

Southern Maryland Higher Education Council

Final Report

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EXECUTIVE SUMMARY

The Southern Maryland Higher Education Council was established by the Maryland General Assembly in 2011 (see Chapter 622 of the House Bill 1347; amended in 2013) made up of 13 members from regional businesses, the military community and its support organizations, local governing boards, higher education institutions both public and private, and with the Honorable John Bohanan as the legislative sponsor. The council was tasked with examining the needs for higher education in the tri-county Southern Maryland region, identifying any unmet areas of need, and, in line with its findings, developing recommendations and strategies, both short- and long-term, to improve access to higher education in Southern Maryland's tri-county region.

Over a two-year period, the Council met more than twelve times; conducted site visits to higher education facilities in the tri-county region and other areas of Maryland; participated in briefings by state and regional education and business leaders; conducted regional surveys of students and their families, businesses, and industries to help assess educational needs and interests; and gathered and analyzed data from national, state, and regional databases. Based on the information gleaned from these activities and the collected data, and in accordance with the requirements of its authorizing legislation, the Council produced the following key findings and recommendations.

Findings:

1. The Southern Maryland region contains a range of high quality educational institutions, and programs—including the College of Southern Maryland, St. Mary's College of Maryland, and a variety of undergraduate and graduate degree programs offered by four-year institutions within and outside the state at the Southern Maryland Higher Education Center and the Waldorf Higher Education Center. However, opportunities for Southern Maryland residents wishing to stay in the region and complete a higher education degree, particularly a bachelor's degree, remain limited.
2. Non-traditional students, including working adults, seeking a bachelor's degree represent the greatest area of unmet demand in the region, with the disciplines of business/management, engineering, education, computer science, and health care in particular demand. At the same time, the need for an expanded range of graduate and post-graduate educational learning opportunities in the region is also strong. Such programs are recognized as vital to meeting the workforce preparation and career development needs of tri-county residents, businesses/industries, and military installations.
3. Research and innovation—fueled by the kinds of basic and applied research that lead to technology transfer, product commercialization, and business incubation opportunities—are seen by tri-county leaders as vital to future economic growth and development in the region. Expanded research activity at the academic institutions/centers in the region can also provide students engaged in such programs with meaningful experiential learning opportunities that, in turn, generate even more business development and commercialization activity. The ongoing proposal to develop a Center for Innovation and Excellence in Unmanned Aerial Systems in the region, combined with plans to expand research and business incubation space through a third building at the Southern Maryland Higher Education Center (SMHEC) and have the University System of Maryland build and operate the facility, is a prime example of how overlapping research,

education and technology transfer opportunities can be harnessed to promote the research and innovation in the region.

4. Finally, cost, convenience, and location appear to be the three primary factors that will influence whether local residents choose to stay in Southern Maryland and complete a degree, once the opportunity is available. These factors must be accounted for in any decisions about which institutions and programs to bring to the region, where the programs should be provided, and the type of instruction to be offered.

Vision and Recommendations:

Based on the findings laid out above, the Council has crafted a vision for higher education in the Southern Maryland region that would provide area residents with access to an expanded array of high quality, affordable, and convenient higher education programs, particularly baccalaureate programs, specifically selected to support the tri-county workforce. At the same time, economic development and innovation in the region would be expanded through greater research collaboration and technology transfer activity, all centered around classrooms, research facilities, and business incubator space that is state-of-the-art and attractive to students, faculty, researchers, and entrepreneurs.

To help achieve this vision, the Council has produced the following key recommendations for the region:

1. Academic programs, particularly those offered at the undergraduate level, should be expanded and targeted at the high demand areas of business/management, engineering, education, computer science, and health care. Five to seven million dollars in annual funding should be sought from the state legislature to create incentives for institutions to bring new or expanded programs to the region. At the same time, a one-time, comprehensive study to help identify the interest in and market for additional bachelor's degree options in the region should also be undertaken.
2. The Southern Maryland Higher Education Center (SMHEC), the Waldorf Center and the College of Southern Maryland (CSM) should partner with the state's four-year universities to provide more baccalaureate degree opportunities through 2+2 programs and other innovative approaches. The region's population centers should be considered when new or expanded programs and partnerships are developed, as should the degree of alignment between emerging research programs/opportunities and area workforce demands. A long-term goal should be to create greater collaboration and integration of course offerings at SMHEC and the Waldorf Center so that the two centers, along with CSM, are able to respond to more effectively and efficiently to regional education needs.
3. Additional higher education instructional and research related facilities are needed and should be built. New construction should include the third building scheduled for SMHEC, which should be owned and operated by the USM and include in its design research space that can support the basic and applied research needs/vision of the region. However, SMHEC should continue to be open to both public and independent institutions.
4. The colleges and higher education centers in the region, along with their education partners, should undertake public outreach activities specifically designed to expand awareness of current and future educational/research opportunities in the region and broaden their impact. These could include: conferences and seminars; exploratory research collaborations; joint research seed grants; research and business competitions; student, faculty, and intergovernmental personnel

exchanges; and professional education. Outreach services could also include funding additional research or a study into emerging business and research needs in the tri-county area and transmitting that information to key stakeholder groups.

5. Finally, a Southern Maryland Higher Education Advisory Board should be established to interact with regional stakeholders. The board would serve as a sounding board for discussions of the status of higher education in the region and guide the addition of future higher education programs.

Introduction

The higher education needs of Southern Maryland residents are not being met. While there are many opportunities in place to obtain bachelors or advanced degrees statewide, there is a lack of opportunities for those seeking to obtain bachelor's degrees locally in the Southern Maryland region.

The vision of the Southern Maryland Education Council is to provide residents of Southern Maryland access to a range of quality postsecondary education programs that allow students, the opportunity to obtain a degree and remain employed in the region. Additionally, the vision of the Council is to promote research for development of new technologies and the incubation of these technologies into new and viable businesses, thereby increasing private sector employment and reducing reliance on Federal research and military support in the regional economy. This will be accomplished through expanding the programs that postsecondary education institutions, higher education regional centers, and public and private research facilities are currently providing in the region.

The Council provides strategic recommendations for improving access to higher education in Southern Maryland for workforce development and retention in the region. The strategies include expanding current program/degree offerings to support the business community, nonprofits and military installations, and to facilitate technology transfer (Navy and otherwise) for commercial use in the region. These recommendations will help provide greater opportunity to gain degree and higher education credentials for the residents of Southern Maryland to be employed in jobs and careers supported by the regional economy.

This report provides background information on the tri-county Southern Maryland region, including data related to the three counties, the military installations, the existing higher education offerings, and the current research activities. It also states the Council's findings as they relate to its charge. Finally, the report makes several short-term and long-term recommendations to improve access to higher education in the region and promote economic innovation and diversification.

Background

Chapter 622, enacted in 2011 and amended in 2013, established the 13-member Southern Maryland Higher Education Council for the purpose of developing short-term and long-term strategies to improve access to higher education in the Southern Maryland tri-county region. The Council was tasked with examining the need for higher education in Southern Maryland, identifying unmet higher education needs, and developing recommendations to improve access to higher education in the region.

At the recommendation of the Council, the Governor appointed Dr. Patricia Florestano as Chair of the Council in the summer of 2012. Dr. Florestano formerly served as Maryland's Secretary of Higher Education, recently chaired the University System of Maryland (USM) Board of Regents, and is recognized as a skilled facilitator and knowledgeable higher education leader.

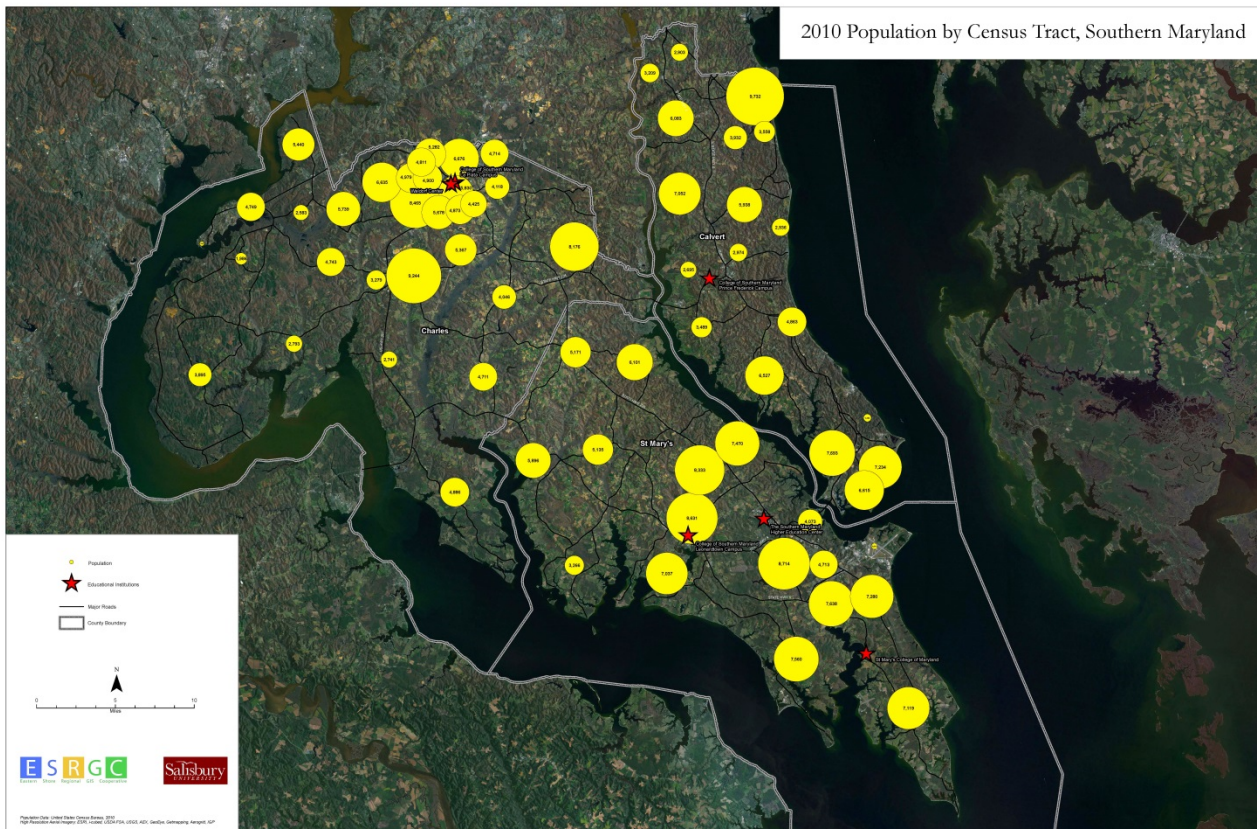
The Council met more than a dozen times over a two-year period and conducted site visits to several facilities in the Southern Maryland tri-county region as well as the USM Shady Grove campus in Montgomery County. During its deliberations, the Council received briefings from members of the higher education community on existing academic resources in the region as well as future plans for expansion of facilities, programs, and research collaborations. Through site visits and briefings, the Council learned about the higher education demands of the military installations in the region and discussed opportunities to expand the region's economic system by developing technology incubators in partnership with or aligned to support the military bases. In addition, the Council heard from various stakeholders about the workforce needs of the tri-county business community and discussed ways to provide more educational opportunities to students throughout the region. Finally, the Council, through USM, developed and administered several surveys, including a survey of local businesses, industries, and military bases to determine workforce needs; and a survey of residents and students to identify their academic interests and desire for additional postsecondary education and training.

Tri-county Southern Maryland

The tri-county Southern Maryland region is comprised of Calvert, Charles, and St. Mary's counties and includes 1,753 square miles, of which 40 percent is water. Major shorelines include the Chesapeake Bay, Patuxent River, and Potomac River. Based on the 2010 U.S. Census, the tri-county region is home to 340,439 residents. The racial-ethnic makeup of the region according to the 2010 Census is 67 percent white, 26 percent black, and 7 percent other. The Southern Maryland region is one of the fastest growing and increasingly diverse areas of the State with the two largest population centers in Northern Charles County and the surrounding area near Patuxent Naval Base in St. Mary's County (refer to Exhibit 1 on the next page).

At one time, the major industries in the tri-county area were agriculture, forestry, fishing, hunting, and mining. Today, the largest civilian industries in the region are professional; scientific; management; construction; entertainment; retail trade; and education, health care, and social assistance services. In addition, many Southern Maryland residents commute to jobs outside the region, primarily to the greater Washington D.C. area. By far the largest employers in the region are the military installations and defense contractors. As of 2008, nearly \$7.1 billion in economic activity in the tri-county region was generated by three military installations – Naval Air Station Patuxent River in St. Mary's County, the Naval Surface Warfare Center at Indian Head in Charles County, and the Naval Research Lab Chesapeake Bay in Calvert County. This activity supports over 46,000 jobs in the region as well as 225 defense contractors.

Exhibit 1. GIS Population Map by Census Tract



Currently, 36 percent of Southern Maryland residents between the ages of 25 and 64 have earned an associate’s degree or higher. In comparison, 45.4 percent of all Marylanders between the ages of 25 and 64 have earned an associate’s degree or higher. Only 27 percent of Southern Maryland tri-county residents hold a bachelor’s degree or higher, which is significantly below the statewide average (35.9%).

Maryland has established a statewide goal that by 2025, 55 percent of Maryland residents between the ages of 25 and 64 will have a college degree. The *Maryland State Plan for Postsecondary Education* recognizes the importance of an education both to the individual and the State. “For individuals, a college degree can provide employment stability and financial security. Increased degree attainment also benefits the State by increasing citizen engagement (e.g. voting, volunteering, etc.) and reducing crime, poverty, and reliance on public assistance services. Additionally, citizens with college degrees are needed in order for the State to remain

globally competitive in an ever-evolving, knowledge-based economy where employment opportunities will increasingly require some form of postsecondary degree.”

The Southern Maryland tri-county region also recognizes the importance of education. Recently, various private-sector entities developed *Southern Maryland 2020*, a vision for innovation, research, and economic development. The goal of the plan is to expand the regional economy beyond the federal government and military operations by fostering new technologies and intellectual property. The *Southern Maryland 2020* vision means transforming the community from a government dependent economy to a more diversified and entrepreneurial economy. To support the new economic model, the plan calls for increased educational programs in the Southern Maryland region, including basic and applied research opportunities and an emphasis on technology transfer and commercialization.

Military Presence in Southern Maryland

Southern Maryland is home to three major military installations, including the Naval Air Station Patuxent River (St. Mary’s County), the Naval Surface Warfare Center at Indian Head (Charles County), and the Naval Research Lab at Chesapeake Bay (Calvert County.) Based on a 2008 study, these three military installations generate \$7.1 billion in economic activity, support 46,000 jobs in the region, and provide work for 225 defense contractors.

- **Naval Air Station Patuxent River**

The Naval Air Station Patuxent River (NAS Pax River) in St. Mary’s County is one of eight Naval Air Systems Command (NAVAIR) sites that provide warfare technology. The site was established 70 years ago and expanded in the mid-1990s as part of the consolidations and integration of the Base Realignment and Closures Act. The realignment brought more than 20,000 military and civilian employees to the station. Today, Patuxent River, including the Webster Field Annex, is home to the Naval Air Systems Command headquarters and the Naval Air Warfare Center Aircraft Division (NAWCAD). In addition, the site hosts more than 50 tenants, including three services, federal agencies, and private industries.

The mission of NAVAIR is to provide the warfighter with absolute combat power through technologies that deliver dominant combat effects and matchless capabilities. NAVAIR provides integrated warfare systems and life-cycle support by performing research, development, test, and evaluation engineering, and fleet support for manned and unmanned aircraft, engines, avionics, aircraft support systems, and ship/shore/air operations.

- **Naval Surface Warfare Center at Indian Head**

The Naval Surface Warfare Center at Indian Head (NSWC) is the main site for the Department of Defense (DoD) Energetics Center and serves as the DoD Explosive Ordnance Disposal Technology Program lead. NSWC Indian Head is located on a 3,500 acre peninsula along the

Potomac River in Charles County. The mission of the DoD Center focuses on the research, development, test, evaluation, and in-service support of energetic systems. In addition, the Warfare Center provides soldiers, marines, sailors, and airmen worldwide with the information and technological solutions they need to detect, locate, access, identify, render safe, recover, exploit, and dispose of both conventional and unconventional explosive threats.

- **Naval Research Lab at Chesapeake Bay**

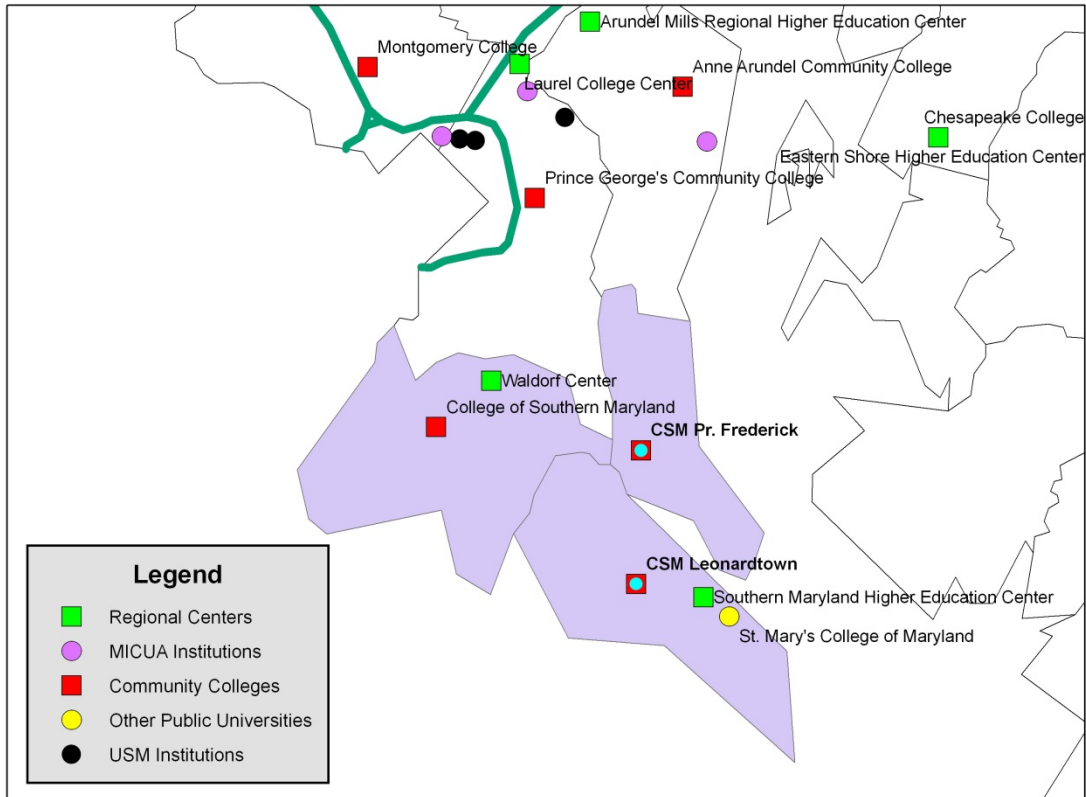
The Naval Research Lab at Chesapeake Bay (NRL) is located at Randle Cliff in Chesapeake Beach (Calvert County). The site is located on 157 acres contiguous to the Chesapeake Bay in an area relatively clear of congestion and industrial interference. The location houses six moderate-sized laboratory buildings and several additional structures. The NRL provides facility and support services for research in radar, electronic warfare, optical devices, materials, communications, and fire research. Basic research is also conducted in radar antenna properties, testing of radar remote sensing concepts, use of radar to sensor ocean waves, and laser propagation. Because of its location high above the Chesapeake Bay, unique experiments can be performed.

Higher Education Presence in Southern Maryland

Postsecondary education opportunities are available to residents in the Southern Maryland tri-county region at St. Mary's College of Maryland, the College of Southern Maryland, and two regional higher education centers – the Southern Maryland Higher Education Center and the Waldorf Center for Higher Education. Several academic programs and certifications are also available to personnel at the military bases through programs available through the Defense Acquisition University, Naval Postgraduate School, and out-of-state higher education universities. Many of these programs have limited enrollment and were established to fulfill workplace certification requirements.

Additionally, students enroll in online higher education programs through the University of Maryland University College and other online higher education providers. While some students commute to Bowie State University and the University of Maryland, College Park, commuting is difficult for most area residents due to the long distance and traffic issues. Although the closest four-year university is about 30 miles north of the nearest Southern Maryland resident, the transportation infrastructure and frequent traffic congestion inflates one-way travel times from over an hour for the nearest resident to over two hours for the most distant resident.

Exhibit 2. GIS Map of Higher Education Facilities in Southern and Central Maryland



The following is a brief summary of the higher education facilities and providers in the tri-county region.

- ***St. Mary's College of Maryland***

St. Mary's College of Maryland (SMCM), the State's Honors College, is an independent public institution in the liberal arts tradition. The College is located in St. Mary's County on a 361-acre waterfront campus near historic St. Mary's City. *U.S. News and World Report* ranks St. Mary's College as one of the top five public liberal arts colleges in the nation with highly rigorous and relevant programs in the STEM disciplines.

The College enrolls about 2,000 students annually (approximately 2,000 FTE students) with significantly limited capacity to expand. Eighty-six percent of students enrolled at St. Mary's College reside in Maryland. The remaining 14 percent hail from 31 states and 30 nations. The vast majority of students enrolled at the College are traditional students that reside in campus housing.

St. Mary's College offers 31 undergraduate and graduate academic programs with 23 majors and 26 minors. The most popular degree programs are biology, economics, English, political science, and psychology. In addition, St. Mary's College has several dual degree agreements with the Clark School of Engineering at the University of Maryland, College Park (UMCP) in aerospace and electrical engineering, and is currently in discussions with UMCP on a dual degree program in physics. Approximately one-fourth of all degrees awarded are in the STEM disciplines.

Recently, the SMCM Physics Department established an applied physics curriculum in collaboration with NAWCAD, which is located on Naval Air Station Patuxent River (NAS Pax River) about eight miles from campus. The program allows students to collaborate with NAWCAD on research and real world applications. Physics faculty and SMCM graduates work at NAS Pax River or the contractor community. Some research funding is provided by the Office of Naval Research.

- **College of Southern Maryland**

The College of Southern Maryland (CSM) is an open-admissions, comprehensive regional community college with campuses in La Plata (Charles County), Prince Frederick (Calvert County), and Leonardtown (St. Mary's County). In addition, the College recently purchased land to establish a fourth campus in Hughesville (Charles County). The new Hughesville campus will be centrally located to serve residents of all three counties. The College intends to create efficiencies by offering high-cost programs – programs that are too expensive to maintain at multiple sites -- at the Hughesville Campus. CSM has two additional training centers not located on the campuses—the Center for Trades and Energy Training in Waldorf, MD and the Center for Transportation Training in La Plata, MD.

The College offers more than 100 quality academic programs including an array of associate degrees, certificates, and letters of recognition. The nine academic divisions of the College are: 1) General studies; 2) Biological and physical sciences; 3) Business and technology; 4) Communications, arts, and humanities; 5) Health sciences; 6) Languages and literature; 7) Mathematics, physics, and engineering; 8) Social sciences and public services; and 9) Transportation. In fall 2012, the College served 9,217 unduplicated full-time and part-time degree-seeking students taking credit bearing courses (approximately 5,500 FTE in fall 2012). Enrollments have increased in recent years. In addition, non-credit enrollment exceeds 13,000 students annually.

CSM has partnered with major employers in the tri-county region to develop coursework and curriculum to meet workforce challenges. For example, the College recently partnered with Constellation Energy and the Calvert Cliffs nuclear power plant to develop a nuclear technician program. As the centrally located CSM Hughesville Campus is developed, there will be increased opportunities for such programs in locations convenient to all three counties.

- **Southern Maryland Higher Education Center**

The Southern Maryland Higher Education Center (SMHEC), located in California (St. Mary's County), was established in 1994 by the State of Maryland to provide quality graduate and upper-division undergraduate degree programs in professional fields responsive to the needs of NAS Pax River and the Southern Maryland region. During the past 20 years, the role and mission of the Center expanded in response to the advancement of the tri-county region as a high-technology area. Today, SMHEC partners with 15 private and public universities in Maryland, Pennsylvania, and the District of Columbia to offer over 90 academic programs, including 45 graduate degree programs, five doctoral programs, and 15 upper-level bachelor completion programs in numerous professional fields, such as engineering, technology, nursing, social work, education, management, counseling, business administration, project management, and marketing.

SMHEC is an independent entity with a Board of Governors consisting of 13 voting members appointed by the Governor. At least two members of the Board are appointed from each of St. Mary's, Charles, and Calvert counties. The Board appoints a Director responsible for the administration and supervision of the Center.

The Center reported 394 full-time-equivalent (FTE) students and 2,073 unduplicated headcount enrollment for fiscal 2012. The SMHEC facilities offer 59,000 square feet of space in two buildings, including 30 seminar rooms, five computer labs, an aerospace and mechanical engineering laboratory, interactive television rooms, meeting and conference areas, and staff and coordinator spaces.

- **Waldorf Center for Higher Education**

The Waldorf Center for Higher Education was created through a Memorandum of Understanding between the College of Southern Maryland (CSM) and the University of Maryland University College (UMUC) in 1997. The Center is jointly governed and administered by CSM and UMUC and is housed in a leased 25,000-square-foot facility in Waldorf (Charles County).

The Waldorf Center offers lower- and upper-level undergraduate, graduate, and professional development courses, programs, and degrees in partnership with CSM, UMUC, Towson University, and Notre Dame of Maryland University. The Center serves as a vital link between the associate degree courses and programs offered by CSM and the bachelor and graduate degree programs offered by its higher education partners.

In fiscal 2012, the Center reported a total of 479 full-time-equivalent (FTE) students and 1,357 unduplicated headcount enrollments. This included 153 FTE students enrolled in 2+2 upper division bachelor's and graduate level programs.

- **University System of Maryland**

Several University System of Maryland (USM) institutions offer undergraduate, graduate, and research opportunities in Southern Maryland.

- **Bowie State University** offers two graduate nursing programs at the Southern Maryland Higher Education Center (SMHEC). In addition, the University plans to offer bachelor's degree programs at SMHEC in the near future.
- **Towson University** offers an undergraduate program in elementary education at the Waldorf Center for Higher Education. The University also offers several graduate programs in education, a master's program in human resource development, and an advanced certificate program for school administrators at the SMHEC.
- **University of Maryland, College Park (UMCP)** offers an undergraduate mechanical engineering degree to residents of Southern Maryland in partnership with the College of Southern Maryland (CSM) and the Naval Air Warfare Center Aircraft Division (NAWCAD). The curriculum is taught at the SMHEC. The Navy has invested over \$1 million in a laboratory facility to support the program. In addition, the Navy is providing tuition support and summer employment to CSM students who are enrolled in the program and meet the Navy requirements. Students also have the potential for full-time employment upon graduation.

In addition, UMCP also offers academic programs and certificates at SMHEC, including a doctoral program, graduate degree programs, bachelor's degree programs, and graduate certificate programs.

- **Salisbury University** offers a master's and bachelor's degree in social work at SMHEC.
- **The University System of Maryland Center for Environmental Studies (UMCES)** operates the Chesapeake Biological Laboratory at Solomon's Island (Calvert County).

- **Morgan State University**

Morgan State University operates the Patuxent Environmental & Aquatic Research Laboratory (PEARL) in St. Leonard (Calvert County). PEARL offers limited educational opportunities to the community.

Maryland's Independent Colleges and Universities

Maryland's independent colleges and universities have been offering academic programs in the Southern Maryland tri-county region for almost 20 years. Today, five independent colleges offer

over 30 undergraduate and graduate degree programs at the two regional higher education centers in Southern Maryland.

- **Capitol College** offers nine programs in engineering, information technology, and business at the SMHEC, including several undergraduate and graduate programs as well as a doctoral program in information assurance.
- **Johns Hopkins University (JHU)** played a critical role in the success of SMHEC by becoming the first academic institution to establish two engineering programs at the site. Today, JHU offers five graduate level programs in engineering, business, and education as well as a post-master's certificate program in clinical community counseling at the SMHEC. JHU also has a partnership with the Naval Surface Warfare Center at Indian Head.
- **Notre Dame of Maryland University** offers 14 academic programs at SMHEC, including a doctoral program in education, numerous graduate programs, and several certificate programs. In addition, Notre Dame offers graduate education courses at the Waldorf Center.
- **Stevenson University** offers a nursing degree program at the SMHEC.
- **Washington Adventist University** recently launched two undergraduate programs at SMHEC, including a bachelor's in early child care education and a bachelor's in early childhood special education.

Non-Maryland Independent Colleges and Universities

- **George Washington University** offers three academic programs including two doctoral programs in engineering and one master's program in engineering.
- **Webster University** offers four master's degrees in business administration, acquisitions & procurement, management & leadership, and human resources management. In addition, the University offers a graduate certificate in government contracting.

Existing Research, Innovation, and Entrepreneurship

The three military installations in Southern Maryland provide unique opportunities for area academicians, researchers, and scientists. All three bases boast state-of-the-art research facilities and testing centers. In addition, the bases employ leading scientists and researchers. Inside NAV Pax River, the US Navy has 215 labs on site of varying sizes. These labs span the spectrum from electrical engineering to human systems to computational and environmental research. These research labs are used heavily by the military and military contractors.

NSWC Indian Head provides direct access to unique testing facilities and world-class scientists and researchers, some of which are available to colleges and universities through partnership agreements. By entering into these partnership agreements, NSWC Indian Head seeks to utilize existing physical and intellectual capability more effectively and to expedite commercial assessment of federal intellectual property, research, and development. Several Maryland colleges and universities are partnering with NSWC Indian Head, including the College of Southern Maryland; Johns Hopkins University; Morgan State University; University of Baltimore; and University of Maryland, College Park.

NRL at Chesapeake Bay conducts basic and applied research. In addition, the site operates a unique test control center for air and sea operations in a restricted fly zone over the Chesapeake Bay.

Outside the military facilities, there are additional lab spaces available at defense contractors and technology companies in the region. Some of these labs possess the capability for rapid prototyping, a valuable resource in autonomous systems testing.

In 2013, UMCP became more engaged with Southern Maryland, acting as the lead for the Maryland proposal of the Federal Aviation Administration (FAA) plan to designate six sites, on or before September 2015, to incorporate commercial unmanned aerial systems (UAS) into national air space. The six sites would be approved exclusively for testing unmanned autonomous systems in civilian air space. In addition, UMCP is supporting the Southern Maryland innovation community with events such as the Southern Maryland Innovation and Tech (SMIT) Meetup. These events involve several UMCP startup companies imparting lessons learned and offering mentorship opportunities to local entrepreneurs.

Morgan State University also has a research facility in St. Leonard (Calvert County), newly named the Patuxent Environmental & Aquatic Research Laboratory (PEARL). PEARL engages a diverse group of undergraduate and graduate students in conducting innovative research dedicated to investigating the complex interactions that define our environment. PEARL applies interdisciplinary approaches to studying the connections between complex ecological systems, while providing society with knowledge to meet the environmental challenges of the 21st Century.

Additionally, the University of Maryland Center for Environmental Science Chesapeake Biological Laboratory (CBL) research facility located on Solomon's Island (Calvert County) is training and educating environmental scientists critical to fulfilling the CBL mission. Some CBL scientists conduct research capitalizing on its proximity to the Chesapeake Bay while providing graduate level students opportunities to learn from and work with active field researchers.

Finally, the Southern Maryland Higher Education Center (SMHEC) has a comprehensive laboratory that supports its B.S. in Mechanical Engineering. In addition, SMHEC and USM are planning a third building, which will include laboratory space and an incubation center.

Survey Results

In partnership with the University System of Maryland, the Southern Maryland Higher Education Council conducted a series of surveys to gauge the interest and need for expanded higher education offerings in the Southern Maryland region. Four separate surveys were developed to gather information from four constituent groups: 1) the Southern Maryland community at large; 2) students attending the College of Southern Maryland; 3) high school students enrolled in the tri-county region; and 4) employers located in Southern Maryland.

While participation in the surveys was limited, the results suggested a strong interest in expanded educational opportunities in the tri-county region. The majority of respondents would prefer to enroll in courses located in their county of residence if the program of choice were available. However, this preference was not consistent across all respondents as more than 40 percent of high school respondents in every county indicated no preference for location. In contrast, more than 70 percent of all students attending the College of Southern Maryland would prefer to enroll in courses located in their county of residence if the program of choice were available. These findings represent the different needs and mobility of traditionally-aged students (high school respondents) and non-traditional or transfer students who are more likely working adults.

Student and community respondents indicated an overlapping interest in five major areas of study: engineering, business, health, computer science and education. These areas of interest align well with the areas of need identified by employers. The top three areas of need identified by employers in the region were business, engineering, and computer science. In addition, the military respondents identified a strong need for a wider array of academic programs, including military science, health professions, mathematics, and physical sciences.

Findings and Opportunities

Maryland is a small state with numerous distinctive colleges and universities – public and private, two- and four-year. These institutions offer an array of high-quality academic programs and distinctive educational experiences statewide. Collectively, Maryland’s colleges and universities offer some programs in the region to meet the higher education needs of most recent high school graduates who want to enroll in residential four-year programs. In addition, the College of Southern Maryland (CSM) offers a number of quality programs at three campuses for commuter students wishing to pursue a certificate or an associate’s degree in Southern Maryland. CSM is proposing a fourth campus centrally located in Hughesville to expand academic opportunities to the entire tri-county region. Continuing education programs are also available through the Southern Maryland Higher Education Center and the Waldorf Center for Higher Education, which partner with numerous colleges and universities to offer graduate programs and bachelor’s completion programs in a broad array of disciplines. These regional higher education centers continue to explore, design, and deliver instruction and services that address the lifelong learning needs of the Southern Maryland population.

Despite these higher education offerings, the survey data combined with the census data for educational achievement indicate there are limited opportunities for those seeking to attain a bachelor's degree in Southern Maryland. More must be done to broaden the range of academic opportunities in Southern Maryland. The analysis suggests the greatest area of need is for bachelor's degree programs for nontraditional students, working adults, and students who prefer to commute to college. The county-by-county needs analysis also suggests cost, convenience, and location are the driving factors for many students, and most students would prefer to attend a college or university within their county of residence. Nevertheless, a significant portion of students would consider alternative locations if the program of choice is available. Thus, the strategy for expanding academic programs for residents in the region is multidimensional. A key consideration for the future should be how to bring programs of interest to locations that will best serve the most students efficiently and effectively.

The Council believes it is critical that four-year institutions partner with the College of Southern Maryland (CSM) to pursue additional 2+2 bachelor degree programs following the best practices of the University System of Maryland Shady Grove campus. Additionally, the Council recognizes the value of engaging a robust network of both public and private colleges and universities to address the higher education needs of the tri-county region, including through additional 2+2 partnership agreements. Collectively, these institutions offer more opportunities to expand academic program offerings and greater capacity to conduct research and foster innovation.

The Council also acknowledges the challenges associated with bringing programs and research activities to new locations. Those challenges include significant upfront investments, which can be prohibitive. Before taking in any revenue, a university must develop a curriculum, hire the faculty, secure a facility, acquire the necessary technology and equipment, market to prospective students, and obtain approval from the appropriate authorities. In light of these challenges, the Council believes the State should develop a competitive grant program to incentivize institutions to invest in Southern Maryland.

While some employers and community members are aware of the Southern Maryland Higher Education Center and the Waldorf Center for Higher Education, there is a need to increase awareness among high school and community college students. When survey participants learned about the two regional higher education centers in the tri-county region, they indicated a likelihood of utilizing these centers if the program of choice is available. Therefore, there is an opportunity to serve more students and more effectively utilize the regional higher education facilities by effectively marketing these opportunities to tri-county residents.

The expansion of graduate and post-graduate educational programs in the tri-county region is also important. Budget constraints facing the Navy and the broader Department of Defense community make ongoing program alignment imperative. The area must assess the

technological competencies, education, and training needs of the military installations and offer the academic programs needed to supply a skilled and knowledgeable workforce.

Research and innovation are also critical to higher education and economic development in the Southern Maryland region. Where possible, research and academic programs should overlap to give students the opportunity to engage in meaningful experiential learning. In addition, these academic experiences lead to technology transfers, business innovation, and commercialization.

The Federal Aviation Administration Unmanned Aerial Systems (FAA-UAS) proposal for Southern Maryland offers a springboard for launching this effort. UAS development will create opportunities for technology transfer, applied research, and/or business incubation that can be diversified to related technologies and applications. The University of Maryland, College Park (UMCP) has taken the lead position in developing the proposal to the FAA. The larger context is that this designation could provide the stimulus for other Maryland postsecondary institutions to establish a larger footprint in Southern Maryland. The academic disciplines that could contribute research capacity to study all unmanned and autonomous systems include, but are not limited to, the fields of computer science (coding, network design, big data analyses, and systems dynamics); interdisciplinary research between psychology, neurobiology, and neurophysiology; criminology; agriculture; engineering (mechanical, electrical, materials, and systems); business and economics; and philosophy (ethics).

In addition to the current lab and research space at local institutions, the University System of Maryland has been asked to play a lead role in the development and operation of Building 3 at the Southern Maryland Higher Education Center. This expanded role has been endorsed by the Southern Maryland Higher Education Center board of governors (reference the resolution passed on September 24, 2013). The Board of Governors agreed to enter into discussions with the Board of Regents of the University System of Maryland regarding the conveyance of an appropriate portion of the Center's 24 acre campus to the University System, for the design and construction of its previously approved 38,121 square foot Classroom Building III, and additional spaces, research spaces, a business incubator, and a UAS Innovation Center of Excellence. The Board of Governors signed an agreement with the Board of Regents and Southern Maryland Navy Alliance that the new building facility program will be revised and that the parties will pursue future collaboration and agreements for establishing a merger between the Southern Maryland Higher Education Center and the University System of Maryland (signed November 1, 2013). This agreement will release the capital funds needed to design the new building (Maryland Capital Budget Code RB36B).

The proposed new building could provide much needed space to take advantage of the FAA-UAS opportunity. Approximately \$1.5 million has been provided for the building design. The initial plans call for classrooms, laboratories, dedicated research space, and a business incubator. Alternatively, the facility could be used as a dedicated innovation and incubation center where a

variety of research results from elsewhere could be aggregated, blended and distilled, and where entrepreneurs could learn the skills needed to succeed.

Finally, there is an ever-increasing focus on the environment, and in particular the health of the Chesapeake Bay, which would lend itself to additional innovation and entrepreneurial activity. The opportunities could incorporate the faculty, research, and space available at St. Mary's College of Maryland, Morgan State University's PEARL facility, and the University of Maryland Center for Environmental Studies Chesapeake Biological Laboratories.

Recommendations

The vision of the council is:

- To expand current higher education opportunities,
- Establish new baccalaureate programs that support the tri-county workforce, and
- Create new business opportunities through university research collaborations and technology transfer.

The vision of the council is that all degree programs must be:

- High quality,
- Affordable, and
- Offered within close proximity to either the workplace or place of residence to maximize enrollment and improve regional degree attainment.

The Vision of the Council is that all classrooms, research facilities and business incubator spaces be state-of-the-art to attract the students, researchers, and entrepreneurs needed to grow the local economy.

The Southern Maryland Higher Council adopts the following recommendations to support the Southern Maryland Region.

Higher Education Academic Program Recommendations

1. *The Council strongly recommends the expansion of academic program offerings at the undergraduate level. Southern Maryland must increase baccalaureate degree opportunities in Southern Maryland to meet the state's 55% degree attainment goal and expand regional economic opportunities.*

SMHEC and the Waldorf Center should partner with College of Southern Maryland and/or the state's four-year universities to explore innovative approaches to increasing the availability of baccalaureate degrees and to implement the following recommendations:

- *Based on the initial survey data, additional new bachelor degree programs should be offered in all disciplines with strategic expansion in high demand disciplines such as:

 - *Business & Management;*
 - *Engineering;*
 - *Education;*
 - *Computer Science; and*
 - *Healthcare Disciplines.**

- *Academic programs offered in the tri-county region should be expanded or improved through innovative approaches to increase the availability of degrees opportunities to Southern Maryland residents. For example, higher education institutions should expand through increasing regional center usage, increasing cohort sizes, outreach to non-traditional students, offering programs at multiple regional centers or any of the College of Southern Maryland campuses, and establishing new 2+2 partnerships for baccalaureate programs with the College of Southern Maryland.*

- *All new programs and partnerships should consider the population centers of the tri-county area, commuting behaviors of the residents, class times, and cost of attendance when establishing locations and times for courses. In addition, programs should involve research in areas that are aligned with workforce demands.*

- *The region's colleges and higher education centers should increase awareness of current educational opportunities in the region for high school and community college students. The effort should work to build cohort pipelines for existing and future baccalaureate programs.*

- 2. *Building on the initial survey results, the council recommends one-time funding for a more sophisticated and comprehensive regional study to precisely determine the market for bachelor degree programs in specific fields of study and identify the locations that would best support the enrollment in these programs.*

- 3. *The council recommends \$5M-\$7M annual funding from legislative appropriations to create incentives that will encourage institutions to expand in Southern Maryland as well as to sustain those baccalaureate degree programs. Costs include administrative, instruction, curriculum, facility, student services, travel, equipment, and related personnel costs.*

- 4. *The council recognizes the need for new higher education facilities and increased University System of Maryland presence. Specifically, the Southern Maryland Higher Education Center Building III should be a University System of Maryland regional center operation that coordinates regional academic and research opportunities. The Southern Maryland Higher Education Center should continue to be open to all accredited public and independent institutions.*

5. *A long-term goal should be close collaboration between the Waldorf Center and the Southern Maryland Higher Education Center to meet the regional needs through efficient coordination of academic programs to maximize enrollment pipelines and effectively utilize all available classroom and research space needed to meet regional center workforce demands.*

Research and Innovation Recommendations

6. *The Council recommends that the facility expansion at Southern Maryland Higher Education Center should include in its design research space that can support basic and applied research needs of the region in order to support the vision and future direction of the regional economy.*
7. *The council recognizes that increased public outreach in the tri-county is required. Specific Actions for Maryland colleges, universities, and Southern Maryland partners are the following:*
 - *Conferences and seminars: Provide a forum to exchange technical information and foster collaboration.*
 - *Exploratory research collaborations: Combine strengths and talent to provide an enhanced capacity for innovation and the solutions needed to respond to future national needs.*
 - *Joint research seed grants: Co-fund research teams to conduct preliminary proof of concept research and enhance institutional collaboration.*
 - *Joint pursuits of research funding: Leverage existing relationships and capabilities to partner successfully on third-party funding opportunities. Example: upcoming FAA-UAS test centers*
 - *Research and business competitions: Challenge university research teams with Navy-relevant problems and award prizes to successful (or the best) solutions. Expand existing university research capacity to Southern Maryland.*
 - *Intergovernmental Personnel Act exchanges: Provide opportunities for experienced academics to work at Southern Maryland or Southern Maryland area technical staff to undertake research at a university.*
 - *Student technical interchanges: Provide more co-op and internship opportunities and programs for students to work at/with NAS Pax River to enhance talent development and research collaboration for BS, MS and PhD students.*
 - *Professional education: Provide expanded opportunities for non-degree technical, executive and business education and training.*
 - *Economic development and diversification: Assist with analysis of the “economic and entrepreneur ecosystem” and potential innovation clusters in Southern Maryland; partner to enhance new business startups, patenting, technology licensing, and economic development through incubators, innovation and entrepreneurship organizations and training. Examples include:*

- *Perform a cluster analysis of emerging technology ecosystem in Southern Maryland*
- *Continue to have university startup companies visit Southern Maryland to meet with leaders of NAVAIR/NAWCAD and other government and corporate leaders, such as recent Southern Maryland Innovation and Tech (SMIT) Meetups.*
- *Have a Southern Maryland version of the Maryland Innovation Initiative to fund exploratory research that can translate into early stage commercialization*
- *Expand the effort of the Maryland Small Business Technology Development Center in Southern Maryland*

Regional Advisory Recommendation

8. *The Council recommends that a Southern Maryland Higher Education Advisory Board be established and meet regularly to interact with the regional stakeholders to review and discuss the status of higher education and to make recommendations on future needs, offerings, and directions.*

REFERENCES

Tri-County Council for Southern Maryland 2013 Strategic Plan

<http://www.tccsmd.org/index.cfm?content=1&Menu=1>

The Role of STEM Programs for Educating Maryland's 21st Century Workforce

http://www.paxpartnership.org/Knowledgebase/Attach/STEM%20White%20Paper_Final.pdf

Maryland Higher Education Commission-- Program Inventory

http://mhec.maryland.gov/utilities/search_school.asp

US Census—State and County Quick Facts

<http://quickfacts.census.gov/qfd/states/24/24017.html>

Southern Maryland Academic Program Offerings

College of Southern Maryland

<http://www.csmd.edu/Academics/>

St. Mary's College of Maryland

<http://www.smcm.edu/academics/degree-programs.html>

Southern Maryland Higher Education Center

http://www.smhec.org/Documents/Academic_Programs_Offered_at_SMHEC.pdf

The Waldorf Center

<http://www.waldorfcenter.org/getting-started/>

Institutions with Programs in Southern Maryland

Public Colleges & Universities

Bowies State University

www.bowiestate.edu

College of Southern Maryland

www.csmd.edu

Morgan State University

www.morgan.edu

Salisbury University

www.salisbury.edu

St. Mary's College of Maryland

www.smcm.edu

Towson University

www.towson.edu

University of Maryland, College Park

www.umd.edu

University of Maryland University College

www.umuc.edu

Independent Colleges & Universities

Capitol College

www.capitol-college.edu

George Washington University

www.gwu.edu

Johns Hopkins University

www.jhu.edu

Notre Dame of Maryland University
Stevenson University
Washington Adventist University
Webster University

www.ndm.edu
www.stevenson.edu
www.wau.edu
www.webster.edu

APPENDIX A

Southern Maryland Higher Education Council Contributors & Council Staff

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APPENDIX B

Selected Findings from the Southern Maryland Surveys

Four surveys were distributed among southern Maryland high school junior and seniors; community college students; community residents; and employers—both private and military affiliated.

Finding #1—Overlapping Interest in Academic Program Fields of Study

10. If additional higher education degree programs were to be offered in Southern Maryland (Bachelor Degree programs and beyond), what fields of study would you want to be offered to support your employees and company? (Choose all that apply)										
Answer Options	Employers*		Military Employers		Community		Community College		High School **	
	Response Percent	Response Count	Response Percent	Response Count	Response Percent	Response Count	Response Percent	Response Count	Response Percent	Response Count
Agricultural & Natural Resources	18.6%	11	14.3%	1	0.0%	0	1.7%	6	6%	101
Architecture and Environmental	20.3%	12	14.3%	1	1.9%	1	0.3%	1	7%	113
Area Studies (Middle Eastern Studies,	10.2%	6	14.3%	1	1.9%	1	0.3%	1	1%	23
Biological Sciences	16.9%	10	14.3%	1	0.0%	0	4.7%	16	14%	226
Business & Management	84.7%	50	42.9%	3	15.1%	8	14.3%	49	28%	456
Communication	39.0%	23	28.6%	2	0.0%	0	3.2%	11	11%	179
Computer Information Sciences	61.0%	36	0.0%	0	5.7%	3	5.5%	19	13%	205
Education	28.8%	17	14.3%	1	13.2%	7	7.3%	25	17%	285
Engineering	62.7%	37	42.9%	3	7.5%	4	8.5%	29	24%	395
Fine & Applied Arts (Art,	16.9%	10	14.3%	1	3.8%	2	5.8%	20	19%	318
Foreign Languages (Spanish, French,	13.6%	8	14.3%	1	3.8%	2	0.9%	3	5%	76
Health Professions (Nursing,	23.7%	14	42.9%	3	11.3%	6	20.7%	71	23%	385
Home Economics	5.1%	3	0.0%	0	0.0%	0	0.3%	1	4%	63
Law	15.3%	9	28.6%	2	5.7%	3	5.0%	17	17%	284
Letters (English; Linguistics; Speech,	18.6%	11	0.0%	0	0.0%	0	1.5%	5	3%	53
Library Science	5.1%	3	14.3%	1	0.0%	0	0.0%	0	1%	11
Mathematics	44.1%	26	14.3%	1	0.0%	0	0.0%	0	12%	201
Military Science	22.0%	13	57.1%	4	0.0%	0	0.0%	0	6%	95
Physical Science (Physics, Chemistry,	27.1%	16	42.9%	3	1.9%	1	1.7%	6	9%	141
Psychology	16.9%	10	0.0%	0	3.8%	2	3.5%	12	20%	324
Public Affairs (Social Work, Law	27.1%	16	14.3%	1	0.0%	0	2.6%	9	9%	153
Social Sciences (History, Sociology,	20.3%	12	28.6%	2	7.5%	4	6.1%	21	9%	142
Theology	8.5%	5	14.3%	1	1.9%	1	0.6%	2	2%	26
Interdisciplinary Studies	15.3%	9	14.3%	1	1.9%	1	0.3%	1	1%	13
Undecided					1.9%	1	5.2%	18	21%	352
Does not apply					11.3%	6				
			* Duplicated responses						** Sum of top 3 major choices	

Finding #2—Familiarity with Southern Maryland Regional Centers

Are you familiar with the Southern Maryland Higher Education Center (SMHEC)?											
		Employers		Military Employers		Community		Community College		High School	
Answer Options		Response Percent	Response Count	Response Percent	Response Count	Response Percent	Response Count	Response Percent	Response Count	Response Percent	Response Count
Yes		82.0%	50	85.7%	6	65.2%	43	39.1%	202	17.5%	611
No		18.0%	11	14.3%	1	34.8%	23	60.9%	315	82.5%	2886
Are you familiar with the Waldorf Center for Higher Education?											
		Employers		Military Employers		Community		Community College		High School	
Answer Options		Response Percent	Response Count	Response Percent	Response Count	Response Percent	Response Count	Response Percent	Response Count	Response Percent	Response Count
Yes		32.8%	20	0.0%	0	57.6%	34	54.3%	273	13.0%	449
No		67.2%	41	100.0%	7	42.4%	25	45.7%	230	87.0%	3011

Finding #3—Potential Demand by County for Bachelor Degree Completion

If given a choice, in which county would you prefer to pursue a bachelor's degree program from one of the institutions cited above?											
				Community College		High School					
				Response Percent	Response Count	Response Percent	Response Count				
Total Respondents	Calvert				19.4%	67	4.7%	76			
	Charles				35.1%	121	21.4%	348			
	St. Mary's				24.9%	86	27.5%	447			
	No Preference				20.6%	71	46.5%	756			

Finding #4a—Potential Demand for Bachelor Degree Completion at Southern Maryland Higher Education Centers

How likely would you be to attend a bachelor’s degree program at the SMHEC if a degree program of interest to you was offered at the Center?								
		Community		Community College		High School		
		Response Percent	Response Count	Response Percent	Response Count	Response Percent	Response Count	
Calvert Zipcode	Very Likely	66.7%	2	35.5%	38	3.4%	5	
	Some What Likely	33.3%	1	38.3%	41	27.9%	41	
	Some What Unlikely	0.0%	0	16.8%	18	26.5%	39	
	Very Unlikely	0.0%	0	7.5%	8	39.5%	58	
	Not Interested	0.0%	0	1.9%	2	2.7%	4	
Charles Zipcode	Very Likely	21.4%	9	25.5%	51	14.2%	178	
	Some What Likely	28.6%	12	41.0%	82	43.3%	543	
	Some What Unlikely	7.1%	3	18.0%	36	21.0%	263	
	Very Unlikely	35.7%	15	12.5%	25	21.0%	263	
	Not Interested	7.1%	3	3.0%	6	0.6%	7	
St. Mary's Zipcode	Very Likely	20.0%	2	31.8%	50	10.4%	181	
	Some What Likely	30.0%	3	45.2%	71	39.6%	690	
	Some What Unlikely	30.0%	3	12.1%	19	23.4%	407	
	Very Unlikely	20.0%	2	10.2%	16	26.3%	459	
	Not Interested	0.0%	0	0.6%	1	0.3%	5	

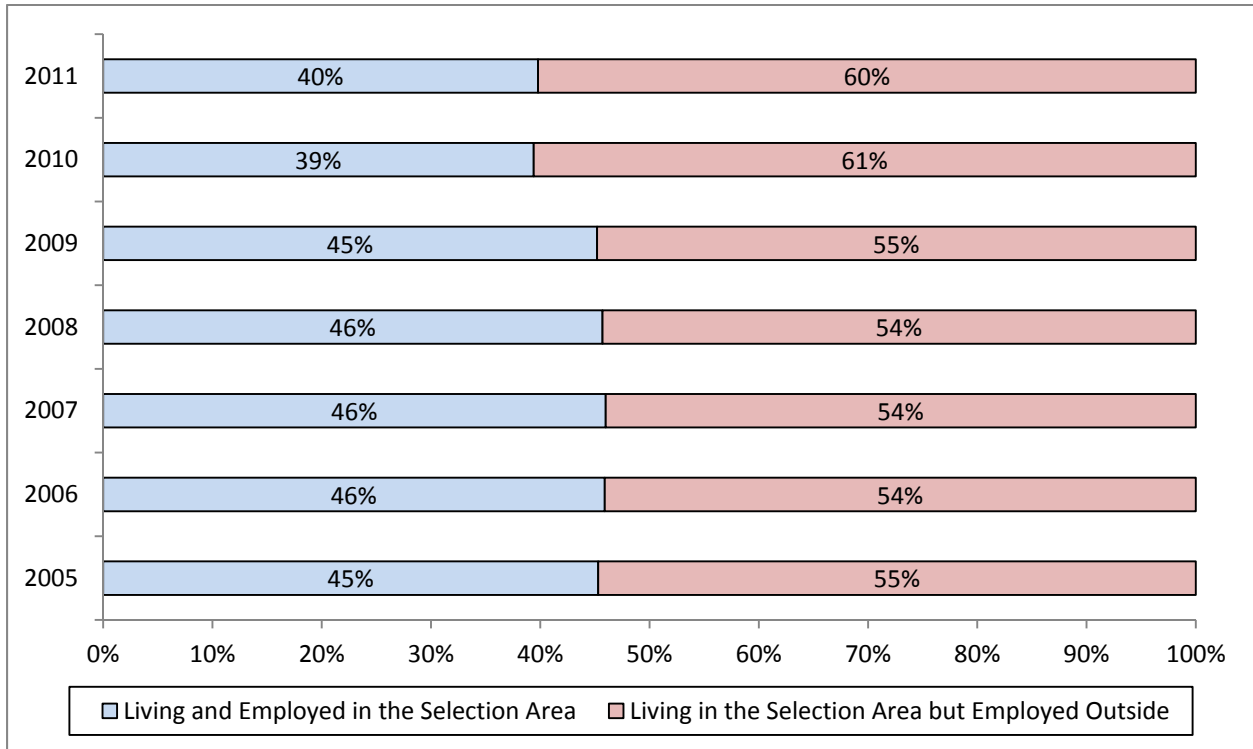
Finding #4b—Potential Demand for Bachelor Degree Completion at the Waldorf Higher Education Center

How likely would you be to attend a bachelor’s degree program at the Waldorf Center if a degree program of interest to you was offered at the Center?								
		Community		Community College		High School		
		Response Percent	Response Count	Response Percent	Response Count	Response Percent	Response Count	
Calvert Zipcode	Very Likely	0.0%	0	13.1%	14	2.1%	3	
	Some What Likely	0.0%	0	31.8%	34	16.0%	23	
	Some What Unlikely	50.0%	1	20.6%	22	23.6%	34	
	Very Unlikely	50.0%	1	28.0%	30	56.9%	82	
	Not Interested	0.0%	0	6.5%	7	1.4%	2	
Charles Zipcode	Very Likely	33.3%	14	40.0%	80	11.2%	145	
	Some What Likely	28.6%	12	32.0%	64	31.0%	403	
	Some What Unlikely	2.4%	1	12.5%	25	22.8%	296	
	Very Unlikely	26.2%	11	13.0%	26	28.9%	375	
	Not Interested	9.5%	4	2.5%	5	6.2%	80	
St. Mary's Zipcode	Very Likely	0.0%	0	7.7%	12	5.7%	97	
	Some What Likely	20.0%	2	29.0%	45	27.6%	466	
	Some What Unlikely	40.0%	4	21.9%	34	24.8%	420	
	Very Unlikely	40.0%	4	38.7%	60	41.0%	693	
	Not Interested	0.0%	0	2.6%	4	0.9%	15	

APPENDIX C

Selected Workforce Data from the Jacob France Institute

Finding #1 Majority of Area Southern Maryland Residents Commute to Jobs outside of the Southern Maryland Region.



Finding #2 Southern Maryland Jobs in “Professional, Scientific, & Technical Services” and “Health Care and Social Assistance” has grown the most from 2005 to 2011.

