Oakland University

FY2027 Capital Outlay Submittal

October 31, 2025

Science Complex Renovation Project

ATTACHMENT B

FISCAL YEAR 2027

CAPITAL OUTLAY PROJECT REQUEST

Institution Name: Oakland University

Project Title: Science Complex Renovation Project

Project Focus: ☒ Academic ☒ Research ☐ Administrative/Support

Type of Project: ☒ Renovation ☐ Addition ☐ New Construction

Program Focus of Occupants: *Classroom and Laboratory Renovation in Science Complex*

Approximate Square Footage: 151,000 sf of renovation

Total Estimated Cost: $44,775,000

Estimated Start/Completion Dates: *May 2026/August 2028*

Is the Five-Year Plan posted on the institution's public internet site?	☒ Yes	☐ No
Is the requested project the top priority in the Five-Year Capital Outlay Plan?	☒ Yes	☐ No
Is the requested project focused on a single, stand-alone facility?	☒ Yes	☐ No

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Describe the project purpose.

Oakland University is recognized for its excellence in research, teaching and learning in the areas of science, technology, engineering and math (STEM). To maintain our excellence, strength and progress, updated and modernized facilities are imperative. Our future success is dependent on maintaining the overall quality and functionality of our classrooms, laboratories and research facilities.

Oakland University's Capital Outlay Project proposal for 2027 is the transformation of the Science Complex into a modern facility featuring the latest technology and equipped teaching and learning classrooms and laboratory spaces, targeted for our growing STEM curriculum and sponsored research. The Science Complex is currently equipped with aging infrastructure such as fume hood**s,** backup electrical systems, building systems, and other critical laboratory systems for academic programs.

The Science Complex dates back to the 1960's and is one of the oldest structures on campus. It has greatly surpassed the service life of the building systems, which were

not originally intended to be used for research purposes. This proposal will enhance the University's ability to support modern styles of teaching and learning for the sciences and provide capacity and technology for state-of-the-art laboratories for teaching and sponsored research.

A goal of our strategic plan is to be recognized as a strong research and scholarly environment for students focused on creative endeavors and on the discovery, dissemination, and utilization of knowledge. Science is neither conducted nor taught in the ways it was in the 1960s when this Complex was built. In both instances, the need for small, independent labs has been replaced by the need for more open, collaborative spaces. Additionally, the need for power and spaces to accommodate large and complex shared scientific equipment and facilities has dramatically changed the requirements for spaces within which science is conducted and taught in today's environment.

Renovation of the Science Complex is our top Capital Outlay priority to allow programmatic changes to our science curriculum. With the global interest in climate change, recycling and other environmental issues, the development of professionals to combat these issues is critical. Student demand for Environmental Science and related Biological Science at OU is on the increase consistent with this societal need. Furthermore, the expansion of the biomedical engineering program to meet the needs of the industry is critical. With the advancement of technology, biomedical engineers are involved in a wide array of projects to address societal needs. Examples include tissue engineering to meet the demand for organ transplant, prosthetics and replacement joints needed for trauma, and an aging population. To develop this knowledge and experience, students need hands-on laboratory experiences to maximize their learning and to develop critical skills. Students that participate in research are also much more marketable in industry jobs, and have higher success rates at enrolling in graduate programs. Direct contact with faculty members supports student success by fostering mentoring relationships which are especially critical for our underrepresented minority students, not to mention the entire student population on campus. Involvement in research is a high impact best practice for student success and retention.

The Science Complex is at maximum capacity for course scheduling but not seat scheduling. We need to right size the classrooms for the current use as well as make them flexible enough to accommodate changing learning methodologies. Traditional lectures are a passive learning environment and have been shown to not be as effective for learners to retain and apply material. Active learning methods have been shown by many studies to be better for students' success, long-term retention and mastery of the

material. Examples of active learning include flipped classrooms, the use of breakouts and case studies, and collaborative class projects, among others. What these methods share is that students are actively engaged with the material and are applying it to solve problems in real time with guidance from their instructors. They are not only learning the course content but also critical thinking skills, oral and written communication skills, and teamwork.

New approaches which have been developed during the pandemic for class delivery include Hyflex. Classrooms designed to accommodate Hyflex delivery (live streaming to remote students and in-person students simultaneously) requires additional technology installed to make this a seamless experience for both student populations. Active learning classrooms with small group breakouts to focus on problems during lectures require movable seating options, additional whiteboards and microphones as well as other technologies to address ADA compliance concerns. Furthermore, renovations will support both teaching labs and research labs.

Students that participate in research are much more likely to stay engaged in coursework and stay on track to graduate. Access to high quality laboratory experiences have always been a key part of our recruitment strategies as they offer opportunities that other universities do not. Students participate in faculty research in a variety of ways to enhance their education. They use it to complete required senior thesis projects, Honors College thesis projects, research laboratory courses in independent research, and as an employment opportunity as laboratory assistants. These students also graduate with marketable job skills and have better acceptance rates in graduate programs.

Describe the scope of the project.

This project consists of a renovation to the Science Complex which will include furniture, finishes, technology and network communications to improve capacity utilization and flexibility. Classrooms will be "right sized" for smaller and more interactive class sizes and allow us to utilize this important Science Complex laboratory classrooms for Engineering, Chemistry, Physics and Biology. This renovation will replace and upgrade the laboratory mechanical and utility systems and will address the current severe space shortages due to growth in enrollment in the Environmental Science and related Biological and Biomedical Sciences fields.

In support of the programmatic changes that are being planned, it is anticipated that the renovations will include three floors of the Dodge Hall wing and two floors of the

interconnected Hannah Hall wing, approximately 175,000 square feet. The renovation will include complete interior and infrastructure transformation. Academic space will be improved to be used more efficiently and effectively. Teaching laboratory spaces will be upgraded to allow students to be trained with cutting edge technology and research techniques which will improve their job market prospects. This will also allow us to make the spaces more accessible for those with physical disabilities.

The Science Complex's mechanical and electrical systems are at maximum capacity. Modern laboratory spaces need robust and flexible systems. Renovation will allow for modern teaching labs and a wide range of scientific research spaces that are in compliance with ADA regulations and are equipped with adequate utilities.

Laboratory spaces will receive infrastructure improvements including replacing original and obsolete building systems such as inefficient HVAC systems, building controls, electrical, lighting, network communications wiring and electronics, and plumbing to improve systems reliability, health and safety, the learning environment, air quality, energy efficiency, as well as water use reduction. A centralized fume hood ventilation system will be installed to ensure safe handling and storage of laboratory chemicals and biological samples. Hazardous building materials, such as asbestos-containing insulation and floor tile will be properly removed and disposed of. Building and floor accessibility will be addressed to ensure the Science Complex meets current building standards and ADA standards and will function efficiently well into the 21st century.

The adaptive re-use of the spaces demonstrates Oakland University's commitment to the success of our students and the continued wise stewardship of campus assets and funds. No new square footage is being added.

Program focus of occupants

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

Approximately 70% of Oakland University undergraduates immediately enter the workforce upon graduation while 30% are admitted to graduate school or commit to military service. Oakland University is proud that nearly 100% of our students who enter the workforce choose to stay in Michigan to live and work. Approximately 90% of our students that attend medical and dental schools also stay in Michigan for this additional education and then to practice.

Oakland University maintains close communication with employers to target student skills that meet employer needs and expectations. We are also keeping abreast of the latest areas of growth, particularly in the STEM disciplines. Over the last five years, the number of students graduating in critical disciplines at OU has increased by 36% overall. Students graduating with degrees in engineering have increased by 116% since 2011. In a recent study conducted by our Career Services department, we learned that the average annual salary of an Oakland graduate is $55,000, above the national average. The median annual salary for recent OU mechanical engineering masters graduates, $90,900, according to recent rankings by GradReports.com, is third highest in the nation, behind only Stanford University and Massachusetts Institute of Technology graduates. Many of our students must complete internships with local companies to graduate. Many of those interns end up with offers of employment before they graduate so they are immediately entering the workforce. Oakland University is graduating students with a skill set needed to fill state, regional and local high paying jobs.

In Michigan there are many jobs related to STEM, and in particular, Biology, Environmental Chemistry, Bioengineering, Biostatistics, Physics and Chemistry graduates that these renovations will serve. In industry and academia there are jobs for graduates trained and experienced in laboratory research techniques, experimental design, data analysis, and scientific writing. These are job opportunities that pay well and are in high demand fields. For example, according to the US Bureau of Labor Statistics the median annual wage for bioengineers and biomedical engineers was $92,620 in May 2020. Biostatisticians have an annual median wage of $93,290. Environmental scientists can expect an 8% increase in opportunities between 2020-2030 and an average salary of $73,230. Biomedical scientists can expect a 17% increase in opportunities and an average salary of $91,510. Within the local region, in the State of Michigan and nationally these areas are all demonstrating job growth. The Bureau of Labor Statistics, in an analysis published in February 2021, projects strong growth for many STEM occupations in the United States, particularly epidemiologists, medical scientists, biochemists and biophysicists, and biological technicians, among others.

The hands-on experiences that these renovations will support will make OU students much more marketable. The faculty research labs also provide employment opportunities for graduate and undergraduate students as do all of our teaching labs which are staffed with teaching assistants who are Oakland University students. The technical, communication, and analytical skills that these students gain make them highly marketable on the job market. It also helps them transition into graduate

education programs such as medical and dental schools as well as graduate programs in the sciences. These are incredibly competitive programs and research experiences are highly valued by the admissions committees. For many medical schools, the Medical Schools Admissions Report (MSAR) shows 85-95% of matriculating students have research experience.

A study published in Science reported that 75% of graduate students accepted into PhD programs had research experience. The number was higher in the more demanding programs in STEM areas with some reporting 100% of the accepted students having some research experience. This is unsurprising as successful completion of research projects are used as an indicator of future success in the programs. All of our science (physics, chemistry, biology, biomedical science, environmental sciences) majors, science education majors, nursing majors, pre-health professional majors and science-related general education students will be impacted by this renovation. We currently have over 1,000 students majoring in Biology, Biomedical Sciences, and Bioengineering. Of those students only 50 per year currently have the opportunity to participate in faculty-led research projects due to the lack of facilities to safely accommodate more. All of those students will take at least two lab courses in the biology discipline alone each semester. These students also take chemistry and physics teaching labs which are impacted by this proposed renovation. Of our 13,155 students, almost all of them will benefit by this renovation either directly through a major required class or a science general education course.

In addition, the Science Complex Renovation Project will provide economic benefit to Oakland County as well as surrounding counties through the creation of new construction and skilled labor jobs over the three years of project design and construction. It is estimated that this project will support over 250 jobs in the next three years for estimated wages of over $10,000,000 in the region.

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

The project will enhance the university's research mission. At present, the labs in the Science Complex are entirely full, which is inhibiting the growth of the university's research enterprise. Recruiting new diverse and talented researchers requires adequate space to support their research programs. Additionally, the current configuration of the labs as predominantly single investigator spaces is out of step with modern approaches to multi- and cross-disciplinary, team-based research. The lack of appropriate facilities prevents faculty from being competitive for federal funding that expects these kinds of

approaches to be employed and for these kinds of facilities to be available. The renovation of the Science Complex will allow our investigators to be competitive for these federal dollars that will support our students and the further growth of the University's research mission.

The core academic and research efforts at Oakland University are supported by funding through the Department of Defense (DOD), Department of Education (DOE), National Institutes of Health (NIH), and National Science Foundation (NSF), as well as by many corporations and philanthropic organizations. This project will create learning spaces that will provide students with an upgraded environment conducive for learning. By having a modernized facility, we will prepare our students to actively participate in research programs and enterprises that expect students to have the capacity to work jointly, and in cross-disciplinary teams. This type of training is currently difficult to provide in the smaller, single-investigator labs that were designed for science in the 1960s. These collaborative spaces will allow for larger multi-Principal Investigator (PI) training grants for students (ex. NIH T-series grants), Program Project grants with multiple collaborative investigators and the construction of Core grants which allow multiple investigators to share specialized equipment. These renovations will also allow us to be more competitive for external funding. One aspect the grants are evaluated on is the facilities available to the investigator and students. By redesigning the space to be more open and removing unnecessary walls we will gain significant work space. This will allow for more efficiency in workflow and opportunities for more people to be involved in research activities.

These renovations will allow for new technologies to be brought to OU. The recent purchase of a two photon confocal microscope required renovations to the space because air handling was not sufficient to safely use the machine. This machine will be standard in biomedical research facilities in a few years and will allow our students to train on it, making them more marketable. Six faculty researchers will use this equipment in their research programs; utilizing cutting edge technology helps the faculty obtain extramural funding. Research with our growing Environmental Science program on COVID-19 requires BSL-2 level biosafety which is extremely limited in this current space. The Bioengineering program has doubled in enrollment but we are limited in the types of projects they can do and the number of lab sections we can run to support the program due to lack of laboratories. This delays student progress through the Bioengineering program and limits their employment options after graduation unless they find an internship to fill in those educational gaps. We are finishing the process for ABET accreditation for this program this fall and expect to see the number of students double again within the next 2 years from 90 students with major standing

to 180. This accreditation enhances the market value of the degree. According to the Bureau of Labor Statistics the employment of biomedical engineers is projected to grow six percent from 2020 to 2030. This renovation of facilities will most importantly allow us to involve more undergraduate and graduate students in research opportunities which will ensure hands-on experiences and timely graduation.

These renovations will also support our new Masters in Environmental Chemistry degree program. We currently have a strong undergraduate population and the addition of the Masters (MA/MS) program will enhance opportunities for our students. We anticipate growth in the undergraduate program by 25% and expect an estimated 20-30 MA/MS students within three years. With the growing interest locally with water quality and environmental impacts with lead, PFAS, toxic algae and COVID-19, many students are migrating to environmental programs. All the students, both graduate and undergraduate, will have internship opportunities, lab experiences and significant research opportunities due to this renovated space. We will be able to help students make substantial career advancement with opportunities to present and publish their research. Also supported by these proposed renovations is the growth of our Biomedical sciences research with students in our Biochemistry, Biology, Biomedical Sciences, and School of Medicine programs. Applications to all of our healthcare related programs are up and with the expected launch of our Physician's Assistant program we anticipate these numbers to continue to grow. We are hiring faculty in these highly fundable areas, with a focus on cardiovascular and neurological diseases. We have a special concentration in Alzheimer's, Parkinson's, and neuronal regeneration. These initiatives can share equipment and are areas of growth in the research industry. The access to training in animal studies will give our students a competitive advantage in the job market. Lack of personnel to perform these types of studies is a substantial bottleneck in the biotech and pharmaceutical fields. A renovation of Oakland's Science Complex will allow us to accommodate expansion of successful research areas and academic programs.

The renovation of existing classroom and laboratory spaces will create flexible, movable, interactive and engaged spaces. In engaged classrooms, students learn to collaborate in teams, to think critically, and to solve problems at the same time they are learning course content. This type of learning also increases student engagement, course success, enhanced retention and ultimately increased graduation rates. The data suggests that this is especially true for students from underrepresented minority groups. To recruit, retain and improve the graduation rates of these students we need to offer these interactive and engaged classrooms.

The 2025 Oakland University Strategic Plan's first strategic goal is to "Foster student success through a robust teaching and learning environment and comprehensive student services." Student success indicators include retention and persistence, graduation, and successful career placement. As an institution we have embraced this goal and have provided opportunities for faculty to enhance their teaching skills, created an Office of Student Success, and examined our processes to remove barriers to student success. The renovation of the Science Complex will help the university achieve its goals of increasing our retention and graduation rates. This facility will become a space where students and faculty can join together to provide a culture of belonging in the STEM fields. Research shows that a sense of belonging is integral for student success, especially for first generation students and students from disadvantaged backgrounds (educationally and socioeconomically).

We will be able to offer more courses and lab sections with this renovation, allowing more students to enroll and will also allow students that are working while attending school more options to attend classes. Most of our student population works at least part-time while attending school. Flexibility in course offerings is critical for students to be successful in completing their degree requirements.

3. **Is the requested project focused on a single, stand-alone facility?**

The capital outlay project is focused on the renovation of the single original facility. The Science Complex includes the original facility built in 1961, Hannah Hall of Science (west wing), with two additions; 1968 Dodge Hall of Engineering (east wing) and 1997 Mathematics and Science Center (south wing). The renovation of the older wings of the building complex is absolutely necessary to modernize classes, labs and research spaces for the curriculum needs.

The Science Complex is reliant upon shared systems; the main campus utility loop of the High Temperature Hot Water system, potable water main, natural gas, and electrical loop. The Science Complex is serviced by the chilled water system tie-in with a dedicated chiller. The air handling system serves the interior spaces and the interconnected pedestrian corridors between wings. This project is focused on resolving deferred maintenance needs and upgrades only to Hannah and Dodge, not the most recent addition, the Mathematics and Science Center.

The original building and subsequent additions feature coordinated building envelope shapes, with a long east-west block with north and south arms crossing their centers. The main facades are comprised of a narrow band of horizontal windows per floor

infilled with masonry, with a concrete base. The proportions of glazing to masonry and makeup of the masonry wall construction is purposeful for the Science Complex; the entire complex being designed by the same architects for appropriate continuity.

The scope of the renovation project would be to embed the Science Complex with state-of-the-art technologies and infrastructure, more efficient fixtures and systems, a modern learning environment, finishes that enhance the learning spaces, and increased accessibility to the entire complex.

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

The Science Complex was constructed in the 1960's and was the original location for science classrooms and laboratories to serve the then small campus of Oakland University. As the campus grew and diversified, classrooms were updated to accommodate the growth. This complex has served the campus well over the years but needs more extensive work beyond a typical classroom and laboratory upgrade. Furthermore, to meet the needs of today's higher education standards, we must upgrade the building envelope and shared infrastructure systems, as well as optimize existing space**s** for instructional and support use.

Initially, the projected cost for the construction of a new building was carefully considered. Based on current state and institutional fiscal constraints, it was determined that a new construction standalone project was not a viable alternative. Renovation of an existing academic science facility is a more cost-effective solution and more environmentally friendly. The renovation work will include installation of an adequately-zoned, energy-efficient heating and cooling system in a space that currently has a 50-year old system with limited zones. Energy savings, laboratory safety, and occupant comfort will be gained with the installation of high-performance systems throughout. This is critical as many newer scientific equipment pieces like -80 degree Celsius freezers, and confocal microscopes require specific temperature regulation to function properly and safely.

Utilizing existing square footage by upgrading and repurposing a building is critical to the growth of the campus and demonstrates Oakland University's commitment to efficient operations and sustainability. We believe, when possible, existing buildings that are structurally sound should be renovated and modernized to accommodate current academic programs. We have followed this same upgrading and repurposing

strategy with other recent self-funded projects including Varner Hall, Fitzgerald House and Anibal House renovations.

Oakland University is committed to having a sustainable campus environment. Resource management goals include the efficient use of existing spaces. The proposed project will enhance student learning and provide properly configured areas for academic and research pursuits without expanding the facility's footprint. The proposed renovations will make these buildings more accessible and energy efficient.

5. **Does the project address or mitigate any current health/safety deficiencies relative to existing facilities?**

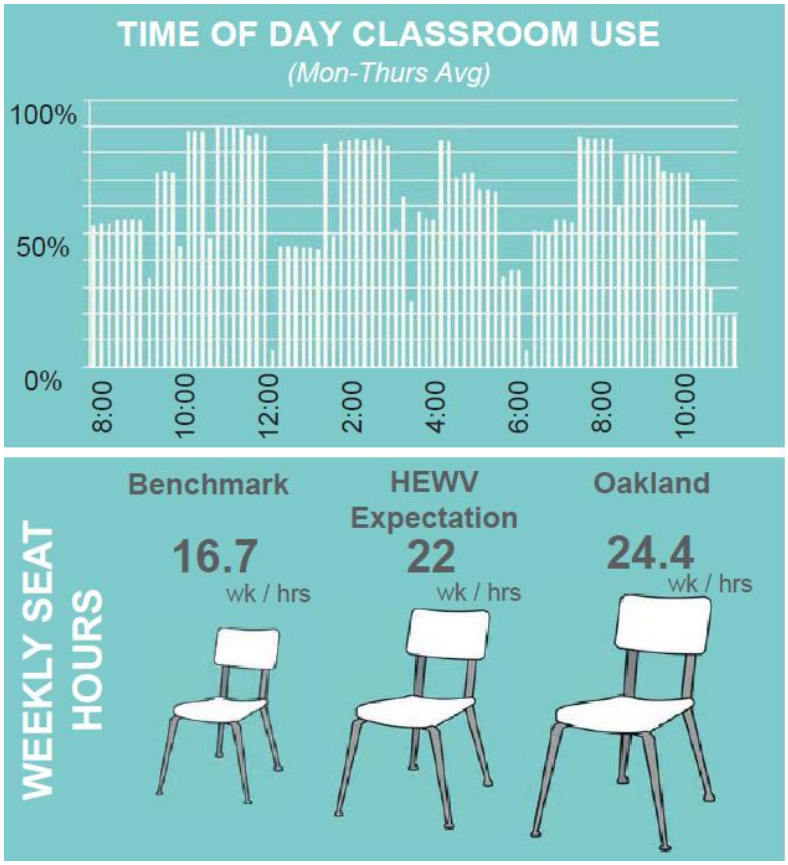
Yes, a primary focus of this capital outlay project is to address all life/safety issues identified in the latest facility assessment including removal of asbestos-containing materials, improved ventilation for health, updated fire suppression, ADA compliance, updated exit and emergency lighting, etc. For example, we cannot add any chemical fume hoods or ventilated storage cabinets for volatile chemicals because the current Science Complex infrastructure will not support it. The current electrical system will not allow any additional connections to the backup generator to protect samples in -20 and -80 degree Celsius freezers. These are now standard in all labs and power outages are catastrophic to research. Although Oakland University funds over $2 million annually to address infrastructure replacement and upgrading, this is not adequate with aging building systems and state-of-the-art laboratory requirements. In 2019-2020 we renovated 6,359 square feet of space in this building on the first and third floors. This created four additional research labs that we have already filled to capacity with research faculty. To date they have received six grants and one research contract for an additional $1 million in research support. We anticipate this growth will continue as they have already recruited four graduate students and six undergraduate students within a month of opening their new laboratory spaces. The proposed project will address over $**32** million of deferred maintenance including updates of grandfathered deficiencies that are still in use. This project will reduce the risk of failures for the existing components related to these systems.

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

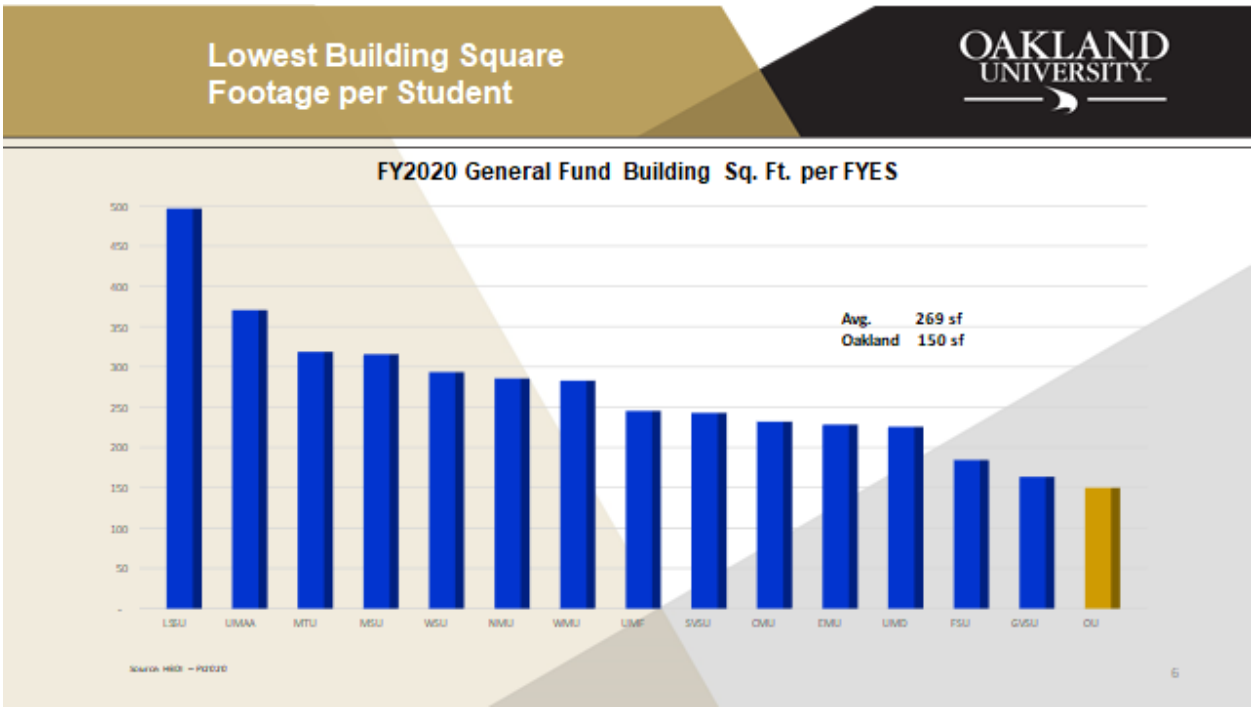
The Campus Master Plan (https://wwwp.oakland.edu/facilities/campus-master-plan), updated in 2016 with the assistance of Hanbury Evans Wright Vlattas (HEWV), included a thorough study of classroom and learning laboratory usage. The factors illustrated in the utilization study included the average hours per week of scheduled instructional use for each room, the average hours of scheduled use for each student seat, the percentage of student stations or seats filled when the rooms are scheduled, and the average square feet allocated to the student stations in the rooms.

The study findings included:

- An average of 47 hours per week of usage per classroom (compared to a national benchmark of 33)
- An average assignable square feet per student of 18 (compared to a national benchmark of 20)
- An average weekly seat hours of 24.4 (compared to a national benchmark of 22)
- Often approaching 90% capacity during high demand times (compared to a national benchmark of 63%)
- Concluding that there is a current shortage of properly sized and configured classrooms and learning laboratories, especially during the high demand class times.



The following chart compares the area per student for General Fund buildings at all state universities (source FY2020 HEIDI data). At 150 square feet per First Year Equated Student (FYES), Oakland University ranks lowest in the State of Michigan.



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

The integration of sustainable design principles to enhance the efficiency and operation of this building include saving energy and conserving resources, potable water use reduction, indoor environment, usage of recycled material, reduction of carbon footprint, and green environment, waste reduction and recycling are the primary objectives for all the construction projects of the University. LEED® Green Building principles (Leadership in Energy and Environmental Design) will be adhered to throughout the design and construction process as well as in post occupancy operation of the facility. Construction specifications will include reduction, reuse, and recycling of construction and packaging materials. As evidence of Oakland University's commitment to sustainable design principles, consider the following history of sustainable initiatives:

- Human Health Building (HHB): Our first LEED certified Platinum building as well as the first LEED certified Platinum building located on a university campus in the State of Michigan. The HHB includes a highly efficient geothermal system, funded via a federal grant that provides heating and cooling for the building. The project was partially funded by the state through a Capital Outlay.

- The Engineering Center: Our first LEED certified Gold building, and another state Capital Outlay funded project, implemented sustainable design principles and an innovative Trigeneration system to save and produce energy via two micro-turbines housed inside the building.
- Oak View Residence Hall: Our second LEED certified Gold building and the first LEED residence hall, implemented sustainable design principles and energy reduction strategies, and resulted in a sustainable campus living environment for our students.
- Hillcrest Hall: Oakland's most recently completed residence hall is also LEED certified Gold.
- South Foundation Hall: currently under construction financed by the State Building Authority. The building will also be a LEED certified building.
- Energy Performance Contracts: Oakland University completed various projects under the agreement of "Guaranteed Minimum Savings" in the last several years, including optimization of three chilled water plants and replacement of lighting for energy savings in various buildings.
- Sustainable Best Practices: Oakland University implemented sustainable best practices in the daily operation and maintenance including green cleaning as well as landscaping.
- Replacement of older building equipment and systems, some dating from the 1950s. Upgrades include high-efficiency HVAC, lighting and plumbing systems and reducing the load on the older campus-wide heating and cooling infrastructure.
- Update to University standard occupancy-based controls to reduce heating, cooling, ventilation and lighting needs on a room-by-room level.
- Design building envelopes to minimize energy use and take advantage of passive energy reduction strategies.
- Exploit energy savings from the newly installed co-generation system at the central heating plant. The co-generation system is currently saving the University more than $1.2 million annually and is self-generating 68.5% of the University's electrical needs.

The above actions and commitments demonstrate Oakland University's philosophy to adhere to sustainable design principles. Oakland will continue its sustainable design commitment for the proposed Science Complex project. We will transform an energy

inefficient complex into an energy efficient building meeting at least LEED Silver standards. These include an efficient HVAC system, LED light fixtures, improved indoor air quality, low Volatile Organic Chemicals (VOC) paint and finishes, recycled content in flooring materials and other interior finishes, integration of natural day lighting, high efficiency equipment, digital automatic building controls, waste reduction and recycling, low flow plumbing fixtures, etc.

The following is a listing of infrastructure components of the proposed project:

Building Structure/Envelope:

1. Replacement of roof
2. Structural repair
3. Replace sealant
4. Replace compromised building envelope

Interior/Accessibility:

5. Replace ceilings
6. Replace floor panels and tiles
7. Upgrade toilet room accessories

HVAC/Controls/Energy:

8. Replace pneumatic controls with Direct Digital Controls (DDC)
9. Replace enthalpy control for air-side economizer
10. Add interlock Building Management System (BMS) with space thermostats
11. Add CO2 sensors and demand-controlled ventilation
12. Replace supply air diffusers
13. Add control system router
14. Replace outdoor air monitoring station
15. Replace airflow measurement devices
16. Add airflow-measuring stations
17. Provide return air system to classrooms
18. Replace Thermafuser system with Variable Air Volume (VAV) boxes

19. Install new mixing box at each Air Handling Unit (AHU)
20. Replace split system for elevator machine room

Piping/Plumbing:

21. Replace heating hot water heat exchangers
22. Replace High Temperature Hot Water (HTHW) valves
23. Convert secondary heating hot water system to variable volume
24. Radiant ceiling heating system
25. Replace hot water recirculating pumps
26. Upgrade to low flow fixtures
27. Convert to automatic devices
28. Replace backflow preventer

Fire/Life Safety/Health:

29. New fire sprinkler system
30. Update fire alarm system
31. Upgrade toilet room ventilation

Electrical/Lighting:

32. Replace bus
33. Replace distribution power panel
34. Replace wiring
35. Replace receptacle panels
36. Replace lighting panels
37. Replace lighting with LED light fixtures
38. Replace transformers

Information and Classroom Technology:

39. Upgrade information and classroom technology systems

Elevator:

40. Modernize elevator cab

8. **Are matching resources currently available for the project? If yes, what is the source of the match resources? If not, identify the intended source and the estimated timeline for securing said resources.**

Yes. Oakland University would issue bonds to provide the required match and build the associated debt service into its general fund budget.

9. **If authorized for construction, the state typically provides a maximum of 75% of the total cost for university projects. Does the institution intend to commit additional resources?**

Oakland University is committed to providing the 25% required match, $10 million, to the total estimated project cost of $40 million. A complete renovation and rehabilitation of the Science Complex can be achieved within this total project cost.

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

No. The Science Complex Renovation Project is **expected to reduce operating costs of the existing spaces** due to significant infrastructure improvements and energy efficient upgrades. Based on collected and projected data, the utility costs for the current square feet will lower from $2.59 per square foot to $1.81 per square foot (see chart below) for the Science Complex. Meanwhile, upgrades to the existing mechanical systems will resolve deferred maintenance concerns for equipment dating nearly 50-years old.

Science Complex - 175,000 SF					
Annual Operating Cost Savings					
Utility	**Current $ per SF**	**Current Total Cost**	**Future $ per SF**	**Future Total Cost**	**Estimated Savings**
Electric	$1.26	$220,500	$0.89	$155,750	$64,750

HTHW	$0.96	$168,000	$0.64	$112,000	$56,000
Water	$0.37	$64,750	$0.28	$49,000	$15,750
Total	**$2.59**	**$453,250**	**$1.81**	**$316,750**	**$136,500**

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

None. This project would not cause a tuition increase. The intention would be to build the debt service on the matching bonds into the general fund budget to be offset by cost containment measures.

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

The consequences related to not providing state support for the Science Complex Renovation Project will result in a diminished offering of high demand degrees which prepare educated professionals for the workforce in the State of Michigan. Our ability to train and educate students will be greatly challenged if we are unable to complete this project. The current laboratory conditions are providing an environment that is less than what prospective students have experienced at their local high schools resulting in Oakland University being much less competitive in recruiting and retaining students.

Goal 1 of the Oakland University strategic plan is to foster student success through a robust teaching and learning environment and comprehensive student services. To achieve this goal, we have established aggressive targets for student retention and graduation. By providing the proper learning environments, we will enhance learning and, ultimately, student success. We have been doing this on a classroom by classroom basis throughout campus, but the Science Complex is in need of comprehensive system upgrades and modernizations.

The lack of state funding will require Oakland University to continue to use the limited deferred maintenance funding to address the current maintenance issues. Currently, there is a deferred maintenance backlog campus wide of over $200 million. It is anticipated that the work will need to be conducted in smaller increments over a ten-year period. This project will assist in avoiding an increased possibility of costly emergency repairs and increased operating costs.

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

Oakland University has a 10-year campus master plan to address changing academic programs, increasing on-campus residents, identifying teaching, learning and research needs and determining how the only public four-year university in Oakland County would respond to those needs. The master plan evaluated ideal building locations and prioritized projects to meet critical needs.

The top priorities listed were to increase and improve academic space on campus and to provide relevant 21st century active learning environments.

A new classroom, laboratory and research facility was considered and was rejected due to high construction costs and incremental utility costs. It was estimated that a new science building would cost at least $600 per square foot at a total cost of at least $85 million, which is cost prohibitive.

This proposed renovation project is preferable for multiple reasons – building condition and classroom and laboratory space being the two most important. The Science Complex is the original science facility and the primary instructional and research area that was designed for a different era and different academic needs. While improving academic program and research spaces, this project resolves much needed building system upgrades and over $32 million of deferred maintenance. Regardless of any approach the University selects to meet academic space needs, the mission-critical Science Complex will need renovation to remain functional for STEM curriculum and research needs.

In addition, the Science Complex is centrally located near the library, student union and admission office buildings, with vehicle parking and easy access for students, faculty and visitors. The campus master plan proposes to recast this part of campus as a more pedestrian-friendly, community-focused space, increasing the importance of the Science Complex for both academics and community engagement.