CAPITAL OUTLAY PLAN FY2017 - FY2021

Updated November 1, 2015
Table of Contents

I. MISSION STATEMENT ................................................................................................................. 4
II. INSTRUCTIONAL PROGRAMMING .......................................................................................... 5
III. STAFFING AND ENROLLMENT............................................................................................... 13
IV. FACILITY ASSESSMENT ......................................................................................................... 15
V. IMPLEMENTATION PLAN ......................................................................................................... 23
Introduction

For over 75 years, Henry Ford College (HFC) has been a leader in providing innovative education focused on student success. Located in Dearborn, Michigan, the school was originally named Fordson Junior College when it opened its doors in 1938. Later, the College adopted the name Dearborn Junior College in 1946. It became Henry Ford Community College in 1952, named after the Henry Ford Trade School which closed and whose assets were transferred to the Dearborn Public Schools Board of Education. In May 2014, the College was renamed Henry Ford College.

Henry Ford College is a comprehensive college providing both two and four year degrees. Educational opportunities for students include over 100 career and university transfer programs, pre-professional studies, associate’s in science, associate’s in applied science, and associate’s in arts degrees, associate’s in general studies, bachelor’s in culinary arts, as well as certificates. The College website contains a complete listing of the over 100 academic programs offered. During the 2013-2014 academic year, HFC served 20,931 students (unduplicated headcount) which is equivalent to 10,116 full-time students. The average age of HFC students is 26 and 36% attend full time.

Since its founding in 1938, HFC has been the gateway to higher education for thousands of students seeking affordable, high-quality post-secondary education. HFC is a comprehensive public college serving about 14,000 students each fall and winter semester in southeast Michigan. HFC is dedicated to preparing students for a rapidly changing world and workplace by offering more than 100 associate degree career and university transfer programs.

HFC offers high-quality, innovative programs to meet the educational and training needs of the region. Students prepare to transfer to a university or prepare to go directly to work. HFC also specializes in customized workforce development training for business and industry. HFC offers classes on two campuses situated in Dearborn. HFC's Main Campus is located on the southwest corner of Ford Road and Evergreen, north of the University of Michigan-Dearborn campus. The East Campus is home to HFC’s Michigan Technical Education Center (M-TEC) and the state-of-the-art Nursing facility.

In May 2013, Dr. Stan Jensen assumed the presidency of HFC. Under his leadership, he steered the College out of a $16 million budget deficit through various cost-savings measures, passed a millage, and re-focused efforts at the College on student success initiatives. HFC continues to be Future Driven and focused on contributing to the economic success of our students, the region, and the world.
I. MISSION STATEMENT

**Mission:** Henry Ford College transforms lives and builds better futures by providing outstanding education. As a student-centered, evidence-based college, our success is measured by the success of our students. We empower learners through the development of independent, critical and creative thinking, and we foster diversity, tolerance, understanding, and acceptance to prepare learners to succeed in a global society. We anticipate and respond to the needs of our stakeholders, exceed their expectations and serve the public good.

**Vision:** First Choice... Best Choice...

**Values:**

We have a PASSION for...

- teaching and learning;
- exploring diverse perspectives and ideas;
- creating a student-centered environment;
- transforming lives through continuous learning; and
- excellence in all that we do.

We demonstrate INTEGRITY through...

- accountability;
- responsible stewardship;
- ethical conduct;
- honest dialogue; and
- sustainable practices.

We promote INGENUITY by...

- being agile, flexible, and responsive;
- rewarding discovery, creativity, and innovation;
- collecting, evaluating, and acting on evidence;
- thinking critically; and
- continuously reimagining the future.

We show RESPECT for one another when we...

- collaborate and rely on teamwork;
- celebrate diversity and inclusiveness;
- maintain transparent practices;
- show compassion and empathy; and
- are engaged and committed to our shared work.
II. INSTRUCTIONAL PROGRAMMING

A. Describe existing academic programs and projected programming changes during the next five years, in so far as academic programs are affected by specific structural considerations

Programs being introduced in the next five years include Associate degrees and certificates in welding, tool & die, transportation, distribution, and logistics, and mechatronics. These program improvements require high tech classrooms and laboratories that are supported by a robust technological infrastructure. Henry Ford College is submitting a capital outlay project request for FY17 in order to continue development of major academic initiatives described below.

HFC’s Center for Innovative Manufacturing Education (CIMed)

Project Purpose: To create a Student Centered, Curriculum Led, and Instructor Assisted Flexible Learning Environment

This new delivery model will increase HFC’s ability to leverage lab resources to assist regional businesses with training and educational opportunities. The flexibility, delivery method, reduced equipment numbers, faculty expertise, and integration concepts embedded in design of curriculum are the cornerstone of the Industrial Technology and Engineering Technology programs. These attributes offer a tremendous strategic advantage to HFC in marketing new training opportunities to businesses. HFC, through the flexible learning environment, will become the partner of choice in training for local manufacturing enterprises.

Vision - A center of manufacturing educational excellence creating flexible, high-quality, and learning-centered pathways to student success and empowerment.

Mission - To engage and educate our manufacturing community through teaching and learning opportunities that are flexible, effective, relevant and evidence-based.

Goals - Our goals are to develop, implement, assess, and improve the following:

1. **Learning environments** that incorporate flexible and customizable delivery systems that meet the needs of the community and are right for our students. The Learning Environment will be Student-Centered, Curriculum-Led, and Instructor Assisted.

2. **A culture of evidence** that supports empowerment, innovation, current practice and accountability, in order to promote student success.

3. **Quality learning** opportunities that improve student learning and success and continuously improve our educational programs and curriculum.
4. *Learning Culture* that integrates the design of facility and lab environment (SuperLab), equipment, curriculum, e-learning, programs, and courses that foster innovative delivery mechanisms in the following ways:

- Competency-based with multiple delivery methods
- Authentic student assessment
- Multiple learning paths – through lab, equipment, books, videos, discussions, seminars, experimentation, exploration, discovery, research, e-learning, apprenticeship, internship, and one on one interaction with instructor
- Flexibility of delivery via SuperLabs

**Project Scope**

HFC will develop a flexible learning environment that is able to respond to the learning needs of the individual student and industry demand. The main concept is to maximize flexibility for our learners by delivering student-centered, curriculum-led, instructor-assisted, flexible, self-paced, course offerings in an open-lab format so learners of multiple programs can share equipment, space, and lab time to maximize learner flexibility and be more responsive to the needs of business and industry. We are asking for financial support to renovate/build an addition to the existing technology facility that is needed in order to implement these objectives within our manufacturing programs.

**How does the project enhance the core academic mission of the institution?**

This new flexible learning environment combines the best of e-learning, flipped classroom, in-class instruction, and open lab environment to create a new learning environment for students. The open-entry/open-exit, self-paced program provides courses that are available at any time for students and company partners. Companies will be able to purchase custom training from a list of single credit courses and can schedule training times custom fit to their needs. The flexible learning environment provides custom and individual learning in the form of seminars, certificates, credit courses, and degree programs.

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

The CIMed would be housed in a facility capable of housing several Super Labs. The current technology building is the logical location for re-purposing and/or an addition.

The facility would have the following attributes:

- All learning/lab stations are in visual view of each other and the instructor desk.
- Equipment would be organized as “Centers of Technology” to create an environment of collaboration and teamwork.
• Learning and lab stations are designed for open-flexible use with appropriate course learning module.
• Common instructor desk area, testing area, resource area, and lab facility support area.

The college has funded the implementation of four state-of-the-art lecture capture recording systems and two lab-based recording systems that can be used for the creation of learning modules and other methods. These systems will allow us to record our classroom environment including student interaction, questions, and instructor activities. This will allow us to stream this content and embed these lectures into our CMS (course management system) for use by students.

Henry Ford College will use our existing presentation-capture systems to develop the alternative delivery system described in this project. These systems are capable of developing presentations that incorporate audio, video, multimedia, and other sources publishing them in a variety of delivery formats. We will leverage this system to create topical learning modules that will complement the curriculum developed by the DOL consortium and AMTEC. The final edited version of this topical learning module will consist of e-learning content incorporated within an online course management system. It is our intention to create multiple modes of delivery.

This open lab approach is easily scalable as enrollment increases. By either adding to the number of hours the lab is available or increasing the equipment count, we can easily scale our lab availability to suit student needs. With the construction of flexible-delivery laboratories, time and distance barriers should be limited, and students will be able to interface with an instructor and complete lab assignments when it fits their schedules.

HFC has submitted a National Science Foundation grant to develop a comprehensive set of tools to facilitate the implementation of an “Improved Competency-Based Education (CBE) Process Model” that employs Common Performance-Based Objectives (C-PBOs) through a comprehensive Open Lab Platform (OLP).

This work builds upon previous Federal grants, including:

1. NSF-ATE Automotive Manufacturing Technical Education Consortium (AMTEC) National Center of Excellence,
2. Trade Adjustment Assistance and Community College and Career Training program’s (TAACCCT) Multi-State Advanced Manufacturing Consortium (M-SAMC) project, and
3. Additional NSF projects.

These developed the first generation of the Manufacturing Education Process Model that provides students with the necessary skills for careers in advanced technological manufacturing. This model employs competency-based learning within a next generation OPL where faculty and employers are able to assess student progress in real-time and
students can access learning at any time. Within the OLP, HFC will employ a series of C-PBOs that will leverage HFC’s Center for Innovative Manufacturing Education (CIMed) to encourage collaborative work and promote stackable credentials. The model utilizes multiple competency-based course modules, utilizing multi-module model delivery and emphasizing project-based learning combined with authentic assessment, in a flexible/open learning environment. An Education Innovation Toolkit (EIT) will also be developed and increase HFC’s ability to produce and scale the Improved CBE Process Model beginning with advanced manufacturing (Welding and Multi-Skilled Maintenance), then migrate to other STEM related programs that increase student preparedness, graduation rates and employability in advanced manufacturing.
B. The unique characteristics of HFC’s academic mission include:

- **Ninety-two associate degree** and **forty-five certificate programs** in career and technical fields.
- **Seventeen areas of study** and **nineteen associate degree** programs to serve the needs of transfer students.
- HFC has launched two new **early college/dual credit academies** in cooperation with Ford Motor Company. The first is a collaboration with the Downriver Career and Technology Consortium and Ford Motor Company’s Flat Rock Assembly Plant. The second is our second on campus Henry Ford Early College – Advanced Manufacturing in collaboration with Dearborn Public Schools and Ford Motor Company’s Next Generation Learning initiative.
- HFC has established partnerships through the **Biotechnology Program** that include internships in biotechnology laboratories that are required for students in our Biotechnology AAS Program; HFC has many partnerships with regional employers, including Enzo Life Sciences, NSF International, and Wayne State University.
- In addition, HFC has become the first **Project Lead the Way** community college in the State of Michigan and is pursuing an Engineering Academy with Dearborn Public Schools. These programs are built on a strong dual enrollment relationship with our local school district.
- A strong connection to **twenty-nine local school districts**. Dual enrollment and career exploration opportunities are available to high school students to help prepare them for post-secondary education and the world of work including the Henry Ford Early College and Collegiate Academy.
- **Articulation agreements** with Chamberlain University, Chancellor University, College for Creative Studies, Eastern Michigan University, Ferris State University, Madonna University, Siena Heights College, University of Michigan-Ann Arbor, University of Michigan-Dearborn, and Wayne State University ensure transfer students experience a seamless transition to these colleges and universities.
- A **University Center** including partnerships with Eastern Michigan University, Madonna University, Sienna Heights and development of three additional partners to offer four year degrees on the HFC campus.
- **Workforce development training** including customized on-site training for many regional companies at the Ford Michigan Assembly Plant and Severstal North America. Working with a consortium of colleges, HFC assisted with the development of the **AMTEC training program for auto**.
- Most recently, HFC was awarded a **Department of Labor grant** to develop a new learning paradigm that integrates competency-based learning into training and educational modules to enhance employee training programs for companies and colleges.
- The College is in its third year in collaboration with the **Detroit Scholarship Fund (DSF)**, putting in place retention and success initiatives that encourage completion among HFC students who are DSF recipients.
• The Office of Military and Veterans Services offers assistance to help veterans as well as active military and their families enroll and succeed at HFC.
• Assisted Learning Services provides accommodations to students with disabilities through a number of support services. A Center for Teaching Excellence and Innovation for teacher development.
• HFC’s radio station, WHFR 89.3, provides a real-world lab experience in telecommunication for HFCC students, to serve the needs of Dearborn and the surrounding communities.
• An English Language Institute that offers intensive preparation in English for English Language Learners, allowing them to move directly into college-level academic programs.
• An innovative, cutting-edge developmental education program, with a robust Learning Lab dedicated to student success, to develop the essential reading, writing, and quantitative literacy skills of students.
• A Center for Teaching Excellence and Innovation for teacher development.
• Community engagement including plays and concerts, hosting fund-raising activities for scholarships, open lecture and film series, conference and convention facilities, and dining facilities.

C. Identify other initiatives which may impact facilities usage

Stemming from the HFC Strategic Plan, which can be found at the following objectives will impact facilities usage:

1. Develop new and revise existing programs to meet the expectations of the workforce including flexible, innovative manufacturing education environments.
2. Expand HFC degrees to include a Baccalaureate Degrees as opportunities become available (e.g. BA Nursing).
3. Create and expand local, regional, national and international partnerships and collaborations with business, governmental, non-profit, and educational institutions to create a global institution.
4. Develop and deliver technology training based on the assessed needs of students, faculty, and staff.
5. Ensure that the College’s physical facilities, equipment, and technological infrastructure support fulfillment of the College’s mission.
6. Promote sustainability and environmentally sound policy in facilities resource planning.

D. Demonstrate economic development impact of current/future programs

The 2015 study conducted by Economic Modeling Specialists, Intl., Figure 1, provides data strongly supporting the fact that the College has a significant impact in promoting economic development, enhancing students’ careers, and improving quality of life.
Henry Ford College (HFC) creates a significant positive impact on the business community and generates a return on investment to its major stakeholder groups — students, society, and taxpayers. Using a two-pronged approach that involves an economic impact analysis and an investment analysis, this study calculates the benefits to each of these groups. Results of the analysis reflect Fiscal Year (FY) 2013-14.

Impact on Business Community

During the analysis year, HFC and its students added **$825 million** in income to the HFC Service Area economy, approximately equal to 0.6% of the Gross Regional Product. The economic impacts of HFC break down as follows:

**Operations spending impact**
- HFC employed 1,154 full-time and part-time employees in FY 2013-14. Payroll amounted to **$73 million**, much of which was spent in the HFC Service Area to purchase groceries, clothing, and other household goods and services. The college spent another **$49.2 million** to support its day-to-day operations.
- The net impact of college payroll and expenses in the HFC Service Area during the analysis year was approximately **$110.3 million** in added income.

**Impact of student spending**
- Around 4% of students attending HFC originated from outside the region. Some of these students relocated to the HFC Service Area and spent money on groceries, transportation, rent, and so on at regional businesses.
- The expenditures of students who relocated to the region during the analysis year added approximately **$1.9 million** in income to the economy.

**Alumni impact**
- Over the years, students have studied at HFC and entered or re-entered the workforce with newly-acquired skills. Today, thousands of these former students are employed in the HFC Service Area.
- The accumulated contribution of former students currently employed in the regional workforce amounted to **$712.7 million** in added income during the analysis year.
Job equivalents based on income

Job equivalents represent full- and part-time jobs that would not have occurred in the region without the college. They are calculated by jobs to sales ratios specific to each industry. Based on the added income created by HFC, the job equivalents are as follows:

- Operations spending impact = 1,600 job equivalents
- Impact of student spending = 60 job equivalents
- Alumni impact = 11,275 job equivalents

Overall, the added income created by HFC and its students supported 12,935 job equivalents.

For every $1 spent by...

<table>
<thead>
<tr>
<th>Group</th>
<th>Benefit</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Students</td>
<td>$3.40</td>
<td>Gained in lifetime income for STUDENTS</td>
</tr>
<tr>
<td>Society</td>
<td>$9.30</td>
<td>Gained in added state income and social savings for SOCIETY</td>
</tr>
<tr>
<td>Taxpayers</td>
<td>$6.10</td>
<td>Gained in added taxes and public sector savings for TAXPAYERS</td>
</tr>
</tbody>
</table>

Return on investment to students, society, and taxpayers

**Student perspective**

- HFC’s 2013-14 students paid a total of $27 million to cover the cost of tuition, fees, books, and supplies. They also forwent $136.6 million in money that they would have earned had they been working instead of learning.

- In return for the monies invested in the college, students will receive a present value of $557.8 million in increased earnings over their working lives. This translates to a return of $3.40 in higher future income for every $1 that students invest in their education. The average annual return for students is 13.9%.

**Social perspective**

- Society as a whole in Michigan will receive a present value of $2.5 billion in added state income over the course of the students’ working lives. Society will also benefit from $37.2 million in present value social savings related to reduced crime, lower unemployment, and increased health and well-being across the state.

- For every dollar that society spent on HFC educations during the analysis year, society will receive a cumulative value of $9.30 in benefits, for as long as the 2013-14 student population at HFC remains active in the state workforce.

**Taxpayer perspective**

- In FY 2013-14, state and local taxpayers in Michigan paid $39 million to support the operations of HFC. The net present value of the added tax revenue stemming from the students’ higher lifetime incomes and the increased output of businesses amounts to $227.8 million in benefits to taxpayers. Savings to the public sector add another $10.3 million in benefits due to a reduced demand for government-funded services in Michigan.

- Dividing benefits to taxpayers by the associated costs yields a 6.1 benefit-cost ratio, i.e., every $1 in costs returns $6.10 in benefits. The average annual return on investment for taxpayers is 21.9%.
III. STAFFING AND ENROLLMENT

A. Describe current full and part-time student enrollment levels by academic program and define how the programs is accessed by the student

In-district enrollments (serving the City of Dearborn and parts of Dearborn Heights) comprise approximately 27% of the unduplicated headcount. Out-of-district enrollments represent approximately 73% of overall enrollment.

The majority of academic programs are accessed through on-campus instruction at the main campus. The nursing program is located at the East Campus. On-line courses have increased and account for approximately 10% of sections offered. Training programs for business and industry are provided either at the worksite or at the M-TEC.

B. Enrollment Patterns over the last five years & projected enrollment pattern for the next five years

Enrollment trends state-wide in community colleges showed increases from 2008 through 2010. HFC had been fortunate to participate in this upward trend and served 18,525 students in the Fall semester of 2010. From the start of the growth period, 2006, through fall of 2014, students increased from 8,598 to 13,331 for an increase of 55%. Since that time, enrollment has declined consistent with the inverse relationship enrollment has with the rebound of the national economy. Table 1 below illustrates Fall HFC enrollment over the period of 2004 – 2014.

<table>
<thead>
<tr>
<th>TABLE 1</th>
<th>HFC FALL ENROLLMENT, 2004-2014</th>
<th>AS REPORTED TO IPEDS</th>
</tr>
</thead>
<tbody>
<tr>
<td>2004</td>
<td>12,712</td>
<td>12,521</td>
</tr>
<tr>
<td>2005</td>
<td>12,521</td>
<td>12,812</td>
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<tr>
<td>2006</td>
<td>12,812</td>
<td>13,983</td>
</tr>
<tr>
<td>2007</td>
<td>13,983</td>
<td>15,571</td>
</tr>
<tr>
<td>2008</td>
<td>15,571</td>
<td>17,542</td>
</tr>
<tr>
<td>2009</td>
<td>17,542</td>
<td>18,525</td>
</tr>
<tr>
<td>2010</td>
<td>18,525</td>
<td>17,650</td>
</tr>
<tr>
<td>2011</td>
<td>17,650</td>
<td>17,338</td>
</tr>
<tr>
<td>2012</td>
<td>17,338</td>
<td>13,836</td>
</tr>
<tr>
<td>2013</td>
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<td></td>
</tr>
<tr>
<td>2014</td>
<td>13,790</td>
<td></td>
</tr>
</tbody>
</table>
HFC is breaking new ground in meeting the needs of students in terms of customer satisfaction as well as degree completion. Agreements with transfer colleges and universities, training and retraining programs, and an emphasis on distance education will be a few of the strategies used to grow and create new programs and services. Programs will be made more accessible by offering more flexible scheduling of classes, including weekend College programs, and by offering more courses and ultimately programs on-line.

Despite the expected decline in enrollment due to the strength of the economy, HFC is making significant efforts to mitigate the decrease by increasing marketing and recruitment efforts, including international and global relationships which will increase enrollment, and revising policies and procedures to enhance the student experience at HFC. For example, in the fall of 2014, a course offering guarantee was instituted such that sections advertised in the course offerings schedule will be guaranteed to run.

An emphasis on recruitment and retention efforts will remain strong and environmental scanning efforts will ensure that the College continues to offer programs that meet the needs of students and the community.

C. Provide instructional staff/student and administrative staff/student ratios for major academic programs

In the nursing program, the faculty to student ratio is about 1:26 and the administrative staff to student ratio is about 1:176. For the health careers programs, the faculty to student ratio is about 1:28 and the administrative staff to student ratio is about 1:140. In the computer information systems program, the faculty to student ratio is about 1:25 and the administrative staff to student ratio is about 1:166.

D. Project future staffing needs based on five year enrollment estimates and future programming

Based on enrollment projections, it is estimated that the total number of adjunct faculty will shrink as the total number of sections declines in certain area. However, with the addition of new programs, it will be necessary to continue to attract highly qualified full-time faculty in high demand areas including culinary arts, manufacturing and health careers.

E. Identify current average class size and projected average class size based on institution’s mission and planned programmatic needs

It is the policy of the College that the minimum class size is fifteen students. The average class size is twenty-six students. This, of course, varies according to the nature of the program or type of course. For example, it is appropriate that certain types of general education courses seat thirty students per section. However, more difficult courses or technical courses that require particular labs are appropriately run with fewer students. At times, a class of less than fifteen students is offered if a group of students need a course during a particular semester in order to graduate.
No change is projected to this policy or average class size. It is the mission of the community college, in general, and Henry Ford College, in particular, to offer small class sizes. This aspect differentiates the community college from the four year university where a class size of 100 is not unusual. Henry Ford College students are promised more individual attention from faculty and support services.

IV. Facility Assessment

A professionally developed comprehensive facilities assessment is required.

Henry Ford College engaged Stantec, Inc. (formerly SHW) to facilitate the Master Facilities Planning process which included a facility assessment, utilization plan, and updated master plan. This initiative supports HFC’s mission and strategic plan by ensuring the College provides an outstanding environment in which to deliver high-quality academic programs.
COMPREHENSIVE FACILITY ASSESSMENT:
Click on the link or report icon below to review the comprehensive facility assessment in accordance with categories outlined in “net-to-gross ratio guidelines for various building types,” DMB-Office of Design and Construction Major Project Design Manual, appendix 7.

2014-2015 FACILITIES ASSESSMENT & DEFERRED MAINTENANCE CAPITAL PLANNING REPORT

The HFC Facilities Assessment f over 750,000 square feet and 206,000,000 replacement value has yielded a Facility Condition Index (FCI) of POOR (FCI > 10%) with respect to Priority 1-3. That is, the total value of projects that will require attention within the next five years including those that require immediate attention in order to maintain facilities and related infrastructure for safe use. The buildings identified as having significant issues include the Library, Bookstore, and the Technology. Liberal Arts, and Physical Fitness buildings.
The Current Replacement Value (CRV is the cost to construct a replacement building in today’s dollars), the Deferred Maintenance Backlog (DMB), and the Facility Condition Index (FCI) (DMB/CRV) is shown below:
CLASSROOM UTILIZATION

Detailed information regarding classroom utilization can be found on pages 52-54 of the Master Plan.

1. Mandated facility standards for specific programs, where applicable (i.e. federal/industry standards for laboratory, animal, or agricultural research facilities, hospitals, use of industrial machinery, etc.)

In the science program, laboratories must meet standards set by the Department of Transportation (chemical labeling), OSHA (workplace safety) and the EPA (chemical disposal). Chemicals are handled according to prudent practices for academic chemical laboratories, with emphasis on pertinent local, state, and federal regulations. All faculty go through yearly lab safety training.

The Science Division has a part-time chemical lab technician who is in charge of chemical inventories and lab safety. Standardized inventory and labeling have been implemented to comply with workplace safety and chemical labeling regulations.

The technology programs that teach the use of industrial machinery follow OSHA regulations such as those requiring personal protective equipment, machine guards, and designation of operator areas.
2. **Functionality of existing structures and space allocation to program areas served**

Programs being introduced in the next five years include Associate degrees and certificates in **welding, tool & die, transportation, distribution, and logistics, and mechatronics**. These program improvements require high tech classrooms and laboratories that are supported by a robust technological infrastructure. Henry Ford College is submitting a capital outlay project request for FY17 in order to continue development of major academic initiatives described below.

3. **Replacement value of existing facilities (insured value of structure to the extent available)**

A report provided by R. A. Schettler, Inc., listing the Replacement Value New and the Sound or Depreciated Value of all buildings at HFC (dated 12/2011) and is included in Appendix C. Building age and size data is included in Appendix D.

4. **Utility system condition (i.e., heating, ventilation, and air conditioning (HVAC), water and sewage, electrical, etc.)**

The current systems provide sufficient heating, cooling, ventilation, and other utilities to meet occupant needs under most operating conditions. However, the Facilities Assessment and Deferred Maintenance Capital Planning Report has identified **major issues in life expectancy and potential immediate system failures**.

See [Facilities Assessment & Deferred Maintenance Capital Planning Report](#).

5. **Facility infrastructure condition (i.e., roads, bridges, parking structures, lots, etc.)**

The College has completed the redesign and reconstruction of all parking lots at the Evergreen site. This includes a new storm water improvement system that significantly benefits the Rouge River which receives storm water runoff. Additional investment in 2014 and 2015 was made in sealing and preventative maintenance of the parking lots of both the Main and East Campuses. Extensive upgrades and repairs of concrete walkways were made in 2014 and 2015 at both Main and East Campus. Included in Appendix E is the listing of building repair priorities.

6. **Adequacy of existing utilities and infrastructure systems to current and five-year projected programmatic needs**

The electrical system at the Evergreen site includes many components that—after more than forty years of use—have exceeded their useful life. A plan was been developed to replace much of this infrastructure and to convert from 4800-Volt to
13.2 Kilovolt feeders as recommended by the local electricity provider. The electrical project related to the North Loop feeder is in process. To date, 65% of the North Feeder loop has been upgrade to 12.2 kva with an additional section covering the Facilities Building and Powerhouse to be upgraded in Spring of 2016.

The College commissioned a study to evaluate the central boiler plan. Options are being analyzed to replace burners, upgrade the piping system, and install heat recovery for the boiler stacks. Commission testing of the boilers will ascertain remaining useful life.

7. **Does the institution have an enterprise-wide energy plan? What are its goals?**

Have energy audits been completed on all facilities, if not what is the plan/timetable for completing such audits?

There is opportunity for improvement in the area of energy use/efficiency. A subcommittee comprised of facility personnel as well as faculty in the Energy Technology Program has been formed to investigate the potential for savings under performance management contracting.

The College's enterprise-wide energy plan depends largely on the age of the building and the details of their particular heating/cooling systems as follows:

- Construction/renovation to current energy code standards. This applies to the renovated science building (2011) as well as the new addition to the Science Center (2012), the Welcome Center (2012), and the School of Nursing (2009).
- Retro-commissioning of relatively new buildings with modern controls as funds become available. These include the Heath Careers Education Center (1999) and the M-TEC building (1999).
- Retro-fitting of temperature controls for the Administrative Services and Conference Center (1979) as funds become available.
- Major renovation of older buildings including complete renovation of mechanical systems as is being considered for the liberal arts building (1960).
- Renovations of buildings and rooms include the use of low energy LED lighting systems and occupancy sensors.

Where appropriate, and as funds become available, energy audits of several buildings will be completed when possible to assist in identifying opportunities for future savings.

The main campus central heating and cooling plants are given special attention with regard to energy consumption. Capital requests are being considered for replacement of a 25-year old central chiller and a 52-year old central boiler with a more efficient and flexible modern units. The chiller replacement plan includes replacing the 1960s era cooling tower with a modern, energy efficient cooling tower.
Finally, the buildings and grounds staff are dedicated to managing the mechanical systems with an eye to saving energy as much as possible. We retain a temperature control firm who provides us with regular services to maintain our Building Management System and assist us with technical support as we improve the system.

8. **Land owned by the institution, and include a determination of whether capacity exists for future development, additional acquisitions are needed to meet future demands, or surplus land can be conveyed for a different purpose**

   Included in Appendix F is a map of the main campus of the College. The southern property line is shared with University of Michigan-Dearborn and the Gabriel Richard Campus Ministry Center. The eastern border flanks Evergreen Road and provides the major vehicular entry points to the campus roadway systems and parking facilities. Immediately east of Evergreen Road is land owned by the Ford Motor Land Development Corporation, the Fairlane Town Center, and Fairlane Meadows. The western facilities boundary is created by the Rouge River watershed, controlled under the jurisdiction of Wayne County. The northern property line is Ford Road (M-153).

   Despite these space limitations, it is considered important to protect and preserve as much open space as possible, particularly space adjacent to buildings and building additions.

   At this time, it is determined that additional acquisitions are not needed to meet the need of future demands.

9. **What portions of existing buildings, if any, are currently obligated to the State Building Authority and when these State Building Authority leases are set to expire**

   Student and Culinary Arts Center 2028
V. IMPLEMENTATION PLAN

The Five-Year Capital Outlay Plan should identify the schedule by which the institution proposes to address major capital deficiencies, and:

1. Prioritize major capital projects requested from the State, including a brief project description and estimated cost, in the format provided.

Based on the assessments described above, Henry Ford College has established the following projects which are listed in priority order:

a. **Technology Building:** The Center for Innovative Manufacturing Education (CIMed)

b. **Library:** Student Success Center

Detailed descriptions of the projects listed above are included in the Master Plan and Appendix A and B to this document.
2. If applicable, provide an estimate relative to the institution’s current deferred maintenance backlog. Define the impact of addressing deferred maintenance and structural repairs, immediately versus over the next five years.

The 2014-2015 Facilities Assessment and Deferred Maintenance Capital Planning Report includes facilities issues according to their impact on health and safety, accessibility, code compliance, potential for stopping further deterioration of facilities, and impact on the learning environment.

Due to the severity of the infrastructure failings, the College continues to budget as much as possible to address these issues on an annual basis.

The findings of the Technology Building analysis include:

- The roof is past its useful life and needs to be replaced.
- Precast concrete panels, sill and tees show signs of spalling and cracking.
- Lay-in ceiling and carpet are past their useful life.
- HVAC units operate all night to keep building warm in winter.
- Dual-duct boxes and distribution equipment is original and past useful life.
- Use of fire dampers in corridors is inconsistent and doesn’t meet code.
- Cast iron drain pipe and domestic water pipe are past useful life.
- Electrical panels and lamps are past useful life.

---

**Vital Statistics**

**Technology Building**

| Use Type(s): classrooms, labs, offices |
| Built: 1964 with an addition built in 1993 |
| Area: 169,848 GSF |
| Floors: 2 |

**Building Description:**

The structural system consists of concrete beam and column structure and limited areas of steel frame construction. The façade is a combination of precast concrete panels, concrete, brick, glass and metal siding. The roof of the original building is a ballasted roof which is + 20 years old. The roof of the new addition was replaced in 1996 and is reported to be in good shape.

**Observation Highlights:**

- The roof is past its useful life and needs to be replaced.
- Precast concrete panels, sills and tees show signs of spalling and cracking.
- Lay-in ceilings and carpet are past their useful life.
- HVAC units operate all night to keep building warm in winter.
- Dual-duct boxes and distribution equipment is original and past useful life.
- Use of fire dampers in corridors is inconsistent and doesn’t meet current codes.
- Cast iron drain piping and domestic water piping are past their useful life.
- Electrical panelboards and fluorescent lamps are past their useful life.
The findings of the **Eshleman Library** analysis include:

- Air handling unit is original to the building and is beyond useful life. It is outdated, energy inefficient technology and must be replaced (Note: Since audit was conducted, the cooling tower is leaking and must be addressed).
- The building’s elevator is past its useful life and is failing.
- Concrete slabs at East and West entrances are heaving.
- EPDM roof is past useful life and due for replacement (Note: the College continues to address immediate health and safety issues and has replaced the roof during the summer of 2015).
- Exterior brick veneer is stained and needs tuck-pointing.
- Paint is peeling on the waffle slabs throughout the building.
- Carpet is significantly worn and needs replacement.
- Electrical gear is past its useful service life.

3. Include the status of on-going projects financed with State Building Authority resources and explain how completion coincides with the overall Five-Year Capital Outlay Plan

There are no current projects financed with State Building Authority resources.
4. **Identify to the extent possible, a rate of return on planned expenditures. This could be expressed as operational “savings” that a planned capital expenditure would yield in future years**

Studies indicate that campus facilities and appearance are among the top reasons for students choosing a college. Therefore, modern and attractive facilities and classrooms will have significant impact on recruitment and retention. The experience and education students will receive will positively benefit local, state, national, and global employers as demonstrated by the Economic Modeling Specialist Data. The highly skilled workforce will contribute to the economic development of the areas in which the students become employed.

5. **Where applicable, consider alternatives to new infrastructure, such as distance learning**

The distance learning program at HFC is being reviewed vis-à-vis the long-range strategic goals of the college. The Board of Trustees is allocating resources for research, personnel and ultimately development of the Online at HFC College. In essence, the College is developing and implementing a brand new, sustainable, quality first, structure and model focused on student success. To achieve this, a new structure will be established, quality standards will be guaranteed prior to publication, evaluations will be regularly conducted, student learning will be easily evaluated, student services will be embedded, and sustainability measures will be set. However, the growth of distance education programs will not reduce the physical space needs of the face-to-face delivery of instruction at HFC.

6. **Identify a maintenance schedule for major maintenance items in excess of $1,000,000 for fiscal year 2015 through fiscal year 2019**

There are no major maintenance items in excess of $1,000,000 planned.

7. **Identify the amount of non-routine maintenance the institution has budgeted for in its current fiscal year and relevant sources of financing**

For 2015-2016, the College has budgeted from operations approximately $600,000 for non-routine maintenance.
Technology Building: The Center for Innovative Manufacturing Education (CIMed)

Excerpt from the HFC National Science Foundation Grant Application, October 2015:

**Critical Issues Facing Education for Advanced Manufacturing Worker Development**

A study of student workforce readiness conducted by the Lumina Foundation found that 96% of college academic officers felt that students were prepared for the workforce upon graduation, while only 11% of business leaders agreed (Lumina, 2015). Also highlighted by Baumann et.al (2014), there is a gap between the skills students acquire and the skills employers need them to have. This is particularly evident in the U.S. manufacturing sector where the skills gap continues to grow, not because of worker shortages, but because educational competencies are not aligned with those needed in the workplace.

**Open-Lab Platform**

“Traditional educational models are not designed to serve the population most needing postsecondary education. We keep trying to wedge nontraditional students into inflexible educational structures that were built for 18 to 22 year olds and have barely changed in almost a millennium.” (Browser, 2014) The implementation of Common–Performance Based Objectives through the Open Lab Platform (OLP) will allow Competency Based Education to reach full potential by addressing “accessibility, affordability, transparency, and improved learning outcomes - all relevant to graduates’ employability and strengthening of the workforce” (Book, 2014). The OLP will build upon best practices and lessons learned from other institutions. This is critical, because research on improving CBE’s effectiveness indicates it must be supported by other innovations in design, delivery and assessment including:

- Student centered learning, in terms of flexibility and personalization (Klein-Collins, 2013).
- The ability for students to study at a variable, customized pace and receive consistent faculty support (Johnstone and Soares, 2014).
- (Create) sustainable learning resources, available at any time (Johnstone and Soares, 2014)
- Redefine(ing) the role of faculty since their role will change and insuring faculty develop CBE expertise (Mendenhall, 2012) (Cavanaugh, 2013) (Le, Wolfe, and Steinberg, 2014)
- (Create)Valid, reliable assessments (Mendenhall, 2012)
- Modularized learning (Weise, 2014)

The platform has additional economic benefits for all stakeholders that include maximizing instructional space for teaching and learning and optimizing hands-on technological equipment so students can access appropriate equipment. By encouraging students to embrace a more self-directed approach, they will increase their success in mastering a skill and attaining credentials.
POWER ENG./PROCESS TECHNOLOGY

1. Relocate and reduce equipment stock to accommodate creation of new Process labs. If necessary, to expand existing equipment, secure new lab space. If new labs are created in the existing outdoor area next to the lab, it would require relocation (and in most cases abandoning) the equipment currently located in the area. Equipment relocated outside the existing building would need to be secured and screened. Creation of a new Process lab would require a local area to be built on the existing building, along with appropriate walls, lighting, electrical, HVAC, etc.

2. Engineering Scope
   - New mechanical, electrical, plumbing, and fire protection systems will be installed to serve the new process lab.
   - A new packaged, gas-fired, direct expansion energy recovery unit with new exhaust distribution system will be provided to serve the lab.
   - A 115-volt single-phase or 480-volt three-phase power will be extended from the distribution panel boards serving the first-floor levels.
   - The existing fire alarm and wet pipe sprinkler system will be extended to serve the lab.
   - Plumbing utilities will be extended from existing building services.
   - Air handling services will require new zoning of existing air-handling units.
   - New lighting designed to accommodate with IES and campus standards will be provided.

MACHINE TOOL-CNC

1. Renovate existing CNC and Manufacturing Labs to link the two spaces, accommodate new equipment and align with current and proposed future pedagogy. By linking the existing CNC labs and Manufacturing lab, space can be reconfigured to accommodate new equipment (including a new Surface Grinder) and to provide a collaborative teaching area that will enable the program to align with current and future teaching practices.

2. Engineering Scope
   - The CNC lab and manufacturing labs are served by different electrical distribution panels and HVAC systems. The mechanical, electrical, plumbing, and fire protection systems will be modified to support the new portion of the spaces within the existing walls, but they will remain separate from a utility standpoint.

ROBOTICS/AUTOMATION/CONTROLS TECHNOLOGY

1. Relocate Robotics lab and remove existing walls between rooms 240, 234, 236 and 234 to create a continuous, flexible lab space that can accommodate additional new equipment. The area will undergo a complete repurposing to create a larger flexible lab. The walls that separate Rooms 240, 238, 236 and 234 will be demolished to create one continuous lab teaching space that can accommodate more modular pedagogy and significant new equipment provided in the Automation/Robotics lab specifically for new courses and new SMC training.

2. Engineering Scope
   - The existing mechanical, electrical, plumbing, and fire protection systems will be modified to support the renovation of the space. A new 480 volt, 60-amp, three-phase panel served from P12 will be provided to serve the new SMC lab. Compressed air piping will be extended from building utilities to serve the SMC lab.

GENERAL/MECHANICAL MAINTENANCE

1. Relocate existing functions out of Room 171 and into Room 126 to be done by HPC staff for Mechanical Maintenance. This work will be performed by HPC personnel.

2. Renovate Room 171 into a collaboration area for student and faculty.

3. Current boiler and offices (Room 1) will become storage rooms to replace storage lost with the expansion of the Manufacturing labs.

4. The current location of Room 171 will be repurposed into a Collaboration Area for student and faculty to include technology booths, soft seating, new finishes and lighting. The space will be designed to be a “break/Thai area” that will become one of the critical hubs in the building. The current boiler and offices (Room 1) will become storage rooms to take the place of the storage rooms being demolished to expand the Manufacturing Lab (Rooms 115, 160A and 160B).

5. Will need and space over north courtyard to create “Super Lab”. Create a large, open floor, lighting “Super Lab” in the north courtyard by remodeling over this area and providing an open floor space. This location would be ideal as it would be located near the building’s Mechanical Office (MC), Writing, Manufacturing, CNC as well as classrooms spaces on the north that can serve as a support function to the main labs as classrooms, meeting spaces, workshops, testing areas and specialized lab. This area is approximately 10,000 square feet.
Library: **Student Success Center**

The renovation of the existing library (83,000 GSF) into the Student Success Center is being proposed to achieve the following goals:

- Promoting student collaboration.
- Creating a hub for outside-the-classroom learning.
- Reimagining the library as the knowledge center.
- Prepare for Early College expansion.
- Upgrade classrooms and labs in academic buildings across campus.

**Outcomes**

Renovation of 83,000 GSF to create:

- Learning Commons. Relocating Bookstore to Learning Commons.
- Reallocate floor space for quiet and collaborative study, distributing computers throughout the building.
- Incorporate Student Success Programs into building.
- Learning Success Center to house student services such as Veterans Affairs, Honors, Study Abroad, Service Learning, Civic Engagement, Assisted Learning, Outreach, and Counseling.
<table>
<thead>
<tr>
<th>REAL ESTATE - BUILDING - HENRY FORD COMMUNITY COLLEGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>SUMMARIZED BY BUILDINGS</td>
</tr>
<tr>
<td>REIMBURSEMENT VALUE</td>
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<tr>
<td>NEW</td>
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<tr>
<td>SOUND OR DEPR. VALUE</td>
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<tr>
<td>LEARNING TECHNOLOGY</td>
</tr>
<tr>
<td>DEARBORN HEIGHTS CENTER</td>
</tr>
<tr>
<td>FINE ARTS</td>
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<tr>
<td>LIBERAL ARTS</td>
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<tr>
<td>LEARNING RESOURCE CENTER</td>
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<tr>
<td>PATTERSON TECHNICAL</td>
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<tr>
<td>PHYSICAL EDUCATION</td>
</tr>
<tr>
<td>SERVICE BUILDING</td>
</tr>
<tr>
<td>SCIENCE/HEALTH CAREERS</td>
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<tr>
<td>STUDENT CENTER</td>
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<tr>
<td>A.S.C.C. BLDG.</td>
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<tr>
<td>CHILD ACTIVITIES CENTER</td>
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<tr>
<td>YARD IMPROVEMENTS</td>
</tr>
<tr>
<td>M-TEC BUILDING</td>
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<tr>
<td>S.M.E. WEST BUILDING</td>
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<tr>
<td>S.M.E. EAST BUILDING</td>
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<td>S.M.E. SOUTH BUILDING</td>
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<td>NURSING BUILDING</td>
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<tr>
<td>NEW SCIENCE BUILDING</td>
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<tr>
<td>ASSET ACCOUNT GRAND TOTAL</td>
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PERCENT DEPRECIATION X
<table>
<thead>
<tr>
<th>Building</th>
<th>Construction Date</th>
<th>Gross Area (Square Feet)</th>
<th>Volume (Cubic Feet)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Administrative Services &amp; Conference Center</td>
<td>1983</td>
<td>59,645</td>
<td>980,348</td>
</tr>
<tr>
<td>ASCC – Addition</td>
<td>1988</td>
<td></td>
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<tr>
<td>Athletic Memorial Building</td>
<td>1964</td>
<td>37,268</td>
<td>696,661</td>
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<tr>
<td>Athletic Memorial Building - Addition</td>
<td>1993</td>
<td>2,284</td>
<td>27,359</td>
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<tr>
<td>Child Development Center</td>
<td>1996</td>
<td>7,005</td>
<td>108,630</td>
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<td>College Store</td>
<td>1975</td>
<td>7,752</td>
<td>69,768</td>
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<tr>
<td>Facilities Services Building</td>
<td>1994</td>
<td>7,932</td>
<td>116,576</td>
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<tr>
<td>Fine Arts</td>
<td>1981</td>
<td>65,079</td>
<td>987,639</td>
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<tr>
<td>Health Careers Education Center</td>
<td>1998</td>
<td>81,452</td>
<td>1,274,053</td>
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<tr>
<td>Learning Resources Center – Library</td>
<td>1966</td>
<td>46,587</td>
<td>556,615</td>
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<tr>
<td>Learning Resources Center – North Hall</td>
<td>1997</td>
<td>69,594</td>
<td>787,489</td>
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<td>Learning Technology Center</td>
<td>1963</td>
<td>25,157</td>
<td>322,034</td>
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<td>Learning Technology Addition</td>
<td>1997</td>
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<td>Liberal Arts</td>
<td>1963</td>
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<td>1,169,802</td>
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<td>Liberal Arts – Chiller Addition</td>
<td>1995</td>
<td>3,823</td>
<td>68,812</td>
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<td>Michigan Technical Education Center (M-TEC)</td>
<td>2001</td>
<td>28,890</td>
<td>300,000</td>
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<td>Power House</td>
<td>1963</td>
<td>5,222</td>
<td>106,428</td>
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<tr>
<td>East Building (former SME)</td>
<td>1983</td>
<td>63,264</td>
<td>822,432</td>
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<td>North Building (former SME)</td>
<td>1962</td>
<td>9,203</td>
<td>119,639</td>
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<td>South Building (former SME)</td>
<td>1979</td>
<td>32,250</td>
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<td>West Building (former SME)</td>
<td>1962</td>
<td>32,864</td>
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<td>School of Nursing</td>
<td>2001</td>
<td>32,800</td>
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<td>Science</td>
<td>1963</td>
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<td>419,863</td>
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<td>Student &amp; Culinary Arts Center</td>
<td>1963</td>
<td>41,807</td>
<td>626,784</td>
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<td>Technology Building – Patterson Technical Building</td>
<td>1965</td>
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<td>Technology Building – Pump House</td>
<td>1964</td>
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<tr>
<td>Technology Building – Addition</td>
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<td>Sq Feet</td>
<td>Priority Repair 1</td>
<td>Priority Repair 2</td>
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<tr>
<td>Administration</td>
<td>59,002</td>
<td>Replace 2 Rooftop AC Units</td>
<td>Boiler Replacement</td>
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<td>Athletic Memorial Building</td>
<td>36,460</td>
<td>Replace Gym Curtain Wall</td>
<td>Replace Bleachers</td>
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<td>Child Development Center</td>
<td>7,003</td>
<td>Replace furnaces and AC units</td>
<td>Replace Interior lighting</td>
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<td>College Store</td>
<td>7,730</td>
<td>New Vestibule</td>
<td>Replace Interior lighting</td>
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<td>Facilities Management Building</td>
<td>13,180</td>
<td>Install New Chiller Unit &amp; Tower</td>
<td>Boiler Replacement</td>
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<td>Fine Arts</td>
<td>61,501</td>
<td>Exterior Panels Sealants/Glazing</td>
<td>Replace building carpeting</td>
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<td>Health Careers Education Center</td>
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<td>Replace building carpeting</td>
<td>Upgrade Surgical and Respiratory lab</td>
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<td>Learning Success Center</td>
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<td>Library</td>
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<td>Replace building carpeting</td>
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<td>LSC - North</td>
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<td>Upgrade sound proofing between floors</td>
<td>Upgrade windows</td>
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<td>Patterson</td>
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<td>Roof Replacement</td>
<td>Concrete Polishing in Stairwells</td>
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<td>Pump House</td>
<td>462</td>
<td>Roof Replacement</td>
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<td>Welcome Center</td>
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<td>Upgrade interior lighting</td>
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<td>Description</td>
<td>Details</td>
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<tr>
<td>South</td>
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<td>Exterior Panel Sealants/Glazing</td>
<td>HVAC BAS system Installed (Pneumatic)</td>
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<td>Roof top Replacement (2 Each)</td>
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<td>HFC Welcome Center</td>
<td>60,800</td>
<td>A/C replacement</td>
<td>Floor replacement 1st floor</td>
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<td>Building Controls /Basement&amp;3rd floor</td>
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<tr>
<td>M-TEC</td>
<td>28,115</td>
<td>Install destratification fan - high bay</td>
<td>Repair space heater, high bay</td>
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<td></td>
<td></td>
<td></td>
<td>Install data room electrical backup generator</td>
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<tr>
<td>School of Nursing</td>
<td>33,155</td>
<td>Roof replacement</td>
<td>New windows in office areas</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Leak in HVAC system, RTU-3HWS.</td>
</tr>
</tbody>
</table>

All facility related projects are on the HFC website under [Facility Maintenance Projects](#).
The latest version of the campus map can be found on the HFC website.