay project for years. The University was pleased that for the first time since 1996, the state included the Pray-Harrold Renovation project in the State's FY2009 Capital Outlay Bill. Eastern is proud to say that thanks to its inclusion, the Pray-Harrold classroom building re-opened for classes in the Fall of 2011, 1 ½ years ahead of schedule.

Eastern is again submitting the Strong Hall Renovation as its FY2017 Capital Outlay Project Request.

Project Description Narrative

Strong Hall (pictured on page 86) houses the departments of Physics & Astronomy and Geology & Geography, part of Eastern Michigan University's largest college, the College of Arts and Science. Strong Hall, along with the renovation and addition to Mark Jefferson, make up the Eastern Science Complex, which is one of the major centers for the Universities focus on science, technology, engineering and mathematics (STEM) based curriculum. Many Eastern students within STEM based programs currently attend classes within Pray-Harrold, Mark Jefferson and Strong Hall. In addition Strong serves as a source of meeting non-program general education science education requirements.

Built in 1957, Strong Hall has not received any major improvements or renovations since its construction. Only minor systems work such as technology, data and audio/visual teaching systems have been replaced or updated. Previously, Eastern has invested \$90 million in earlier phases of the Science Complex through renovation of Mark Jefferson and construction of 80,000 square feet of new academic science facilities including a planetarium. This self-funded investment, along with other strategic investments has limited Eastern's ability to fund necessary renovations to Strong Hall.

Based on its age, use, and wear, Strong Hall now has several deficiencies, including;

- Outdated and overcrowded classrooms and laboratory space;

Eastern Michigan University Capital Outlay Plan FY2017

- Mechanical systems are obsolete and in need of replacement;
- Plumbing systems are in need of replacement;
- Electrical systems are in need of replacement;
- Energy inefficient original windows and other building envelope maintenance issues;
- Inadequate handicap accessibility;
- Interior systems and finishes have long exceeded their life cycle;
- Outdated and inadequate departmental and faculty offices.

The project will include renovation of the entire existing structure including; classrooms, lecture halls, student commons areas, and faculty offices. The renovation to the 80,713 gross square foot building will include: reconfiguration of the existing space to modernize classrooms and labs spaces with new technology and flexible use spaces for both research and instruction; updating of the fire suppression system; replacement of the existing HVAC, plumbing and electrical systems to improve energy efficiency and help reduce existing operating costs.

All renovations are designed to meet LEED Silver Criteria and are in compliance with the Americans with Disabilities Act and current building codes. The original building systems do not meet current standards for occupancy or utilization. The renovation effort will increase items such as lighting levels, air flow exchanges and exhaust. At the same time, efficiencies gained from the new systems and controls are anticipated to reduce utility costs by 35%. All operating costs are funded from the University's General Fund.

The modernized and reconfigured space will provide the students with much needed gathering spaces for impromptu meetings with faculty and other classmates. These improvements will also provide flexibility in classroom configuration to adapt to the changing instructional environment.

The total project is estimated to cost \$39,536,000 broken down in the following components:

Renovation	\$ 22,003,000
Technology	\$ 100,000
Fees, Contingencies, Permits and Administrative Costs	\$ 9,933,000
Owner Costs	<u>\$ 7,500,000</u>
Total	\$ 39,536,000

Eastern's investment in IT infrastructure and audio/visual teaching aids as well as minor furniture replacements reflects our intent to focus on "bricks and mortar" renovation work with this request.

It is estimated that the project can begin as early as July 2016, and would be completed within 36 months.

Eastern Michigan University Capital Outlay Plan FY2017

Other Alternatives Considered

Demolition and replacement of Strong Hall was considered and abandoned for numerous reasons. The cost implications of replacement versus renovation were considered during the preliminary programming and it is expected that replacement could cost up to 25% more than the renovation. Secondly, the University's effort to maintain sustainable practices supports the revitalization of existing facilities as opposed to new structures.

Strong Hall is centrally located on campus, close to residence halls, other academic facilities, library, and parking. Relocating the building to another site loses its proximity to the core campus and would require additional parking and new infrastructure for utilities at costs that far exceed renovation costs. The building's structure is in good condition and therefore warrants renovation rather than a new building. Strong Hall would still have to be renovated or razed should a new building be constructed.

Eastern Michigan University is the second oldest campus in the State of Michigan. The state's investment in buildings and infrastructure should be preserved when possible and financially feasible to do so. The construction costs associated with a new building were carefully studied and found not to be fiscally prudent, given the constraints on available state and institutional funds for capital projects. We believe, when possible, existing buildings that are structurally sound should be renovated and modernized as opposed to razing buildings for new structures.

Programmatic Benefit to State Taxpayers and Specific Clientele or Constituencies

The programmatic benefit of this project will be to better serve current and future students through enhanced learning spaces and technology and to help the University recruit and retain students and faculty. The state of the art Science Complex will make Eastern Michigan University the University of choice for science students across the state of Michigan.

The Strong Hall Renovation Project will provide economic benefit to the City of Ypsilanti and the eastern Washtenaw County area, through the creation of critically needed new construction jobs over three years. EMU has a significant impact on the local economy. For this area of Washtenaw County, it is imperative that EMU remain a vital and vibrant institution.

Funding Resources

Eastern Michigan University currently has the ability to provide the required matching funds.

**Eastern Michigan University
Capital Outlay Plan FY2017**

BUILDING MAINTENANCE PROJECTS GREATER THAN \$1 MILLION (FY 2017 - 2021)		Amount
Wise Hall Renovation		\$9,200,000
Loop 1 (Electrical) 13.2kVA Conversion (Phase I)		\$2,500,000
Warner Renovation and Abatement		\$4,550,000
Total Building Projects Greater Than \$1 Million		\$16,250,000

**Eastern Michigan University
Capital Outlay Plan FY2017**

APPENDIX

LIST OF TABLES & EXHIBITS

<u>Table & Exhibit</u>	<u>Page</u>
Fall 2015 Opening Term Undergraduate Headcount	23
Fall 2015 Opening Term Graduate Headcount	28
Enrollment Projection	33
Prior Enrollment Patterns	34
Average Class Size	34
Fall 2014 Instructional Staff/Student & Administrative Staff/Student Ratios	35
Building and Classroom Utilization Rates	40
Table 1 - General Fund Building Age/Replacement Report	41
Table 2 – Building Deficiencies Priorities by Category	42
Table 3 – General Fund Deficiency Cost Summary for FY2017 by System and Priority	43
Table 4 – General Fund Deficiency Cost Summary by System	44
Table 5 – General Fund Deficiency Cost Summary by Priority	45
Table 6 – Total System Deficiencies by Building Age	46
Table 7 – Building System Deficiencies by Age	48
Table 8 – Facility Condition index (FCI)	49
Table 9 – Facility Condition Index (FCI) by Building	50
Table 10 – Architectural System Deficiencies by Building	54
Table 11 – Chilled Water Loop Equipment Data Sheet	60
Table 12 – Mechanical System Deficiencies by Building	62
Table 13 – Electrical System Deficiencies by Building	68
Table 14 – Elevator System Deficiencies by Building	71
Table 15 – Fire Protection System Deficiencies by Building	75
Table 16 – Site Work and Drainage System Deficiencies by Building	80
Table 17 – University Parking 5-year Plan	84
Building Maintenance Projects Greater than \$1 Million	89