

Five-Year Capital Outlay Plan
2019 - 2023

Macomb
Community College
Education • Enrichment • Economic Development

Discover. Connect. *Advance.*℠







Guiding Principles for Macomb Community College

VISION

Macomb Community College will continue to be a recognized leader of higher education and the community's preferred choice for lifelong learning, cultural enrichment and community development opportunities.

MISSION

As a publicly funded and community-based institution of higher education, Macomb Community College provides a comprehensive program of high-quality educational, enrichment and economic development experiences designed to promote student success, individual growth and social advancement.

MISSION STRANDS

EDUCATION

Provide a learning environment that promotes program completion, graduation, transfer, advanced degree attainment and career success.

ENRICHMENT

Provide personal enrichment experiences through cultural and arts programming.

ECONOMIC DEVELOPMENT

Provide education, training and support in developing a skilled workforce and in fostering entrepreneurship to cultivate southeast Michigan's economic vitality.













Core Values

Since Macomb Community College's founding more than half a century ago, it has developed into a trusted and indispensable community resource. The following values represent the College's deeply held beliefs.

EXCELLENCE

- In all learning experiences
- In governance and management systems
- In individual and group performance
- In financial stewardship

CONTRIBUTION

- To the expanding body of knowledge
- To the advancement of our professional knowledge and development
- To the enrichment of our society and the economic vitality of our community

RESPONSIVENESS

- To changing environments
- To current and emerging students and community needs
- To the capacity of human and technological potential

DIVERSITY

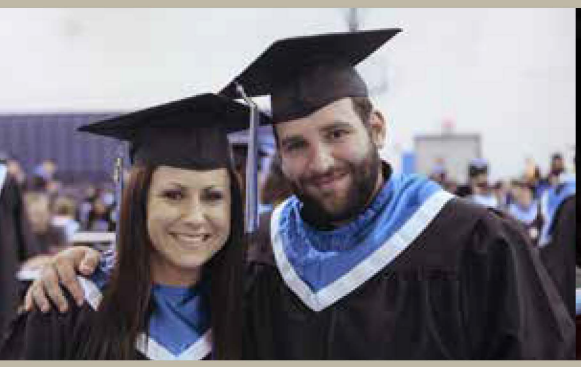
- In engaging the community as members of a multicultural world
- In welcoming the diversity of faculty, staff and students
- In supporting respect, fairness, dignity and equality for all individuals
- In promoting an inclusive environment that celebrates differences in thought, background, life experiences and varied cultural perspectives

LEADERSHIP

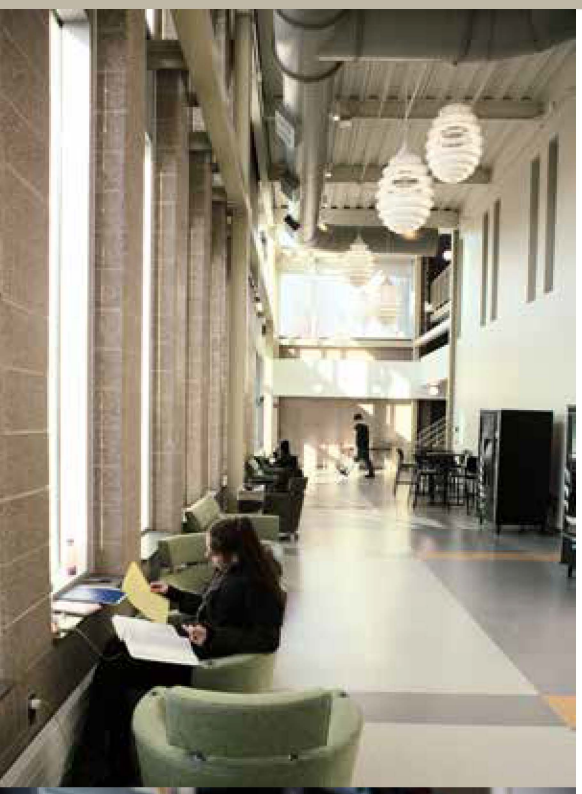
- In creating a shared vision and mission
- In acting with integrity and professionalism
- In serving the community
- In encouraging an environment of transparency and accountability
- In establishing collaborative purpose, direction and action

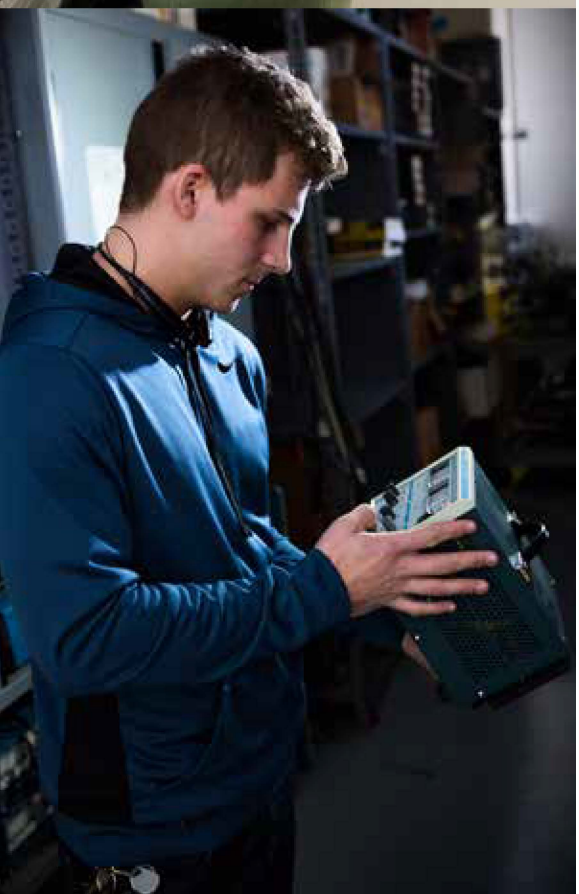
INNOVATION

- In inspiring creativity and peak performance
- In generating momentum for advancement and continuous improvement
- In strategically shaping the future









Institutional Priorities

STUDENT SUCCESS

Goal

Provide learning opportunities and support services that enable students to achieve their educational goals.

Objectives

- Improve persistence, course completion and degree attainment resulting in achievement of educational goals
- Develop and implement strategies and models to improve student success
- Ensure accountability through active and continuous data analysis of student persistence, course completion, degree attainment and support services
- Ensure an educational continuum that supports smooth transitions from K–12 to Macomb and that focuses on pathways from Macomb to other institutions
- Support strategies and practices proven to promote quality teaching and increased student learning

EFFICIENCY AND EFFECTIVENESS

Goal

Evaluate and manage processes and resources to ensure sound fiscal stewardship of community investment while sustaining a relevant and comprehensive educational institution.

Objectives

- Ensure continuous process and systems improvements
- Use technology to develop innovative approaches to teaching, learning and support services
- Recruit and retain diverse faculty and staff and support their professional and personal development
- Investment in facilities and equipment to ensure an effective teaching and learning environment that prepares students for advanced education and workplace success
- Encourage data-driven decision-making to ensure continuous improvement, greater effectiveness, and accountability in student learning and administrative outcomes
- Improve communication and collaboration between faculty, staff and students
- Maintain a strategic approach to budgeting that aligns planning with revenue allocations
- Identify other sources of revenue to support the institution beyond traditional funding sources







COMMUNITY ENGAGEMENT

Goal

Strengthen partnerships and increase collaboration to better anticipate and respond to community needs, playing a key role in driving dialogue and developing new approaches to address emerging needs.

Objectives

- Enhance outreach efforts with community partners to meet the needs of an increasingly diverse population
- Expand partnerships with other post-secondary institutions to strengthen transfer pathways to advanced degrees
- Partner with K–12 to strengthen students' academic preparation for college
- Strengthen relationships with business and industry to more closely connect education and training to workplace needs
- Present meaningful cultural and arts experiences to support learning and enrichment for community members of all ages
- Enhance the entrepreneurial ecosystem in the region
- Pursue stable funding sources by engaging voters and taxpayers







Instructional Programming

Macomb Community College (www.macomb.edu) is one of the nation's leading community colleges, providing learning experiences to more than 44,000 students annually. As a publicly funded and community-based institution of higher education, Macomb provides a comprehensive program of high-quality educational, enrichment and economic development experiences designed to promote student success, individual growth and social advancement. The college's comprehensive educational programming includes pre-collegiate experiences, university transfer and career preparation programs, bachelor degree completion and graduate degree programs, workforce training, professional education and certification, and continuing education and enrichment opportunities.

a. Describe existing academic programs and projected programming changes during the next 5 years, in so far as academic programs are affected by specific structural considerations (i.e., laboratories, classrooms, current and future distance learning initiatives, etc.)

Macomb Community College is the largest grantor of associate degrees in Michigan and in the top two percent nationally. For over 60 years, Macomb has earned the reputation of being on the leading edge in program development and course delivery. As a result, Macomb has been able to meet the changing needs of the community and workforce it serves.

Macomb students have the option to take classes 7 days a week, day or night; on campus, online, via hybrid (i.e., online and on ground), and in 8-week, 12-week or 16-week blocks of time. The college has also developed fast-track and accelerated programs and online-facilitated programs. Over 2,700 classes are offered each term at the college's campuses and throughout the county at community education centers. Today's students require greater flexibility and independence for their education and training, which obviously impacts the design and utilization of the college's instructional space and programming.

As with any institution, it is important for Macomb Community College to understand the educational needs in the community and anticipate changes in programming that will be necessary to meet those needs. In Michigan today there is a growing need for a highly skilled workforce to fill the abundance of job openings in advanced manufacturing. It is because of the increasing demand of our employer partners that Macomb continues to focus on the updating and expansion of the Skilled Trades and Advanced Technology Center. In this facility, Macomb trains students for positions such as CNC machine programmers and operators, welders, robotics programmers and operators, and other high-demand careers in advanced manufacturing.

The center is in need of many updates including mechanical and electrical systems that are over 35 years old. There are a number of safety issues, capacity concerns and lab updates that are needed in this area as well. It is imperative students are learning on state-of-the-art equipment giving them real experiences that will make them viable candidates to hit the ground running for the employer. The renovation of this complex is necessary to meet the labor market demands in these areas, assist in closing the skills gap, and provide the highest quality education to students in the pipeline and beyond.

Macomb is committed to making sure we meet our mission of educating today's workforce in areas that can provide our students with sustainable wage jobs. We understand that there are limitations to the amount of state funding available for capital requests and continue to look at other potential opportunities for partnerships to assist us with this renovation.

In addition to that major priority, the administration developed a long-term renovation plan with three phases. Beginning in 2014 through 2019, the college has made major renovations to South Campus buildings C, E, G and

H and Center Campus buildings A and F. These buildings serve students in art and science programs, information technology programs, public service – fire and police training, and the very critical services of counseling, advising, enrollment and financial aid.

Phase two will begin in 2017 and will include major renovations to South Campus buildings B, D and F as well as Center Campus buildings B, E and N. These renovated buildings will serve students in our health and human services programs, provide updates to buildings with a variety of classrooms and labs, and bring the technology up-to-date in each of these facilities. After these renovations are completed there will be a reassessment of the facilities to determine the highest priorities for phase three beginning in 2020.

b. Identify the unique characteristics of each institution's mission. For Community Colleges: Two-year degree and certified technical/vocational training, workforce development activities, adult education focus, continuing or lifelong educational programming, partnerships with intermediate school districts, community activities, geographic service delivery area (s), articulation agreements or partnerships with four-year institutions.

Certified Technical/Vocational Training/Workforce Development Activities

Center for Advanced Automotive Technology (CAAT)
CAAT is a curriculum resource for other institutions of higher education and local school districts. CAAT has funded 16 seed projects supporting curriculum development related to advanced technologies at middle school, high school and post-secondary institutions. Recognizing that the economy of Macomb County is highly dependent upon a skilled workforce, CAAT introduces students to occupations requiring Science, Technology, Engineering, Arts, Manufacturing and Math (STEAM) through Auto STEAM Days (formerly Robotics, Engineering and Technology Days (RET Days and the Automotive Design and Engineering Career Expo).

Automotive Technology
As one of the largest Automotive Technology programs in the state, Macomb strongly supports the automotive industry and the aftermarket in developing technicians for service and development careers. The general Automotive Technology program enables students to pursue certificates and associate degrees aligned with the National Institute for Automotive Service Excellence (ASE) criteria. The college also has a corporate Automotive Technology program. The General Motors ASEP program is a cohort based co-op type program that alternates school and work periods for three years leading to degree completion.

Digital Sculptor Program
Macomb Community College created a digital sculptor program to address the specialized needs of the automotive industry at the request of industry leaders and developed with industry experts. This program combines the traditional hand sculpting skills (aka clay modeling) with computer based software to create and manipulate 3-D virtual models. The first clay modeling class was conducted in winter 2014. The certificate and associate degree programs officially began in fall of 2015.

Prosperity Reaches into South Macomb (PRISM)
Macomb Community College received $1.1 million dollar grant award through the Ralph C. Wilson Foundation in July of 2017. Part of this award will support efforts to train 100 students with an interest in and an aptitude for advanced manufacturing. Individuals in South Macomb County will receive training and industry recognized credentials in, in-demand areas of advanced manufacturing, an industry projecting continued employment growth over the next ten years through this program.

In addition to technical training, all participants will have foundational skills support, which focuses on increasing employability, such as basic math, interviewing, and more. Several key student success positions will also be funded through the grant to ensure that each PRISM student receives the level of intrusive counseling and wrap around services they need, has access to the right foundational skills support, and can work directly with a career coordinator to ensure that their employment future is successful.

Automotive Technology
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Michigan Technical Education Center (M-TEC)
Macomb Community College's M-TEC is a 40,600 square foot, $7.5 million facility on the site of the former Warren Tank Plant. This dynamic learning environment is distinguished by its design, which includes robotic training cells, integrated CAD/CAM and a large flexible high-bay space that can be rapidly adapted to meet any business training requirements.

M-TEC also houses a resource center, computer labs and classrooms offering the most advanced training technologies in automated systems, computer aided drafting and quality management processes. The programs offered are industry-driven, flexible, accessible and designed to address the challenges of today's marketplace. Students are enrolled in pathways that are short-term, fast paced and we have embedded stackable national industry certifications.

The Robotic Training Cells at Macomb's M-TEC are ideal for training a variety of students from maintenance technicians to engineers. These instructional labs offer students the opportunity to learn current, real-world industry applications for robotic handling of materials in fully functional manufacturing cells. Here the student is given the opportunity to apply theoretical knowledge to the robotics and systems actually involved in advanced manufacturing processes, rather than only on desktop trainers or simulators. An investment of over $2,6 Million in new and upgraded state-of-the-art equipment was installed with funding provided through the Department of Labor Trade Adjustment Assistance Community College and Career Training (TAACCCT) grant, the State of Michigan Community College Skilled Trades Equipment Program ,the Make It In America DOL grant and the college itself.

The $2.6 million investment has advanced its capabilities in advanced integrated manufacturing, automated systems and robotics. M-TEC offers training on the latest industry-specific equipment in body-shop, paint, general assembly, stamping and powertrain. In addition, we offer automated systems training that includes FANUC and ABB robots, laser alignment, CMM, RFID, FANUC CNC Robodrill, robot load/unload and vision system, VFD training stations, AB and Siemens PLC training stations, and more. With over 400,000 robots installed, FANUC is the largest supplier of robots worldwide and Macomb's M-TEC is the only community college training center in Michigan scheduled for a FAST designation. In addition the college provides the industry recognized FANUC CERT.

This update allows for our students to learn on equipment exactly like that which they will find in the workplace. Our employer partners express the exceptional positive impact this has on their companies. The students are entering the workplace ready to hit the floor running reducing the amount of training time employers have to allow for.

Michigan New Jobs Training Program (MNJTP)
Designed as an economic development tool, the Michigan New Jobs Training Program allows community colleges to provide free training for employers that are creating new jobs and/or expanding operations in Michigan. The training for the newly hired workers is paid by capturing the state income tax associated with the new employees' wages.

Macomb Community College has entered into several MNJTP agreements with Macomb County employers. The MNJTP supports job creation in Macomb county. The following are a list of approved and pending projects:
MFC Netform with 75 new jobs, PA Solutions, Inc. with 75 new jobs; Avon Machining, LLC with 50 new jobs; Universal Tool Equipment and Controls, Inc. with 52 new jobs; R&E Automated Systems, LLC with 40 new jobs; Cosworth with 26 new jobs and FCA SHAP with 700 new jobs.

Thirteen additional companies have completed MNJTP applications with the college, pending the next allowable funding opportunities through the state.

Apprenticeship
Macomb Community College has long maintained an emphasis and support of apprenticeship and sponsored employee educational programs. Macomb Community College has developed and implemented the Michigan Apprenticeship Program Plus (MAP+), an American Apprenticeship Initiative sponsored program, to develop and expand apprenticeship career pathways. The program spans from building awareness, including working with high schools and other organizations to link individuals to opportunities, providing pre-apprentice and apprenticeship training, matching employers and students, leveraging associate degree attainment and creating options for bachelor degree completion. The program offers industry-driven, structured training that allows employers to develop current employees as well as, to interview and hire students. Currently the college has nearly 500 sponsored students (registered apprenticeship or employee-in-training) from over 60 companies.

The Macomb MAP+ is focused on manufacturing-related areas such as CNC machining, robotics, tooling, die, mold, welding and industrial maintenance as well as supporting other traditional apprenticeship areas such as construction and climate control. In 2016, MAP+ was recognized by Automation Alley with their Educational Initiative of the Year award.

The college is a member of the Registered Apprenticeship College Consortium (RACC), a national network of colleges and registered apprenticeship programs working together to provide college-to-career opportunities. In addition, the college also has specific articulation agreements with five construction union groups. Under the agreement, union organizations provide credit to apprentice workers for training received by any of the five partners.

The following union organizations are participating:

- Detroit Carpenter Joint Apprenticeship Training Committee
- Local 80 Sheet Metal Training Center
- Michigan Laborers Training & Apprenticeship Institute
- Millwright Local 1102 Apprenticeship Program
- Greater Detroit Cement Masons Joint Apprenticeship Committee

A graduate apprentice can receive up to 32 credit hours at Macomb for completion of the apprenticeship training. The credits apply to an associate of applied science degree. Those who complete engineering and

advanced technology courses at Macomb and then enter an apprenticeship program with one of the partners can receive credit of up to one year of related training instruction.

Adult Education Focus, Continuing or Lifelong Educational Programming

Center for Teaching and Learning (CTL)
The major technology enhancements in the area of teaching have significantly improved the ability of the college's faculty to deliver curriculum in a variety of modes reflective of the learning preferences of their students. To support teaching and learning in the classroom, the college created the CTL which is designed to serve as a "one-stop shop" and professional development training center for full-time and adjunct faculty members. The center offers assistance with a wide variety of instructional and professional development topics such as teaching methods, web development, distance learning, curriculum development, instructional technology and assessment. Training and the sharing of best practices, as facilitated by the CTL, allow the faculty to optimize their utilization of the college's technology resources while enhancing their classroom content deliveries.

Society of Active Retirees (SOAR) Macomb
The Society of Active Retirees is a community-based lifelong learning initiative of Macomb Community College. SOAR Macomb offers a range of non-credit enrichment courses covering a variety of topics, providing its members with opportunities for social and cultural enrichment and personal growth. Membership in SOAR Macomb is open to all who are committed to lifelong learning. The program was established in 2014 and has grown to over 460 active members and offers 100 class offerings each year.

Workforce and Continuing Education (WCE)
Macomb's Career Academic departments extend the college's tradition of education and service by providing job skills and lifelong learning opportunities that measurably improve the quality of life for individuals in the Macomb County region. Workforce and Continuing Education can be categorized into the following:

- Career Training: Assists individuals seeking immediate employment, new career opportunities, retraining and skill upgrades for the workplace.

- Corporate Training: For businesses seeking to upgrade employee proficiency in technical and professional areas and those seeking to find and train new employees.

- Workforce Assessment: Assessment and test preparation courses that address the workforce development needs of local and regional employers, trade and labor organizations, economic and workforce development organizations and educational systems and institutions.

- Entrepreneurial Training: Geared to small business owners, entrepreneurs and those agencies and individuals involved in economic and job development in the community.

- Personal Enrichment: Opportunities for individuals to pursue special interests in art, language, culture and wellness.

- Professional Development: Provided for those individuals interested in advancing their current career, need training to retain a certification or are ready to enter a new field, Macomb offers many convenient options for professional and career development through both its academic and Workforce and Continuing Education programs.

- College 4 Kids – Provides educational opportunities and a college campus connection for students ages 3 to 17. Through fun activities and enriching, memorable experiences, students learn and succeed through personal achievement.

Workforce and Continuing Education programs directly align with academic career programs to enhance non-credit to credit career pathways in Engineering & Advanced Technology, Business & Information Technology and Health & Public Service. This innovation allows Macomb students to advance through progressive levels of training more efficiently and attain labor market payoffs sooner.

Reading and Writing Studios

Given the changing demographic in Macomb County, the college has experienced an increase in underprepared students. Recognizing that their persistence and success is vital to the overall community, Macomb opened a reading and writing studio at both South and Center campuses in 2015. The Reading and Writing Studios offer support for any interested student, including specialized programming for students whose primary language is not English.

This service has been incredibly successful thus far with current Macomb students. To date there have been over 11,000 clients who have utilized the studios. Our analysis of the outcomes of students who have used R&WS services to date—an analysis that controlled for demographic variables, college-readiness levels in English and reading, and number of years since first enrolling at Macomb—resulted in very positive effect size estimates. Compared with students who registered for R&WS services but did not attend any sessions, students who attended 3 to 5 sessions had an expected 37% increase in the odds of fall-to-winter persistence (an increase of about 5 percentage points in the probability of persistence), while students who attended 6 or more sessions had an expected 195% increase in the odds of fall-to-winter persistence (an increase of about 14 percentage points in the probability of persistence).

Partnerships with Intermediate School Districts

High School Course Transfer (Articulation)

Macomb has a positive working relationship with all of the county's high schools and technical centers, from which approximately 68% college-bound seniors attend Macomb Community College within five years of their high school graduation; Macomb currently has approximately 185 formal articulations agreements with the local school districts. These agreements create one avenue of earning college credit while in high school, and effectively provide students with the opportunity to "jump start" their college career in the various career and technical fields of study.

Early College of Macomb - A college access, college ready model

Macomb Community College and the Macomb Intermediate School District have partnered to provide a countywide program for high school juniors who want to get a jump-start on their college education and their careers. In this three-year program, students participate in an integrated sequence of high school and college courses with no out-of-pocket cost for books, fees and tuition with the potential to graduate with a high school diploma and associate degree at the end of grade 13. Attendance has grown from 53 students in 2010 to 648 students in the fall of 2017. The Early College of Macomb can expect approximately 235 new incoming juniors each year moving forward.

Partnerships with Four Year Partners

Macomb has over 300 articulation and/or transfer agreements with four-year colleges and universities throughout the state and nation.

List of transfer programs to universities: http://www.macomb.edu/transfer

Macomb established a landmark on the higher education landscape when it built its UC, one of the first community college-driven initiatives in the nation, to provide access to bachelor's degree completion and master's degree programs. At Macomb's UC, 12 "partner" institutions offer students an opportunity to complete a bachelor's or master's degree in over 75 programs. Students can also earn a doctoral degree in osteopathic medicine through Michigan State University's medical school in the UC. Additional UC partners are Central Michigan University, Davenport University, Ferris State University, Madonna University, Northwood University, Oakland University, Rochester College, University of Detroit Mercy, Walsh College, Wayne State University, and Western Michigan University.

List of programs at the University Center: http://www.macomb.edu/uc

Annually, more than 7,500 students are enrolled in over 400 sections at Macomb's UC, pursuing bachelor's, master's and doctoral degrees in fields from business, computer science, elementary education to engineering, health services, and counseling. This UC is now larger than some of Michigan's smaller community colleges and several of its independent universities.

Community Activities

Student Options for Success (SOS)

The SOS program connects students with a variety of community and public benefit organizations to help them with living expenses while pursuing higher education. Academic success is a priority, but many students still struggle with basic expenses such as food, rent, utilities, childcare, and healthcare while in school. The SOS program helps students find resources to support their attainment of educational goals by providing tools for ongoing financial stability and long-term self-sufficiency. In 2016 the SOS office served 300 students and awarded $11,791 in emergency funds.

Community Enrichment

In addition to the 44,000 students who enroll in Macomb's credit and non-credit programs each year, nearly 375,000 people participate in its community service programs.

The Macomb Center for the Performing Arts (MCPA) offers nearly 500 cultural events and hosts more than 128,000 visitors. The MCPA is a center of education and enrichment in Macomb County, offering a variety of cultural experiences to patrons of all ages. In addition to professional staged programs, the center also offers choir and summer workshops for children.

The Sports and Expo Center is Macomb County's largest conference and expo center that boasts 61,000 square feet of space. Families, community, athletic and special events hosted by the college are held in this spacious venue.

The Albert L. Lorenzo Cultural Center has become a place for discovery, creating a venue where people can explore the historical and current experience that shape the community's heritage. Over 158,000 have

visited the Cultural Center since it opened in September 2006. The center operates on a philosophy of fostering partnerships and collaboration to augment existing assets already available in the community, while bringing new cultural resources and experiences to the residents of Macomb County. Programming for the Cultural Center is designed to explore topics from a variety of perspectives, creating multidimensional experiences that provide interactive opportunities for learning, celebration, and entertainment. The center has been recognized with awards from the Historical Society of Michigan and the Michigan Museums Association.

In addition to these facilities, Macomb participates in many other activities and organizations throughout each year. Macomb makes a concentrated effort to analyze the communities' needs and helps create solutions. For example, Macomb works closely with the Chaldean Community Foundation to assist Iraqi individuals who are transitioning into our communities, providing resources on campus specifically designed to meet their unique needs. We provide English as a second language (ESL) training and have a dedicated space at South Campus being utilized as a language lab, with the expectation of educating more culturally competent, linguistically skilled individuals that will serve the needs of the growing new American community.

Finally, each year we have three very important events in conjunction with our K-12 partners. Macomb highlights a very important economic development factor in Macomb County, Lake St. Clair, through the Water Festival that is held annually in May. This year the college hosted 4,500 students to learn about water preservation, conservation and safety.

Secondly, Macomb hosts Auto STEAM days each year where students in grades 6 – 12 are invited to campus to learn about career pathways available in these fields, check out the latest trends in technology, discover the electric vehicle, experience hands on robotics opportunities, and so much more. This is an interactive and fun way to get students interested in these careers as we help Macomb County's engineering and automotive businesses fill their employee pipeline through our programs.

Lastly, for the last three years the college has partnered with One Macomb, the Macomb Intermediate School District, all of the school districts in the county, McLaren Macomb Hospital and others to host a Macomb County Diversity Summit for students in grades 8 – 11. This is an effort to increase awareness and understanding of the many cultures in our county and provide ways for our students to be leaders in these efforts.

In addition to these and the many more community events hosted on Macomb's campuses, the college also partners and supports the following organizations whose activities match our mission:

- ACCESS
- Advancing Macomb
- Anchor Bay Chamber of Commerce
- Anton Art Center
- Automation Alley
- Center for Automotive Research
- Chaldean Chamber/ Community Foundation
- Clinton River Area of Concern Public Advisory Council
- Clinton River Watershed Organization
- Detroit Institute of Arts
- Detroit Regional Chamber (including the Detroit Scholarship Fund)
- Detroit Symphony Orchestra

- Eastpointe-Roseville Chamber of Commerce
- Healthy Neighborhoods Detroit
- Inforum
- Interfaith Center for Racial Justice
- Leadership Macomb
- LIFT (Lightweight Innovations for Tomorrow)
- Macomb County Chamber/Macomb Foundation
- Macomb County Water Resources Advisory Council
- Macomb Literacy Partners
- Macomb-Oakland University INCubator
- Macomb Symphony
- MCREST
- Metropolitan Affairs Coalition
- Mexican Consulate in Detroit
- Michigan Automotive and Defense Cyber Assurance Team
- Michigan Opera Theatre
- Motor City Symphony
- Richmond Chamber
- Romeo/Washington Chamber
- Selfridge Air National Guard Base Community Council
- Southeast Michigan Council of Governments
- Sterling Heights Chamber
- Sterling Heights Community Foundation
- Traffic Safety Council
- Turning Point
- United Way
- Workforce Intelligence Network Southeast Michigan

c. Identify other initiatives which may impact facilities usage

All of the activities listed in the previous section impact facility usage at Macomb. In addition to those ongoing programs and community outreach events, an increase in the non-credit training enrollment strains facility usage at South Campus specifically. This is the basis for the capital outlay request. As the skilled trades continues to thrive in Southeast Michigan, more and more jobs go unfilled. Based on the full schedule of classes and our community partnership events there are limited options for finding other space to accommodate the continued expected increase in skilled trades training classes need to do our part in filling the skills gap. The renovation of the Skilled Trades and Advanced Technology Center is the only viable option for Macomb to expand facility usage.

d. Demonstrate economic development impact of current/future programs (i.e., technical training centers, Life Science Corridor and Tri-Technology Corridor initiatives, etc.)

<u>Economic Growth</u>

Macomb contributes significantly to the economic vitality of Macomb County, providing an impact of up to $108 million annually and a return of up to $3.18 for each tax dollar invested in the college. Macomb offers many enhanced workforce programs creating an increase of $45.3 million in earnings of county residents.

Macomb County residents also enjoy a tax base increase some of which is attributable to the positive impact the college has on commercial and industrial property values.

Macomb Community College is fully committed to addressing the needs of area employers by providing a skilled workforce prepared for the new advanced technology job opportunities. In addition to that commitment and Macomb's many other credit programs, the college is also focused on economic development and has a significant role in these efforts. Macomb continues to be an institution that not only helps existing companies with their workforce needs by educating their current and future employees, but also seeks to be an institution that helps form new companies.

In September 2014, Macomb announced the launch of the Innovation Fund, a $2.7 million dollar initiative to provide financial awards to startups that are scalable, can create jobs and provide rich educational opportunities for Macomb students. The educational opportunities for students must be comprehensive and in some instances, paid. To date a total of $1.675 million in award commitments have been made to 31 companies.

In addition to the Innovation Fund, the Center for Innovation and Entrepreneurship offers educational opportunities to students, faculty and community members. The Center promotes a learning environment that invites students to explore entrepreneurship and take action on innovative ideas.



Staffing & Enrollment

Macomb Community College

Education • Enrichment • Economic Development

Discover. Connect. *Advance.*℠

III. Staffing and Enrollment

Colleges and universities must include staffing and enrollment trends in the annual 5-year comprehensive master plans. This component should:

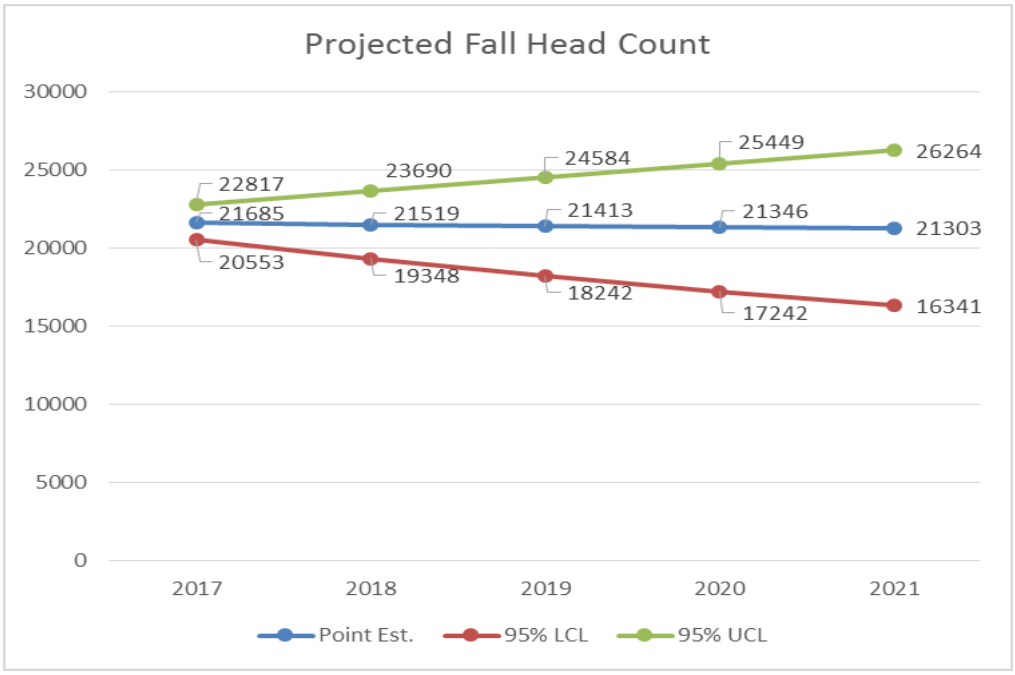
a. Describe current full and part-time student enrollment levels by academic program and define how the programs are accessed by the student (i.e., main or satellite campus instruction, collaboration efforts with other institutions, Internet or distance learning, etc.)

As of fall 2016, Nearly 13,000 (59%) students at Macomb were enrolled in arts and sciences programs, which are primarily designed to prepare students for transferring to four-year colleges and universities. The next largest number of enrolled students, 2,800 (13%), is in the business and culinary program area. Over 2,400 (11%) students are enrolled in engineering, automotive and applied technology programs. And, nearly 1,800 students (8%) are enrolled in health service programs. Additionally, Macomb educates a significant number of individuals, 1,300 (6%), in the areas of information technology (740) and public safety (560).

Seventy percent of Macomb students attend the college part-time, meaning they take less than 12 credits per term. Of the more than 415,000 total credit hours taken by students in the 2016-17 academic year, 77% attended at one of two main campuses (Center or South). Twenty-one percent attended on-line (via internet) or through hybrid delivery. Only 2% attended at satellite campuses (East Campus or off-campus). The following list details their attendance by campus or on-line delivery:

Center Campus	42%
South Campus	35%
Online (Virtual, Internet)	20%
East Campus	1%
Hybrid	1%
Off-campus	1%

b. Project enrollment patterns over the next five years (including distance learning initiatives)

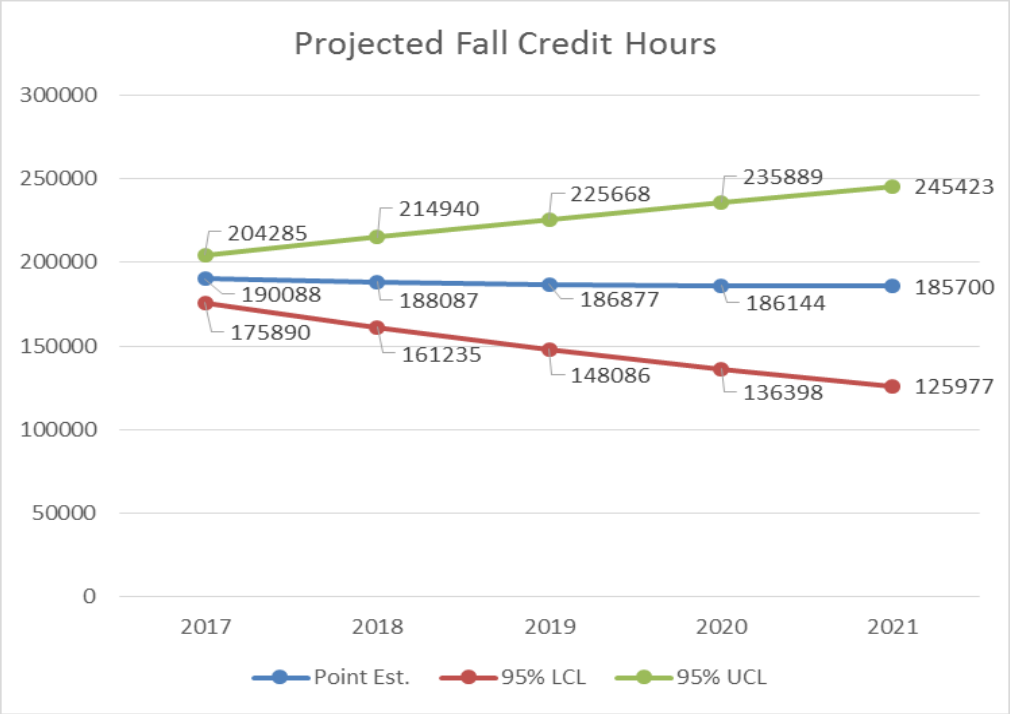


LCL: Lower Confidence Limit
UCL: Upper Confidence Limit

An ensemble of exponential smoothing and ARIMA models were evaluated with respect to best fit with the data from fall 2004 through fall 2016. Of the models evaluated, an ARIMA (1,1,0) model had the best fit with past head count (and credit hours) data and was used to project head count and credit hours for the fall 2017 through fall 2021 period.

The estimated model for head count accounted for 83.5% of the variation in head count over the 2004 through 2016 period. The mean absolute percentage prediction error for the period estimated was 1.8%. The median absolute percentage prediction error was 1.1%, and 85% of the absolute percentage prediction errors were less than or equal to 2.6%. The point estimates for the projected fall head count suggest declining enrollment, with average annual declines of about 0.6% through the 2017 to 2021 period. These estimates may overestimate enrollment, at least in the immediate future, however, given the tuition increase enacted earlier this year. Current head count data for fall 2017 is about 4% below that predicted for fall 2017, so there is a reason for thinking that the model's predictions may underestimate the decline in head count that could reasonably be expected in the near future.

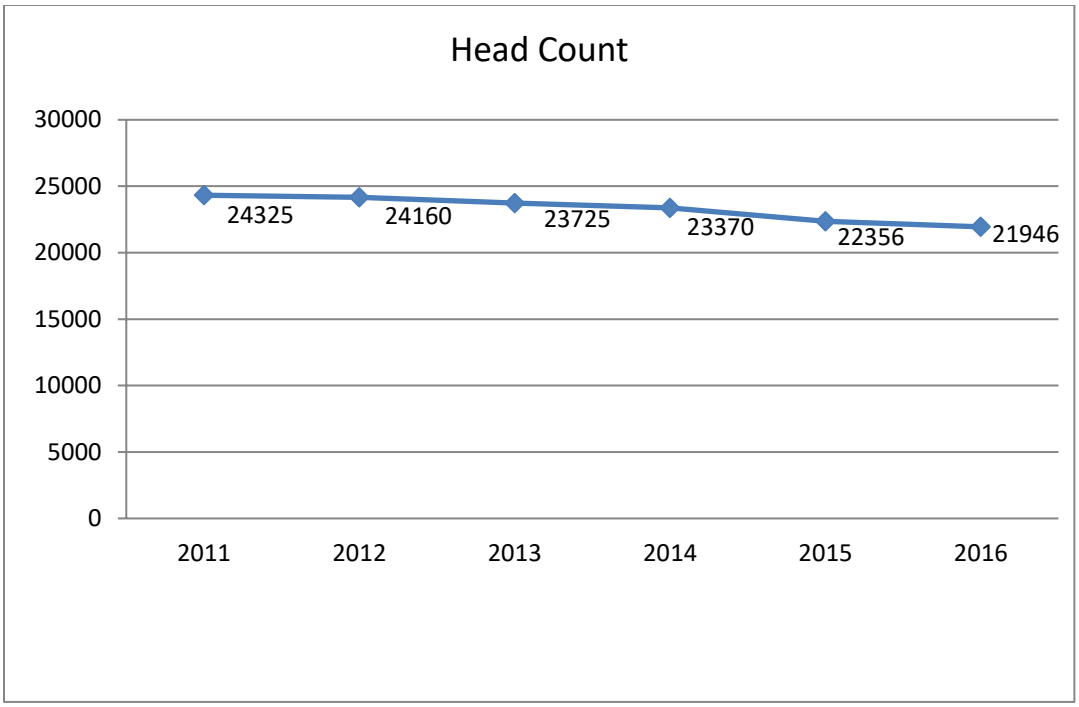
The model used to project credit hours accounted for 77.0% of the variation in credit hours over the 2004 through 2016 period. The mean absolute percentage prediction error for the period estimated was 2.5%. The median absolute percentage prediction error was 2.1%, and 85% of the absolute percentage prediction errors were less than or equal to 4.1%.The model projects credit hours to decline slightly over the 2017 to 2021 period, at the rate of about 0.8% per year. As in the case of head count, the estimates for credit hours for the 2017 through 2021 period may be overestimates and for the same reason. Registered credit hours for the 2017 fall semester are running about 3% below the model prediction for fall 2017.



LCL: Lower Confidence Limit
UCL: Upper Confidence Limit

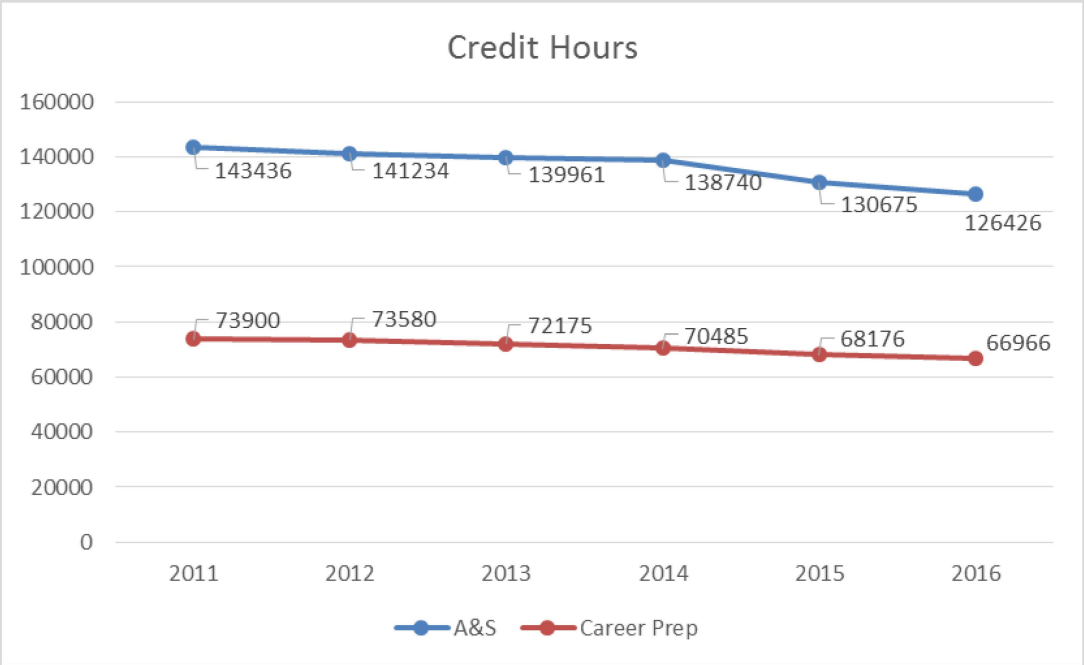
c. Evaluate enrollment patterns over the last five years

The College's fall 2016 credit head count was 21,946, which was down 1.8% from the previous fall semester, while total credit hours (193,392) decreased by 2.7%. Since fall 2011, credit head count has decreased by 9.8%, while total credit hours have decreased by 11.0%. The trends over the past five years of declining head count and credit hours reflect the high enrollment earlier in the period that was driven largely by the recent economic recession, followed by the ensuing improvement in the economy and the labor market. They also reflect the impact of demographic trends, which have resulted in decreasing numbers of High School graduating seniors, and increases in tuition.



Total credit hours in Arts and Sciences courses and in Career and Technical Education courses have each decreased, by 11.9% and 9.4% respectively, since fall 2011, which reflects at least in part the decline in head count over the period, coupled with a decline in average credit-hour load. The proportion of total credit hours accounted for by Arts and Sciences has remained constant at about 65% to 67% since fall 2011.

Courses	2011	2012	2013	2014	2015	2016	Change
A&S	143436.0	141234.0	139961.0	138740.0	130675.0	126426.0	-11.9%
Career Prep	73900.0	73579.5	72175.0	70485.0	68176.0	66966.0	-9.4%
Total	217336.0	214813.5	212136.0	209225.0	198851.0	193392.0	-11.0%



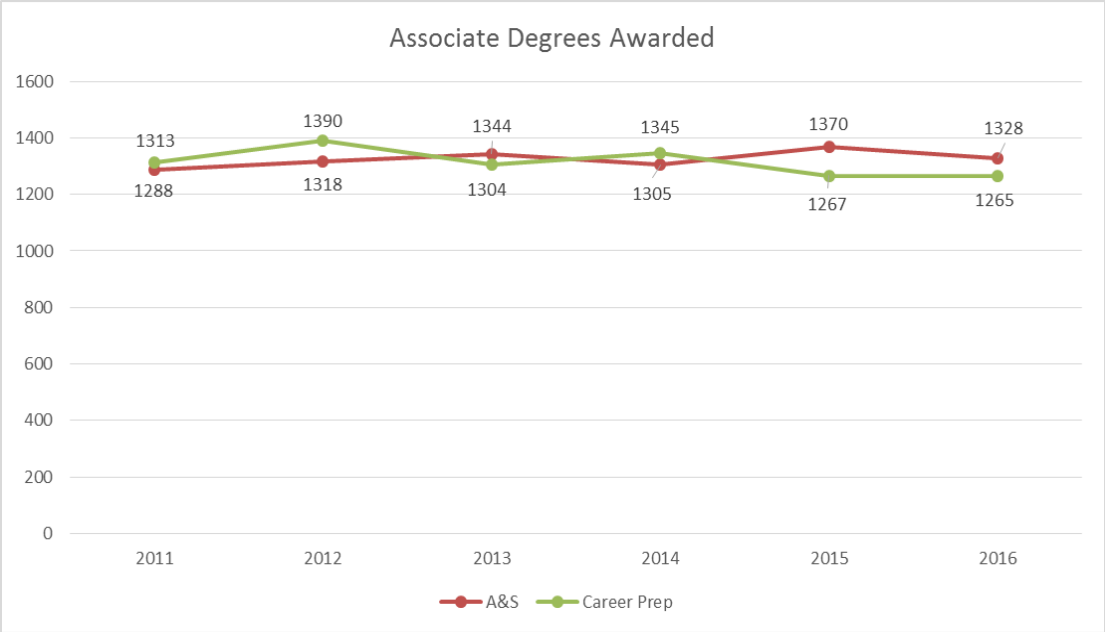
The College's FY 2016-17 non-credit enrollment decreased 14.5% from that of the previous fiscal year, which was an increase of an atypically large magnitude over the previous year, but has decreased by 7.6% since FY 2012-13. The unusually large increase in non-credit head count in 2015-16 partly reflects an increase in grant-supported training.

Non-Credit Head Count

Year	Head Count	Change from Previous Year
2016-17	11,877	-14.5%
2015-16	13,893	16.9%
2014-15	11,888	1.7%
2013-14	11,686	-9.1%
2012-13	12,852	-10.3%

Degrees Awarded

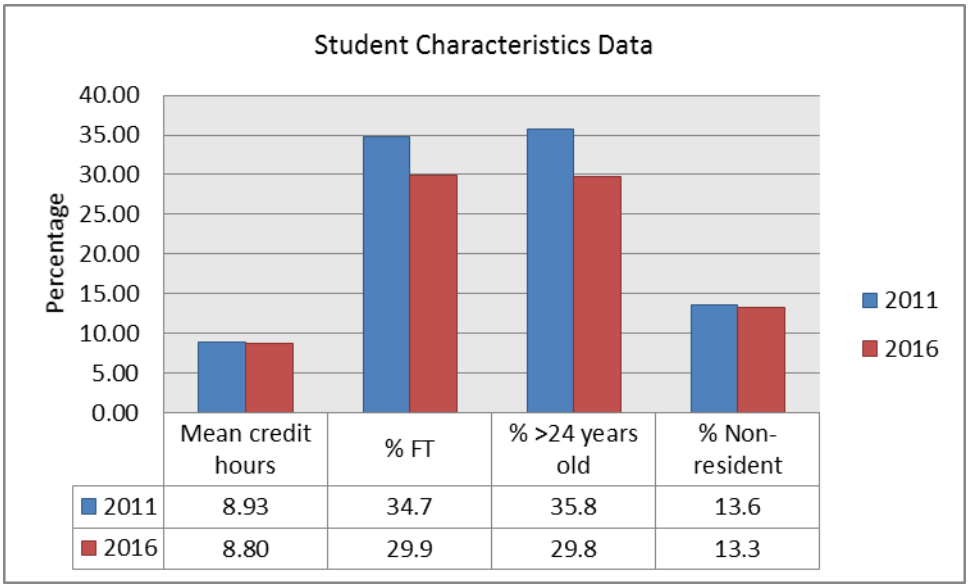
The total number of degrees awarded in the 2015-16 academic year (2,593) declined 1.7% from the previous year. This reflected a decrease of 3.1% in the number of degrees awarded in the Arts and Sciences (1,328), while the number of degrees awarded in Career and Technical education (1,265) was little changed from the previous year, down by 0.2%. The number of degrees awarded in the Arts and Sciences increased by 3.1% from the 2010-11 to 2015-16 academic year, while the number of degrees in Career and Technical Education decreased by 3.7% over the same period. The total number of degrees awarded has changed little over the period, decreasing by 0.3%.



Student Characteristics

The trend toward an increasingly younger student body at Macomb continues. In fall 2011, 64.2% of Macomb students were 24 years old or younger, while this segment accounted for 70.2% of Macomb students in fall 2016. The proportion of students older than 24 declined 16.8% from fall 2011 to fall 2016.

Students at Macomb were on average carrying essentially the same credit-hour load in fall 2016 as in fall 2011, and the proportion of students that are full-time is down 13.8% over that period.



	Mean credit hours	% FT	% >24 years old	% Non-resident
2011	8.93	34.7	35.8	13.6
2016	8.80	29.9	29.8	13.3

Student Characteristics Data			
Characteristic	2011	2016	Change
Mean credit hours	8.93	8.80	-1.5%
% FT	34.7	29.9	-13.8%
% >24 years old	35.8	29.8	-16.8%
% Non-resident	13.6	13.3	-2.2%

b. Provide instructional staff/student and administrative staff/student ratios for major academic programs or colleges

Staffing

In fall 2016, Macomb had 234 full-time and 644 part-time faculty members teaching credit courses and 72 administrators.

Instructional Staff to Student Ratio (Credit)

Year	Number FT Institutional Staff	Number of Students	Ratio
Fall 2016	234	21,946	0.01

Administrative Staff to Student Ratio (Credit)

Year	Number FT Administrative Staff	Number of Students	Ratio
Fall 2016	72	21,946	0.003

c. Project future staffing needs based on 5-year enrollment estimates and future programming changes

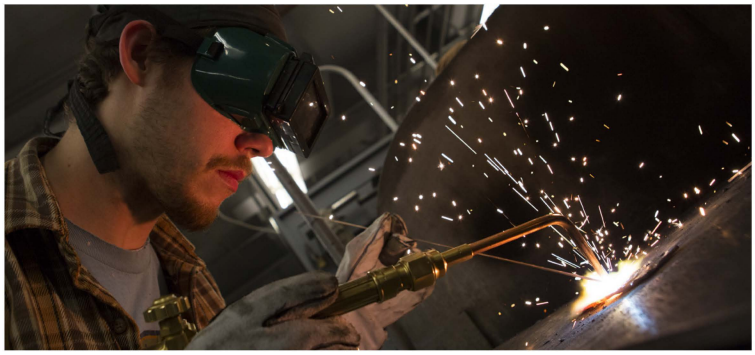
Projected staffing levels are expected to remain approximately the same as the current level over the next five years.

d. Identify current average class size and projected average class size based on the institution's mission and planned programming changes

Since average class size is a function of numerous factors—such as head count, average credit hour load and policies and practices regarding the assignment of faculty to classes—each of which can only be estimated with considerable uncertainty, any projections of average class size are inherently uncertain. Given the absence of a clear trend in the most recent five years of data, the average (22.2) of this most recent data represents the best estimate for fall 2017 and beyond.

Year	Total Number of Lecture Sections	Average
Fall 2016	1,814	22.1
Fall 2015	1,875	22.0
Fall 2014	2,002	22.0
Fall 2013	2,005	22.5
Fall 2012	2,078	22.4







Facility Assessment

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IV. Facility Assessment

A professionally developed comprehensive facilities assessment is required. The assessment must identify and evaluate the overall condition of capital facilities under college control. The description must include facility age, use patterns, and an assessment of general physical condition. The assessment must specifically identify:

a. Summary description of each facility (administrative, classroom, biology, hospital and etc.) according to categories outlined in "net-to-gross ratio guidelines for various building types," DMB-Office of Design and Construction Major Project Design Manual, appendix 7. If facility is of more than one "type", please identify the percentage of each type within a given facility.

Macomb Community College hired the services of Integrated Design Solutions in 2009 and Hobbs & Black in 2012 to conduct facility condition assessments of the college's South and Center campuses, respectively.

The facility condition assessments are available on the college's public website at links provided below in this section. The assessments include summary descriptions of each facility, functionality of existing structures and space allocation, utility system condition, facility infrastructure condition and adequacy of existing utilities and infrastructure systems in their current state.

b. Building and /or classroom utilization rates (Percentage of rooms used, and percent capacity). Identify building/classroom usage rates for peak (M-F, 10-3), off-peak (M-F, 8-10 am, 3-5 pm) evening and weekend periods.

At this time, Macomb Community College does not have an effective way of reporting building and classroom utilization rates from the software currently used to plan for and schedule classes. However, in preparing the schedule of classes each semester, the college is at capacity during certain days and times when classrooms are not available for additional sections. In these instances, online sections may offer additional options.

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

All of Macomb Community College's programs fully comply with all applicable laws, general industry safety and health standards, construction safety and health standards, and administrative standards authorized by Public Acts and promulgated by OSHA, MIOSHA and other regulatory agencies.

d. Functionality of existing structures and space allocation to program areas served.

See facility condition assessment in the links below:
South Center Campus Facility Condition Assessment 2012
Campus Facility Condition Assessment 2009

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

The replacement value of the college's facilities is posted to the college website as the 2014 Policy Property List Report as prepared by the Michigan Community College Risk Management Authority.

f. Utility system condition (i.e., heating, ventilation, and air conditioning [HVAC], water and sewage, electrical, etc.).

See facility condition assessment in the links below:
South Center Campus Facility Condition Assessment 2012
Campus Facility Condition Assessment 2009

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

See facility condition assessment in the links below:
South Center Campus Facility Condition Assessment 2012
Campus Facility Condition Assessment 2009

h. Adequacy of existing utilities and infrastructure systems to current and 5-year projected programmatic needs.

See facility condition assessment in the links below:
South Center Campus Facility Condition Assessment 2012
Campus Facility Condition Assessment 2009

i. 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?

Macomb Community College plans to reduce energy consumption and costs through the renovation of aged facilities as prioritized through the facility condition assessments. Energy audits have not been completed on the facilities as the buildings are not individually metered to track consumption and the cost to do so is significant. The college has researched grant funding for this purpose, but thus far has not found any viable funding sources to assist in this endeavor.

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

At this time, the land owned by the college is considered to be sufficient for capacity.

k. 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.

The following buildings are currently obligated to the State Building Authority through the following lease expiration dates:
University Center II (Tag CD: 99143); 2019
Emergency Training Center (Tag CD: 99248); 2028
Health Science and Technology (Tag CD: 99249); 2028
C Building; 2051



Implementation Plan

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V. Implementation Plan

The 5-year comprehensive master plan should identify the schedule, by which the institution proposes to address major capital deficiencies, and:

a. Prioritize major capital projects requested from the State, including a brief project description and estimated cost, in the format provided. (Adjust previously developed or prior year's figures utilizing industry standard CPI indexes where appropriate).

As indicated in this 2019 Capital Outlay submission, the highest priority is the Skilled Trades and Advanced Technology Center at the college's South Campus.

b. If applicable, provide an estimate relative to the institution's current deferred maintenance backlog. Define the impact of addressing deferred maintenance and structural repairs, including programmatic impact, immediately versus over the next five years.

The college's current deferred maintenance backlog (DMB) is in the facility condition assessment reports posted to the college website. Given the current and increasing DMB, the college's board of trustees approved renovation plans through 2019 so that the aging facilities can be renovated in a planned and phased-in approach as it is impossible to address all of the needs immediately while serving the needs of students and the community. Renovations are scheduled as follows and will be funded from the capital projects fund, technology fund and general fund as appropriate. Below are the renovation plans by building for 2017 through 2019.

2017: South Campus B Building (FCI of 25% deficient / poor condition) and Center Campus N Building (FCI of 10% fair condition); CC HVAC, boilers, temperature controls, lighting and finishes; parking lots and roadways at south and center campuses; site lighting upgrades at Center and South campuses; safety/agency requirements, site work and exterior and interior work.

Construction costs: $13,961,000; Fees and general conditions: $5,584,400; Total projected costs: $19,545,400

2018: South Campus F Building (FCI of 27% deficient / poor condition) and Center Campus E Building (FCI of 28% deficient / poor condition); SJ HVAC, lighting, temperature controls and finishes on 100 level; CL/CM chiller, boilers, air handling units, temperature controls and roofs.; safety/agency requirements, site work and exterior and interior work.

Construction costs: $15,156,000; Fees and general conditions: $6,062,400; Total projected costs: $21,218,400

2019: South Campus D Building (FCI of 17% deficient / poor condition) and Center Campus B Building (FCI of 14% deficient / poor condition); SK HVAC, lighting, temperature controls and finishes; safety/agency requirements, site work and exterior and interior work.

Construction costs: $13,346,200; Fees and general conditions: $5,338,480; Total projected costs: $18,684,680

c. Include that status of on-going projects financed with State Building Authority resources and explain how completion coincides with the overall 5-year plan.

There is currently no state project active at Macomb Community College.

d. 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.

The college estimates an operational savings of 10 – 15 percent on each renovated facility and updated infrastructure. In addition, deferred maintenance that is addressed in a timely and planned manner is much more cost effective than emergency repairs.

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

The college's long-term plans include renovations of facilities rather than new construction. Distance learning can augment the skilled trades programs, but cannot replace hands-on training and experience offered through classes held in the Robert E. Turner Advanced Technology Complex.

f. Identify a maintenance schedule for major maintenance items in excess of $1,000,000 for fiscal year 2018 through fiscal year 2022.

See facility condition assessment on website and refer to b above. Administration currently has renovation authorization from the Board of Trustees through 2019 as outlined above.

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

Refer to "f" above.

Figure 1

Macomb Community Colleges Outcomes

Department of Labor TAACCCT Grant

Michigan Coalition for Advanced Manufacturing (MCAM) Macomb College Outcomes as of September, 2017	Total Target	Total Outcomes	Percentage of Target
1. Unique participants served	528	1348	255%
2. Participants completing a TAACCCT-funded program of study	126	853	677%
3. Participants still retained in their program of study or other TAACCCT-funded program	60	488	813%
4. Participants completing credit hours	120	401	334%
5. Participants earning credential	422	869	206%
6. Participants enrolled in further education after TAACCCT-funded program of study completion	40	146	365%
7. Participants employed after TAACCCT-funded program of study completion	252	355	141%
8. Participants retained in employment after program of study completion	173	219	127%
9.Participants employed at enrollment who received a wage increase post-enrollment	106	435	410%

Figure 2

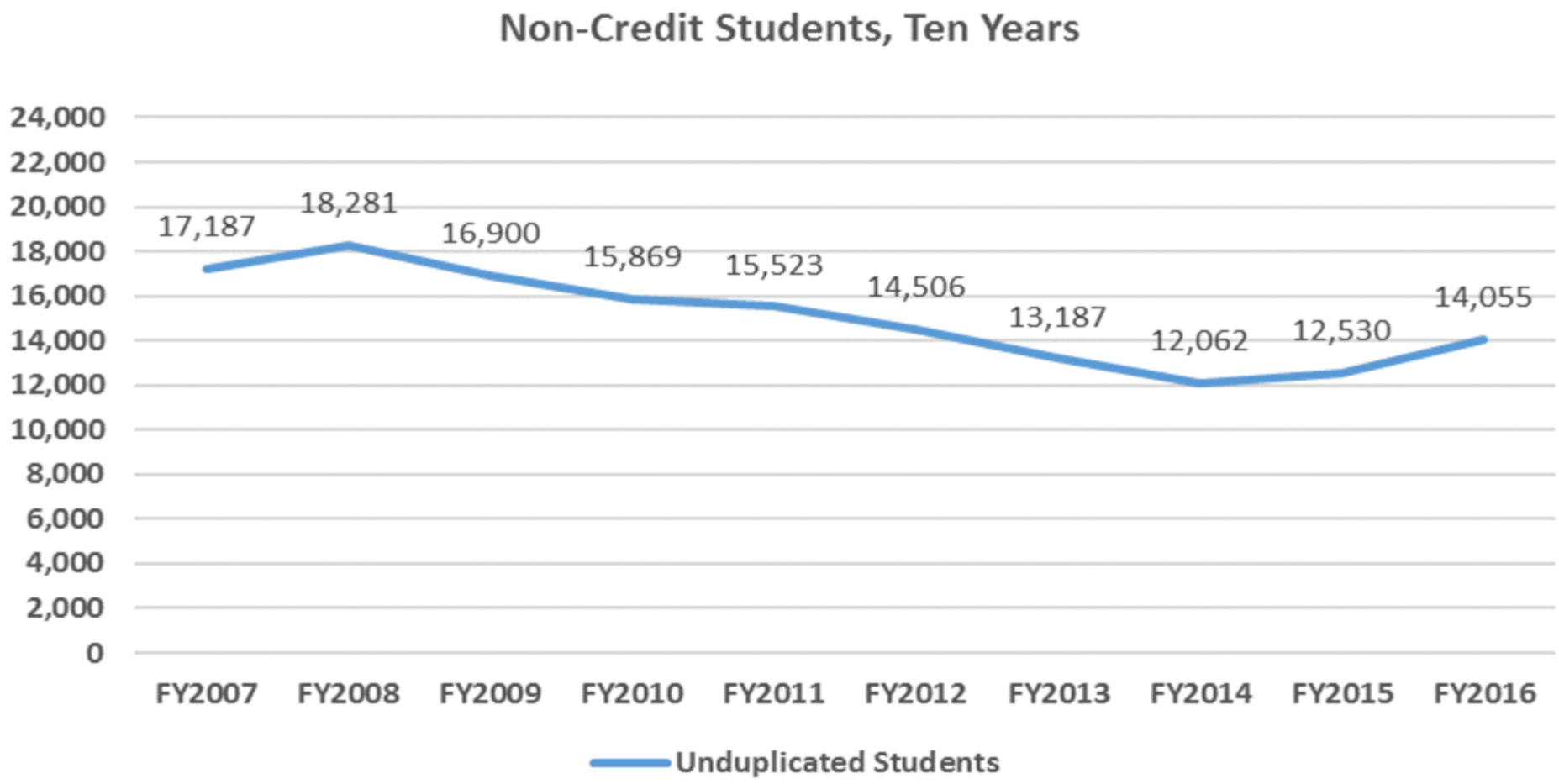
Skilled Trades Labor Market Data Snapshot

Occupation Title	Number of Job Postings	Projected Statewide Change in Employment, 2016-2026	Mean Advertised Salary	Mean Salary
Electricians	4,387	14.1%	$52,573	$59,490
Welders, Cutters, Solderers, and Brazers	3,291	9.3%	$35,036	$37,830
Inspectors, Testers, Sorters, Samplers, and Weighers	3,121	10.5%	$29,605	$34,750
Computer-Controlled Machine Tool Operators, Metal and Plastic	2,371	30.6%	$31,987	$36,510
Machinists	2,048	19%	$42,555	$41,300
Computer Numerically Controlled Machine Tool Programmers, Metal and Plastic	1,395	28.7%	$49,884	$49,580
Maintenance and Repair Workers, General	744	8.7%	$49,308	$36,650
Industrial Machinery Mechanics	386	27.1%	$58,347	$51,220
Production Workers, All Other	326	11.8%	$27,087	$32,190
Commercial and Industrial Designers	211	10.2%	$94,383	$78,120
Installation, Maintenance, and Repair Workers, All Other	199	7%	$48,160	$44,840
Engineering Technicians, Except Drafters, All Other	139	11.3%	$30,643	$62,450
Bus and Truck Mechanics and Diesel Engine Specialists	104	13.9%	N/A	$43,740
Electrical And Electronics Engineering Technicians	96	5.8%	N/A	$54,530
Automotive Service Technicians and Mechanics	72	6%	$41,522	$39,750
Electrical Engineers	53	9%	N/A	$87,640

Figure 3

Macomb Community College

Non-Credit Student Enrollment



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Capital Outlay Request

Skilled Trades and Advanced Technology Center

FY 2019



ATTACHMENT B

FISCAL YEAR 2019
CAPITAL OUTLAY PROJECT REQUEST

Institution Name: Macomb Community College
Project Title: Skilled Trades and Advanced Technology Center Renovation
Project Focus: Academic
Type of Project: Renovation
Program Focus of Occupants: Skilled Trades, Robotics, Electronics, Mechatronics, Fluid Power, Welding, Product Development, CNC machining, and Media and Communication Arts programs
Approximate Square Footage: _Total square footage at end of project: 122,000 square feet
**110,000 square feet of existing building to be renovated
** 12,000 square foot addition of new space to be added through renovation
Total Estimated Cost: _$31,504,238 total_____
Estimated Start/Completion Dates: Goal to begin construction in 2019 with completion by end of_2022_
Is the Five-Year Plan posted on the institution's public internet site? Yes
Is the requested project the top priority in the Five-Year Capital Outlay Plan? Yes
Is the requested project focused on a single, stand-alone facility? Yes

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Describe the project purpose

The renovation of Macomb Community College's Skilled Trades and Advanced Technology Center will greatly enhance the college's ability to prepare students for high-demand careers in the advanced manufacturing and technology sectors, which lead to sustainable wage jobs that meet local employers' pressing needs for more skilled workers. In this facility, Macomb trains students for positions such as CNC machine programmers and operators, welders, and robotics programmers and operators. Many community colleges have been experiencing enrollment declines, while Macomb is no exception, for the fall 2017 semester, the institution has experienced an enrollment increase of over 3% in the skilled trades classes held in the center.

Macomb has a long history of training unemployed and under employed residents interested in obtaining gainful employment as well as incumbent workers seeking career advancement opportunities in the manufacturing industry. These programs can be short-term or long-term and are designed to provide students with sustainable wage jobs that are in-demand while addressing the skills gap employers face in our area and throughout the State of Michigan. Macomb has utilized a variety of funding resources secured through the Community College Skilled Trades Equipment Program (CCSTEP) and federally funded Department of Labor, Trade Adjustment Assistance Community College and Career Training (TAACCCT). These investments have afforded Macomb the opportunity to enhance the education and training offered and successfully fill the skills gap with well-educated and trained employees who are ready to work. The results of the TAACCCT grant are astounding. (See Figure 1, Attachment 1)

Through these grants and other projects, Macomb has proven to be a good fiscal steward of state and federal monies. This project will be no different. Support of the Skilled Trades and Advanced Technology Center at Macomb will prepare students for in-demand occupations in the county, region and state making this a sound investment. The center will further increase Macomb's capacity to provide opportunities to students for the in-demand areas of advanced manufacturing which provide students with employment salaries well above the minimum wage. The future growth in this sector also suggests that the members of our community will continue to benefit from an investment in this facility. In addition to answering the needs of the community, it is essential that students train in a safe learning environment with technology and equipment comparable to that found in today's workplaces. The center was originally built in 1968. Despite minor renovations, repairs and general maintenance performed over nearly 50 years, the age of the center and the codes it was built to, as well as the limitations of its infrastructure constrain the integration of modern computer- based technologies required to meet industry standards. It has become increasingly difficult to create the learning spaces necessary to effectively support the development of highly skilled workers necessary to meet the demand of today's advanced manufacturing and technology employers. This renovation project improves instruction areas, allowing the enhanced use of technology and equipment systems to increase productivity, efficiency and safety for the students and faculty, while leading to training experiences more closely aligned with employer needs and demand.

Describe the scope of the project.

Macomb Community College believes in maximizing existing facilities, and therefore the renovation of the Skilled Trades and Advanced Technology Center on the college's South Campus in Warren, entails investing in existing building by upgrading infrastructure to support the expansion of high demand educational programs that meet the needs of students now and into the future.

A team of architects was commissioned to conduct a facilities condition assessment and program analysis for the center, factoring in current demographics, market trends, present facility condition of infrastructure and Macomb's mission. The assessment determined many of the mechanical and electrical systems are beyond their expected serviceable life. The center is utilizing all space currently available and without renovation the programs are constrained from growth and updates.

This renovation project will address the aging building by updating the infrastructure deficiencies. As mentioned above the mechanical and electrical systems are major concerns, but this project will also upgrade the technology systems as well as ventilation and safety concerns. Through the renovation project the center will gain approximately 20,000 square feet of educational and lab space allowing Macomb the flexibility needed to expand the growing program areas. There will also be a number of obsolescence and accessibility issues addressed through this renovation. The renovations will include:

Architectural work

- Replace approximately 110,000 Sq. Ft of built-up roofing with modern singly-ply system

- Replace all Doors and hardware to meet Current ADA codes and provide better security for staff and students
- Update toilet rooms to meet current ADA codes
- Replace building windows and storefronts with Low E double pane glazing and thermal break framing system.
- Replace outdated “spline ceiling system” with modern Lay-in system
- Modify existing space utilization to better support course programing
- Upgrade flooring and finishes throughout complex

Mechanical Work

- Replace outdate toilet room fixtures with modern low flow fixtures
- Replace sanitary lift stations
- Replace drinking fountains with modern Bottle fill stations
- Update entire HVAC system
    - replace existing constant volume HVAC system serving 110,000 Sq Ft to Variable Volume
    - replacement of 11 belt driven building AHUs with direct drive and fan wall units
    - replacement of ERU at welding lab
    - replacement of TUs throughout complex
    - replace and resize HVAC duct work as needed to meet future need and ASHRA ventilation codes
    - replace and provide dust collection and ventilation systems as required for course program offerings
    - replace and provide new Hydronic piping as needed to support new HVAC
    - replace pneumatic HVAC controls with modern DDC electronic controls
    - update complex’s HVAC control front end system to modern platform

Electrical work

- Perform service to three 13,200v primary switches
- Replace three secondary transformers
- Replace motor control and distribution centers throughout center
- Update building lighting from T12 to LED
- Install building lighting control system
- Provide emergency power cutoff switches as required for course programs
- Provide keyed lock outs for servicing of equipment

Technology work

- Update existing CAT5 cable to Giga Speed cable throughout building
- Additional network drops for increased WiFi capacity
- Replace Intermediate Distribution Frame/Uninterrupted Power Supply
- Improve and update classroom mediation as required for course programing

- Improve security camera coverage

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

Manufacturing has always been instrumental to the economic growth of Michigan, the southeast regional area and Macomb County specifically. Three major auto companies call metro Detroit their home and General Motors, Ford and Fiat Chrysler Automobiles have significant investments in Macomb County. Outside of the Original Equipment Manufacturer's there are hundreds of tier two and tier three companies and suppliers who are connected to the auto manufacturing industry in Macomb. In addition to the auto companies, Macomb County is home to a high concentration of defense contractors who are innovating and building each day making them a key to the manufacturing industry. Manufacturing has evolved tremendously from the early days of dirt, dust and traditional line work. Manufacturing today is advanced, technical and cutting edge. This shift in industry requires a workforce that is highly trained, skilled and understands the equipment and its' connectivity to the overall product. Advanced manufacturing employees today need to run automated systems at extremely high levels, have the capability and understanding to fix errors and equipment issues immediately, as well as operate robots to complete a job. These workers need advanced skills provided through the training offered in the Skilled Trades and Advanced Technology Center at Macomb.

Macomb Community College has had a long standing relationship with the automotive and defense industries providing training, education and skill development for thousands of advanced manufacturing employees over many decades. We currently have existing relationships with over 200 employers, many who express concern over finding qualified employees to fill vacant positions. The college works diligently to ensure that the students are learning relevant skills that can answer the needs of our employee partners. As an institution we have a track record of successful job placement in skilled trades' jobs such as CNC machining, welding, and multi-skilled technicians as exhibited through the TAACCCT grant data.

- 80% of the grant participants were employed at the end of the grant.
- Roughly 60% of students were placed in an advanced manufacturing job or received a wage increase.

While legislation in the State of Michigan makes it difficult to obtain individual level UI wage data for our students, we believe the grant placement data is reflective of the expected placement within the programs at the Skilled Trades and Advanced Technology Center. We look forward to using the renovated space to expand the training and learning opportunities, putting more people to work and filling the skills gap in the region. There is certainly no shortage of job listings for these advanced skilled trades skills.

According to a LIFT report in June 2016, advanced manufacturing employment increased by 28,344 jobs in Michigan from quarter four in 2015 to quarter one in 2016. According to the labor market reports there was an 18% increase in skilled trades jobs posted between 2013 and 2015 with a median wage over $20 per hour.

Long-term projections from the DTMB - Bureau of Labor Market Information and Strategic Initiatives, show skilled trades jobs increasing by 13.9% through 2022. There is an estimated 6,600 annual job openings in key advanced manufacturing, skilled trades jobs. (See Figure 2, Attachment 2) Macomb Community College is and will continue to be critical in providing the training to Michigan residents to fulfill this growth in skilled trade jobs.

When students take classes in our Skilled Trades and Advanced Technology Center they are preparing for careers as welders, computer-controlled machine operators, computer numerically controlled machine tool programmers, inspectors, testers, sorters, samplers, machinists, assemblers, fabricators and many more. Some of these positions have large projected growth over the next ten years. For example the computer controlled machine tool operators profession has a projected 31% increase by 2026 with a starting pay of roughly $36,000. There is also a projected 29% increase by 2026 for computer numerically controlled machine tool programmers with a starting pay of approximately $50,000. While these are just two examples, the careers related to other programs housed in the center are also forecasted for growth. In fact, Macomb students trained in similar advanced manufacturing programs funded through the Department of Labor, Trade Adjustment Assistance, Community College Career Training grant (TAACCCT) mentioned earlier received wage increases. The average wage of students completing these programs at Macomb was $15.80 per hour, well above the minimum wage of $8.90 per hour and above the living wage estimate of $10.24 per hour in Michigan.

Macomb Community College staff and faculty pay attention to these trends and work tirelessly to meet the growing skills gap. The employers need well-trained workers, community residents need skills and training to meet those needs, and Macomb can play a significant role in making that happen. However, Macomb is limited in how quickly we can respond to employers because of outdated equipment and aging facilities that are not flexible to industry needs. The renovations requested will support training for the manufacturing jobs of the future in areas such as; autonomous vehicle design and engineering, automotive cyber security, commercial and industrial design engineering, construction design.

In recent months, the State has launched concentrated economic development efforts to bring large companies such as Foxconn and Amazon to Michigan. These companies have identified a need for a skilled workforce in their list of requirements. This renovation will put Macomb in a unique position to help the State answer these needs with a well-trained, ready to go workforce doing our part to help the State grow and thrive.

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

Community Colleges were founded on the core principle of meeting the needs of the surrounding community. The renovation of the Skilled Trades and Advanced Technology Center is an important step in the college's commitment to that principle and in support of the college mission. Macomb Community College has three mission strands - *Education, Enrichment and Economic Development.*

This capital outlay project is directly tied to education and economic development, two of the Institutions mission strands. Macomb Community College is educating today's students for sustainable employment in

the skilled trades to meet the demand of the advanced manufacturing sector. As demonstrated earlier in this report with statistics, advanced manufacturing is a growing field with many opportunities available to well-trained students. When students graduate from Macomb with a degree in advanced technology they can successfully transfer to a four-year university or enter the workplace in a sustainable job with a competitive wage.

Renovation of the center will also spur economic development within the region. The students graduating from these programs can fill open jobs and earn a higher wage that increases their quality of life and addresses the skills gap in Southeast Michigan. The Skilled Trades and Advanced Technology Center houses in-demand programs such as:

- Robotics
- Electronics
- Mechatronics
- Fluid power
- Welding
- Product development
- CNC machining
- Media and Communication Arts

These programs are reflective of the job opportunities within Macomb County and the State of Michigan. This renovation will also support the state's economic development agenda to attract large companies such as Foxconn and Amazon, by increasing our capacity to provide a skilled workforce. This ready to go workforce will support state and county efforts to grow the economy and create long lasting sustainable wage jobs.

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

Renovation of the Skilled Trades and Advanced Technology Center is focused on maximizing the use of the entire building. The current infrastructure and classrooms are outdated and allow little flexibility to increase class size or add new equipment or technology. In addition, the existing building has an open middle concept that was previously meant to be used as gathering space for students. However, the space is not utilized effectively leaving approximately 4,000 square feet unused. Macomb will re-purpose this space into classrooms and labs needed to expand programs. In addition to this increase in space, the renovation will also allow Macomb to add approximately 12,000 square feet of space to the center. This additional space will house state of the art welding and CNC machining labs and learning environments.

This will provide future flexibility to answer the expected demand through 2026 and beyond. The renovation of this building also gives Macomb the opportunity to bring in expansive upgrades allowing the College to provide training environments that meet the workplace standards and improve physical and technological infrastructure to support advanced technology needs. The plans for the center show again how Macomb intends to be fiscally responsible with both taxpayer and state dollars by renovating a current building

instead of constructing a new building. The college is also maximizing the existing space in this building to plan for today as well as address future needs.

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

   Current life/safety deficiencies that will be addressed as part of this project include:

   a. Missing shunt trip devices in all labs
   b. Handrails that do not meet graspability requirements
   c. Guardrails that do not meet spacing requirements
   d. Inadequate equipment clearances in labs
   e. Partial fire suppression system

   In addition to life/safety issues that will be addressed as part of this project, there are a number of "quality of life" issues that will be addressed, such as:

   a. Inadequate number of women's restrooms
   b. Inadequate barrier-free restroom facilities
   c. Inadequate barrier-free drinking fountain facilities
   d. Lack of tempering mixing valves to prevent scalding at faucets
   e. Lack of pipe protection below lavatories
   f. No assisted listening devices in the auditorium
   g. A number of doors that still have knobs in lieu of levers

   In preparation for this project, Macomb had a full facility and program assessment completed by the architects, Hobbs & Black. These assessments have detailed out all of the deficiencies in this center and how they affect the programs. The reports are available www.macomb.edu with the other Capital Outlay documents.

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

   Between 2012 and 2016 capacity and utilization of the Skilled Trades and Advanced Technology Center increased by 21%. In addition, enrollment of non-credit students in training programs has increased as seen in figure 3. (See Figure 3, Attachment 3). In the fall 2017 semester alone enrollment increased again by three percent.

   We are excited about the increased interest in these areas and we are anxious to help our community by filling the open jobs. However, the center is currently lacking in space and equipment needed to effectively educate the students enrolled in skilled trades programs and provide them with an experience that mirrors the workplace. The current foot print of the building is a disjointed layout of classrooms that have been

converted over the years to meet the needs of the students and employers. Within the current structure there is little flexibility for new equipment or increase in class size or frequency. While we are increasing enrollment in these skill trades courses we are quickly approaching our maximum capacity for class size within the structure.

As mentioned previously, today's manufacturing and skilled trades requires specialized equipment and programs. The center does not currently have the amount of space or the infrastructure needed to upgrade the equipment and technology to industry standards. Also, due to the specialized equipment and technology needs, it is impossible to increase capacity through utilization of other buildings or classrooms. They are not equipped to handle these programs and the learning environments needed.

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

   Macomb Community College recognizes that our ecological footprint is important and that our facilities impact the surrounding environment. Therefore, the college is committed to energy conscious design and sustainable building practices and will select all materials and systems that meet Silver Certification under the USGBC's LEED rating system. The building will also incorporate many green features such as low flow plumbing, improved building envelope thermal performance and interior finish selections that improve indoor air quality.

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

   Yes. Match resources are available. Macomb Community College will use capital projects funds and potential private donations to provide the matching resources for this capital outlay project.

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

   Due to the significance of this project and the repeated requests for funding, the college is committed to providing 55% of the funding for this project, making the states portion less than the 50% match. In addition, Macomb continues to seek opportunities for funding and equipment from grants and college partners.

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

The Skilled Trades and Advanced Technology Center renovation project is not expected to increase operating costs. In fact, energy efficiency is estimated to improve by 10%, leading to a reduction in operating and maintenance costs of approximately $200,000 annually. These energy efficiency savings will be achieved through building infrastructure improvements some of which are listed below:

- Replacement of the entire HVAC system
- Enhancement of building lighting from T12 to LED
- Building lighting control system
- Installation of low E double pane glazing and thermal break windows
- Replacement of 110,000 sq. ft. of the roofing system
- Replacement of toilet room fixtures

This estimated cost savings is based on an average savings of the last 3 years during which Macomb completed similar building renovations. While there will be improvements in energy usage, the related actual cost savings is also dependent on future energy pricing as determined by the utility companies.

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

This project will have no impact on tuition costs.

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

If the Skilled Trades and Advanced Technology Center renovation project is not approved, it will be to the detriment of the current and future students of Macomb Community College. The lack of authorization and approval, will delay the institution's ability to provide a more conducive learning environment for students to obtain the advanced skills needed to meet employers' workforce needs and to fill job openings in Macomb County, Southeast Michigan and the State. This would result in potential loss of students and of potential support of employer partners, and will be a set back to the positive economic progress in the County.

In addition, if this project is not authorized, it is anticipated that many of the critical building systems will fail over the next several years, primarily because of the outdated mechanical and electrical systems; the average five-year Facility Condition Index (FCI) for the complex is 9 % based on a study which was conducted in 2009, confirming the critical conditions of the complex's infrastructure. Since the study was conducted seven years ago, the FCI of the complex is now well over 10% deficient placing the complex into the poor condition category.

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

Due to the deterioration of the Skilled Trades and Advanced Technology Center, there truly is no other alternative. The renovation and expansion of the programming at the center is the highest priority at Macomb and matches the State of Michigan's efforts to expand opportunities in high-demand industry sectors. Preserving the community's investment in Macomb Community College's facilities through renovating and repurposing is far more cost effective than new construction. Although there is ample property to construct a new "state-of-the-art" facility directly to the west of the existing building, this would not be fiscally responsible to the community. Costs would be considerably higher and abandonment of the existing facilities would be irresponsible considering our commitment as a public institution. Near-term renovation of this building is the most strategic option, enhancing and expanding the college's programs that prepare students for careers in high-demand fields with sustainable wages and satisfying local employer's needs for highly-skilled workers, which in turn supports our economic development in the community and throughout the state.