

**Economic Competitiveness/Workforce
Workgroup Report**

of the

**Commission to Develop the Maryland
Model for Funding Higher Education**

November 3, 2008

Commission to Develop the Maryland Model for Funding Higher Education

Economic Competitiveness/Workforce Workgroup Findings and Recommendations

Introduction

The Economic Competitiveness/Workforce Workgroup was charged with seven tasks: (1) examine other states/nations compared to Maryland to identify practices to promote competitiveness; (2) examine factors that make states an attractive location for businesses; (3) examine the knowledge and skills needed to create a trained workforce; (4) develop policies and/or principles to better link higher education to workforce/business needs; (5) examine research and development and technology transfer practices at universities; (6) examine the eight Regional Higher Education Centers (RHECs) operating in Maryland, including an examination of the funding strategy developed by the Maryland Higher Education Commission (MHEC), how RHECs are meeting regional needs for educational programs, and the extent to which RHECs are leveraging other resources; and (7) examine the impact Base Realignment and Closure (BRAC) will have on the need for increased opportunities for higher education and workforce training.

Although the workgroup was charged with seven tasks, its findings and recommendations can be grouped under four topic areas: (1) examining data on competitiveness and workforce skills in order to develop policies and principles to better link higher education to workforce and business needs; (2) examining research and development and technology transfer practices at universities; (3) examining the eight RHECs operating in Maryland; and (4) examining the impact of BRAC on higher education and workforce training. The workgroup ultimately concluded that the first two topic areas are fundamentally based on developing initiatives to promote occupations in the areas of science, technology, engineering, and mathematics (STEM) and building the student pipeline with initiatives that begin in Pre-K through graduate education (P-20).

This report describes the workgroup's findings and recommendations in the four topic areas. The workgroup is acutely aware of the severe fiscal crisis in the United States and the State of Maryland; therefore, the workgroup has divided its recommendations in each of the four topic areas into two separate categories: recommendations that can be implemented through a better coordination of existing resources and recommendations that will require additional resources. While additional resources might not be currently available, the workgroup felt it was important to give recommendations that will guide the building of the State's workforce and foster entrepreneurship.

Topic 1: Examining Data on Competitiveness and Workforce Skills to Develop Policies and Principles to Better Link Higher Education to Workforce and Business Needs

Data Examined

The workgroup was charged with examining data on competitiveness and workforce skills in order to develop policies and principles to better link higher education to workforce and business needs. To fulfill this charge, the workgroup heard presentations and obtained information from a variety of sources.

The workgroup heard from Mr. Norman Augustine, the Chair of the Rising Above the Gathering Storm Committee about what the committee had learned during the course of its work. Mr. Augustine said that the decline of communism has caused three billion people to enter the capitalism market and the United States now competes against people around the world for jobs. He stated that 60 percent of the patents issued by the U.S. Patent Office in the field of information technology now originate in Asia. In 10 years the United States has changed from a \$40 billion net high exporter of technology goods to a \$50 billion net high importer of technology goods. He said that a major factor is that the cost of labor is much cheaper overseas; however, the United States also cannot compete because its students finish near last in the world in math and science tests. Mr. Augustine attributes that to the fact that most fifth through eighth grade teachers are not certified to teach math and science. Mr. Augustine also cited that the United States ranks sixteenth and twentieth among nations for college and high-school graduation rates, respectively; sixtieth in the proportion of college graduates receiving natural science and engineering degrees; and twenty-third in the fraction of gross domestic product devoted to publicly funded nondefense research. United States high school students rank near the bottom in science and math, as evidenced by the results of the 2006 Program for International Student Assessment which indicates that American 15 year olds test twenty-first among 30 developed countries on science literacy and twenty-fifth on math literacy. The number of U.S. citizens receiving Ph.D.s in engineering and the physical sciences has dropped by 22 percent in a decade.

To learn about factors that make Maryland nationally and internationally competitive, the workgroup obtained information from the Department of Business and Economic Development (DBED). Maryland ranks very high compared to other states in educational attainment, research and development, the new economy, and income. Maryland is also consistently high in areas for which businesses are looking such as the quality and quantity of the workforce and location and proximity to transportation. While DBED does not formally track how Maryland ranks internationally, if Maryland was a country it would rank thirty-first in the world on gross domestic product, just below Argentina and just above South Africa.

The workgroup also obtained information from the Governor's Workforce Investment Board (GWIB) on Maryland's population and job growth and the skills needed for a trained workforce. GWIB has 13 Targeted Industry Sectors that are high-demand and high-growth

sectors such as bioscience, education, information technology, energy, and health care. Maryland's population is growing slower than the national average and alone may not be able to meet high-demand, high-growth workforce requirements; however, immigration in Maryland is outpacing national growth. In fact, a higher percentage of foreign born residents have a bachelor's degree (43 percent) than native born residents (34 percent). According to GWIB, other factors affecting Maryland's population and workforce include: (1) people moving out of Maryland between 2004 through 2006 because housing prices were lower elsewhere; (2) by 2015, 48 percent of Maryland's labor force will be 55 and older; and (3) the percentage of high school students in 2004 who enrolled in college in their own state was 63 percent for Maryland students and 81 percent nationally. The GWIB information showed projected occupational growth in Maryland through 2014, with health care and computers leading with a projected change of 33 and 29 percent, respectively. Maryland's projected employment by occupational skill level is: low 20 percent, middle 45 percent, and high 35 percent; however, businesses report having the most difficulty finding employees to fill the middle skill jobs. Finally, the data supported the ongoing need for skilled health care workers through 2015 and the need for teachers in critical shortage areas. This trend needs to be reversed if we are going to "grow our own" in Maryland; we used to have a surplus of teachers, but now we do not. Currently, Maryland relies on other states, such as Pennsylvania, to graduate an excess of teachers. That supply is now dwindling.

To gather information on trends in meeting workforce demands, MHEC provided information to the workgroup on using data to ensure higher education programs meet State workforce needs. MHEC also provided information on the Advisory Council on Workforce Shortage which is charged with developing a model to identify critical workforce occupations and to determine occupations to be included in State workforce financial aid programs. The council makes recommendations biennially and the council will begin meeting in fall 2008 to make recommendations for fiscal 2011. In its previous recommendations, the council identified 38 occupations with greater than average growth rates and greater than average wage growth rates. After a public hearing and other research, 24 additional occupations were added for a total of 62 occupations that were then matched with graduation data and a gap analysis was performed. In the comparison between 2006 graduates and annual openings, computer engineering, and electrical engineering had the greatest gap (589) with nursing instructors and teachers coming in second (201). On the opposite end, the number of business managers who graduated greatly exceeded the demand (-3,163).

To determine the preparedness of students entering postsecondary education, the workgroup examined other relevant data from MHEC, including the 2006 *Student Outcomes and Achievement Report* and the 2008 *Data Book*. For the ninth consecutive report, students who took a college preparatory course of study did better than their counterparts on every measure of college achievement. With a few exceptions, students who took a college preparatory curriculum outperformed the students who did not regardless of where the college preparatory students attended high school, the specific college or university they selected, or on the basis of gender or race. Further, students who took a college preparatory curriculum were more apt than their counterparts to attain a community college credential or transfer to a public four-year

campus within four years or to earn a baccalaureate degree within six years. However, approximately 40 percent of Maryland high school students enter college without taking a college preparatory curriculum. Additionally, the percentage of students who took a college preparatory curriculum in high school but still needed remedial assistance in math in college has risen steadily in the last four reports from 26 to 30 percent. The data for college preparatory students needing remediation is: math 30 percent, English 12 percent, and reading 15 percent. The comparative data for noncollege preparatory students needing remediation is: math 41 percent, English 21 percent, and reading 24 percent.

The projected number of high school graduates between 2007 and 2017 is expected to fall, showing a 3.1 percent decrease in Maryland. The demographic make up of State high school graduates is also changing. In 2008, 54 percent of the graduates were white, 34 percent were African American, 6 percent were Hispanic, and 6 percent were Asian; however the high school graduating class of 2010-2011 is projected to be the first majority-minority, with the largest growth expected for Hispanic students.

Maryland's college-going rate for high school students in 2006 was 58.7 percent, slightly above the national average of 55.7 percent. However, these rates vary by income and race. At the lowest quartile of income, Maryland ranks thirty-fourth in college enrollment, and while 41 percent of whites age 18 to 24 are enrolled, the corresponding figure among nonwhites is 29 percent. Other studies show that the college-going rate for the *least* prepared highest income students is comparable to the college-going rate of the *best* prepared lowest income students, 77 and 78 percent, respectively. This presents a significant challenge due to the changing demographics of Maryland's high school student population.

Maryland offers numerous financial aid programs to assist students with paying for college. To provide incentives for students to major and work in critical workforce areas, MHEC administers the Workforce Shortage Student Assistance Grant. Eligible occupational areas include teaching, nursing, physical/occupational therapy, child care, human services, and public service. There are currently more than 280 students on a waitlist for the Workforce Shortage Student Assistance Grant for an additional cost of \$850,000. Other STEM-related occupational areas have been identified, but funds are insufficient to make awards. Another State program is the Early College Access Grant, implemented in fiscal 2008 to provide aid to students taking college courses while in high school. This dual enrollment is viewed as a way to shorten the time-to-degree and to provide an incentive for students who may otherwise decide not to go on to college. Limited funding has been provided for this program.

Two Themes Emerged from the Data

Throughout the workgroup meetings, STEM and P-20 emerged as key themes for the workgroup to address Maryland's competitiveness and workforce needs. STEM is an area of focus in Maryland and across the country because of a growing concern that an insufficient number of students, teachers, and practitioners were being prepared in the areas of science, technology, engineering, and mathematics. The National Governor's Association has emphasized the importance of STEM because "the global economy has flattened the world in

terms of skills and technology. A new workforce of problem-solvers, innovators, and inventors who are self-reliant and able to think logically is one of the critical foundations that drive a state economy's innovation capacity." Given the importance of STEM education, the Maryland State Department of Education has "committed to promoting a STEM education policy agenda by supporting a rigorous STEM education to a broader set of students, thereby increasing opportunities for young people and meeting pressing workforce needs."

The second theme was a focus on P-20. P-20 refers to a system of education that encompasses preschool through graduate studies and ensures that students from an early age are learning the necessary skills for a competitive workplace. The P-20 Leadership Council of Maryland was initiated by the Governor in October 2007. The council's charge is to investigate ways to improve education, advance workforce creation, and thereby make the State more competitive in securing and maintaining business and economic development.

The P-20 Leadership Council has also recognized the importance of STEM and formed a STEM task force in 2008. The task force's charge is to create a statewide STEM action plan aimed at ensuring Maryland's workforce of the future and ensuring that its research and development infrastructure can sustain a nationally preeminent and globally competitive knowledge-based economy. Specifically, the task force was asked to develop an action plan that will: (1) ensure rigorous STEM teaching and learning is accessible to all learners and at all levels of education; (2) increase the number of degree holders and program completers trained in STEM fields; (3) include strategies to synergistically link education, workforce creation, research, and economic development; and (4) include measurable goals, benchmarks, and the resources required to implement the plan.

Findings

Based on the above information, the workgroup can make the following findings:

- As stated in the *Rising Above the Gathering Storm* report, "America is in substantial danger of losing its economic leadership position and suffering a concomitant decline in the standard of living of its citizens because of a looming inability to compete in the global marketplace." To ensure the United States remains an economic leader in a global economy we must ensure that our citizens have strong skills in science, technology, engineering, and math.
- Maryland now ranks second in the nation in the recently released 2008 Milken Institute State Technology and Science Index overall. However, Maryland was ranked fifth in the nation in the Risk Capital and Entrepreneurial Infrastructure Index in 2004 but slipped down one ranking to sixth in the 2008 Index. Additionally, Maryland slipped down one ranking from second in the 2004 Index to third in the 2008 Index for the Technology and Science Work Force. This data indicates that Maryland needs to focus on its technology and science workforce in order to avoid slipping further in the rankings.

- Maryland ranks third in the 2007 State New Economy Index which measures the degree to which state economies are knowledge-based, globalized, entrepreneurial, information technology-driven, and innovation-based. This data emphasizes the need for Maryland to have an educated workforce and the need for Maryland students to enter college ready to succeed.
- Currently, many high school graduates are not considered “career and college ready,” meaning that they are unprepared to directly enter into college or the workforce. As the data indicates, 30 percent of students who take a college preparatory curriculum in high school still need remediation in math in college. More needs to be done to remediate and capture these students, thereby increasing the available pool of educated, skilled, and talented workers.
- The State has identified high demand careers where there are critical shortages of people to fill needed positions. In addition to establishing initiatives to build and expand the pipeline for critical needs areas, it is crucial to expand career awareness opportunities and well developed career tracks in critical needs areas within the State.
- Maryland ranks first among the states in the percentage of professional and technical workers and second in educational attainment. However the college going rate of Maryland students is only 3 percent higher than the national average so Maryland has attained this ranking due to large numbers of educated individuals moving here from out of state. Additionally, only 64 percent of Maryland students remain in state for their college education compared to 81 percent nationally.
- Maryland’s K-12 public school system ranks third nationally, with particular strength in student achievement, according to Education Week’s Quality Counts annual assessment. Maryland ranks second nationally in the percentage of 2007 public high school graduates who scored at the mastery level on Advanced Placement exams, and second in the percentage increase of students scoring at the mastery level. However, since student demographics are changing, educators are facing more challenges such as a greater number of students from lower income and less educated families and a greater number of students who are learning English as a second language. In fact, approximately one of every six Maryland residents speaks a language other than English at home.
- With the high cost of a college education and the insufficient amount of financial aid, dual enrollment, early enrollment, and articulated credit are mechanisms that allow students to begin taking college courses while in high school, thereby reducing college expenses and time-to-degree.

Recommendations

In order to address the above findings, the workgroup makes the following recommendations:

Recommendations Using Existing Resources

- Encourage the efforts of the P-20 Leadership Council and the STEM task force for Maryland to remain competitive in the global economy. Through the work of the council and the task force, a statewide primary and secondary curriculum should be established that is aligned with global workforce and academic standards. The curriculum should have a strong emphasis on STEM; should provide a seamless transfer into postsecondary education; and should include a definition of standards for reading, writing, mathematics, and science.
- Collect and utilize the data available regarding the need and supply for trained individuals in areas identified as having the greatest need through the work of the Department of Business and Economic Development (DBED); the Governor's Workforce Investment Board (GWIB); the Department of Labor, Licensing, and Regulation; the Maryland State Department of Education; and the Advisory Council on Workforce Shortage.
- Support current initiatives to develop more statewide articulation programs like the Associate of Arts in Teaching and encourage more multi-institution articulation agreements, with the intent to make the movement of students through and between higher education institutions (2+2+2) more seamless and less expensive.

Recommendations Requiring Additional Resources

- Provide enhancement funds on a line-item basis to help mitigate costs associated with high-cost programs in critical needs areas. Portions of these funds should be provided to all existing programs and an additional allocation should be provided for enhancements on a competitiveness basis to programs that show promise for significant expansion and productivity.
- Provide enhancement funds for professional development for faculty who teach critical needs areas in order to create more highly qualified faculty in STEM areas.
- Allocate funding to colleges that have programs that offer academic and career training to middle and high school students, especially in preparation for careers in State identified critical shortage areas. Special consideration should be given to those districts in the State that have disproportionately high numbers of underprepared youth. Additionally, the goals of Maryland's new policy for dual enrollment should be furthered by encouraging participation of high school students in addition to providing scholarship funds through the Early College Access Grant and other institutional programs to ensure success is afforded to all who qualify and are interested despite their economic standing.

Legislation should be introduced to continue the dual enrollment program that is set to expire in June 2009.

- Develop and fund broadly available loan forgiveness programs for students pursuing programs in critical need fields. Maryland students who attend out-of-state institutions and out-of-state students who attend Maryland institutions should be eligible for loan forgiveness as long as the students commit to perform a service obligation to work in Maryland.

Topic 2: Examining Research and Development and Technology Transfer Practices at Universities

Data Examined

A subgroup of the workgroup was given the charge to: (1) consider the role that innovation plays in maintaining the State of Maryland's competitive edge; and (2) analyze strengths and barriers that Maryland's higher education institutions face in fostering innovation.

The subgroup found that Maryland ranks first in the nation on a per capita basis in income and first in the nation in the percentage of professional and technical workers in the workforce. These enviable rankings are due in large part to the readiness with which the State has embraced and capitalized on the knowledge economy. In the life sciences, for example, Maryland ranks second per capita in bioscience concentration with its 24 biosciences companies having a market capitalization of approximately \$16 billion, and employees of the bioscience industry on average enjoy salaries that are approximately double the State average: \$63,000 versus \$31,000. (*Ernst and Young, 2006, Batelle, 2007*)

Large federal installations including NIH, NASA, FDA, NIST, and NSA, coupled with industrial giants like Lockheed Martin and Northrop Grumman, and supported by an extensive higher education system that spans the gamut from community colleges through post graduate study, have produced a fertile environment in Maryland for innovation and its resulting economic benefits to flourish.

But there are problems looming on the horizon:

- Maryland has increasingly become a bi-modal State with a well-to-do populace at one end of the spectrum and a relatively large and growing underclass, primarily minority and/or immigrant, who do not or cannot participate in the technology economy or the State's economic mainstream.
- Compared with other states and despite relatively large increases in State investments in recent years, K-12 education by itself, even when it is of high quality, cannot produce the

graduates needed for the new economy. Postsecondary education is the minimal requirement for these positions.

- Partially because of historic underfunding, Maryland's public higher education institutions have relatively high tuitions coupled with modest financial aid. The limitations on public support for financial aid at public and independent higher education institutions means that talented students from lower- and middle-income families are inhibited from pursuing the advanced training they need.
- Strengthening access to the State's higher education system is imperative, but can only be accomplished with corresponding enhancements in the K-12 math and science enterprise and stronger connections between K-12 standards and higher education requirements.
- Severe capital inadequacies, particularly, but not exclusively at the research universities, coupled with both average to below average faculty salaries and inadequate operating support have made recruitment and retention of the most talented and sought after faculty – those most likely to be innovative – increasingly difficult. Similarly, average to below average technology development staff salaries have made recruitment and retention of the most talented increasingly difficult.
- The State of Maryland has made investments in support of innovation, most recently its stem cell initiative and nanobiotechnology initiative. However, the size and scope of these investments is significantly larger in California, Wisconsin, New Jersey, Pennsylvania, and North Carolina who are competitors in the new high tech/biotech arms race.

University Technology Development Concerns

Over the last several decades, and particularly following the passage of Bayh-Dole, universities across the country have established technology development programs and offices to bring new discoveries from the laboratory bench to the bedside and marketplace, and to generate new revenue streams in so doing. These tech transfer programs are providing new and useful products, devices, medical diagnostics, and therapeutics for the benefit of the public. Universities benefit because this commercialization results in funds becoming available both to reward these entrepreneurial and highly sought after faculty and to allow for further investment in research programs. Perhaps as importantly for the future, students working alongside these university scientists experience first hand the opportunities and benefits of technology transfer and learn how to carry this out.

Because of the financial success of several university technology transfer programs, technology transfer may often be viewed as a potential economic support generator for universities, but in the absence of a financial blockbuster product like Gatorade or Taxol, most technology transfer programs produce minor revenue when compared to the entire university

research budget. In fact just 10 prominent U.S. universities (several of which are in comparator states, but none unfortunately are in Maryland) account for more than half of all university technology transfer revenue.

Maryland has several prominent research universities which have had significant impact in knowledge advancement via scholarly publications, but those institutions have historically ranked below peers in knowledge impact as measured by the translation of that research into new economic activities and startup companies. The early stage nature of the research discoveries and to a lesser extent university culture may play some part in the impact rankings, but a major contributor has been the chronic underfunding of university technology transfer offices.

The University System of Maryland (USM) has explicitly recognized the importance of technology transfer and has created a Regents' Task Force on Technology Development to address it. Chaired by Regent Michael Gill, the task force has met several times and is to assess the strength of the technology development programs and offices at USM's three research campuses (University of Maryland, College Park; University of Maryland, Baltimore; and University of Maryland, Baltimore County) and its two free-standing research centers (University of Maryland Biotechnology Institute and University of Maryland Center for Environmental Science). The task force found that USM tech transfer offices are not funded at the level of peer research institutions at the staff level. In its annual assessment of technology commercialization resources, the Maryland Technology Development Corporation concluded that University System of Maryland technology commercialization offices are doing an effective job, but staffing is below similar university systems with equivalent research profiles. The task force has recommended that the State invest in funds needed to expand commercialization resources, such as the Intellectual Property Clinic at the University of Maryland School of Law on the University of Maryland, Baltimore campus and the Tech Ventures program at the University of Maryland, College Park, and make these resources available to all institutions across the State.

Although Johns Hopkins has been active for many years in the creation of startup companies, having created 31 from 2000 to 2007, Hopkins has recognized the need to improve its technology transfer operations. While Johns Hopkins is still far below peers in the size of its technology development staff, it recently committed additional resources to the technology transfer effort with dramatic results, including 12 new companies with over \$76 million in corporate and venture funding created based on Hopkins research in fiscal 2008 alone, 7 of which are Maryland-based. Even with its recent investments in tech transfer, Johns Hopkins still faces a backlog of possible marketable technology and innovations in the engineering, medicine, and public health arenas, which can only be realized with additional resources focused on entrepreneurship and marketing.

Finally, new investments in technology over the last three years by the University of Maryland, Baltimore, have resulted in the creation of three new companies. These companies, Remedy, Alba, and Gliknick, have a combined market capitalization that now exceeds \$300 million.

Clearly, additional investments are needed if higher education in Maryland is to become truly competitive in technology transfer.

In summary:

- While Maryland has several outstanding public and independent universities that compare very favorably with institutions in competitor states in garnering external support for research, Maryland's institutions have historically been less successful in transferring research discoveries to the marketplace.
- Maryland offers a number of programs and incentives to encourage and support the creation of startup companies in Maryland. However, those programs do not provide sufficient support for the technology transfer efforts of Maryland's major public and independent universities.

Recommendations

Recommendations Using Existing Resources

- Initiate a concerted and coordinated State effort to publicize and advocate for the role of university research and development in innovation and economic development thereby fostering the political will needed for substantive change.
- Expand existing programs in Maryland and emulate programs used in other states that foster innovation and technology development to help bring university research and development to the marketplace.
- Continue to prioritize investments in programs, like those at several community colleges and at some public and independent four-year institutions, that train the technicians needed to support the new economy.
- Partner with the P-20 Council and the Life Sciences Advisory Board to develop and support consistent recommendations on the role of universities in innovation.

Recommendations Requiring Additional Resources

- Develop innovative funding mechanisms for renovating university research laboratories and constructing greatly needed new space as appropriate.
- Increase State financial support for the technology transfer activities of Maryland's public and independent universities and provide funding for intellectual property clinic services and venture startup resources across the State technology transfer offices.

- Provide additional State support for public and independent university based startups, including programs such as “entrepreneur in residence” to provide resources to increase creation of Maryland startup companies based on university research.
- Use tax incentives and other mechanisms to foster public-private partnerships in support of innovation and entrepreneurship.

Topic 3: Examining the Eight Regional Higher Education Centers Operating in Maryland

Data Examined

The workgroup was charged with examining the Regional Higher Education Centers (RHECs) operating in Maryland, including an examination of the funding strategy developed by MHEC, how RHECs are meeting regional needs for educational programs, and the extent to which RHECs are leveraging other resources.

RHECs are designed to ensure access to baccalaureate and graduate education in both unserved and underserved areas of Maryland at a reasonable cost to students and the State. RHECs can also provide linkages between higher education, local government, and business communities to address workforce needs. RHECs offer the State an opportunity to address workforce needs in high-demand areas, particularly for nontraditional students, and to support State, regional, and local economic and workforce development goals that make the State an attractive destination for companies.

RHECs meet these objectives by providing baccalaureate and graduate programs in areas of the State in which students do not have access to these programs due to geographical distance, commute time, or the limited capacity of local four-year institutions. RHECs can extend the existing program resources of higher education in the State to unserved and underserved areas. Through this network, all regions of the State can be provided with a well-educated workforce critical to the economic development of the regions and the State as a whole.

There are a total of eight Regional Higher Education Centers in Maryland. Two are governed by the University System of Maryland:

- Universities at Shady Grove
- USM at Hagerstown

Six centers fall under the coordinating responsibility of MHEC, each with its own governance and organizational structure.

- Anne Arundel Community College (AACC) Regional Higher Education Center at Arundel Mills
- Eastern Shore Higher Education Center
- Higher Education and Conference Center at the Higher Education and Applied Technology Center (HEAT)
- Laurel College Center
- Southern Maryland Higher Education Center
- Waldorf Center for Higher Education

The workgroup held three meetings at RHECs located in different parts of the State to learn about the structure, program offerings, workforce initiatives, and challenges associated with each center. At the first meeting, the workgroup heard from the Universities at Shady Grove and USM at Hagerstown, at the Universities at Shady Grove. The second meeting, held at the Southern Maryland Higher Education Center (SMHEC), provided the opportunity for SMHEC, the Waldorf Center for Higher Education, and the Eastern Shore Higher Education Center to present. At the third meeting, held at the Anne Arundel Community College Center at Arundel Mills (AACC), AACC, the Laurel College Center, and the Higher Education Conference Center at HEAT presented.

Prior to these meetings, the workgroup was provided with an introductory overview of these centers, how they are funded through the operating and capital budget process, and a funding comparison of the USM centers and the six centers under MHEC's statutory authority. Revenue and expenditure data was also requested to draw a more direct comparison.

In terms of State operating funding, the two USM centers are funded as line items in the USM Office operating budget. The other six centers are funded by a grant through the MHEC operating budget. State capital funding for the USM centers is a part of USM's capital process. The other six centers' capital requests are handled on a case by case basis.

Over the course of the last eight years, there have been a series of legislative actions related to regional higher education center funding policy. These actions have attempted to guide policy, mission, strategic planning, and operating and capital budgets for the centers. They have also made recommendations regarding the roles, providing access in underserved areas, overcoming barriers to program delivery, and instituting equitable funding for the six non-USM centers. This has resulted in an application process for the centers and a funding strategy.

The application process for designation as a RHEC consists of the following: (1) a signed approval by the chief executive of the submitting institution(s) that will operate the RHEC; (2) a mission statement; and (3) a strategic plan. All six centers were created prior to the establishment of the application process.

The funding strategy contains the following components:

- *Base allocation* for each center (\$200,000)
- *Incentive funding* for target full-time equivalent students (FTES) (2+2 lower division, upper division, and graduate) tied to the inflation adjusted fiscal 2005 general fund appropriations per FTES at the Universities at Shady Grove
- *Lease funding* for centers with leased space that have not received State capital funding support
- *Special funding* for one-time projects or startup costs

The funding strategy was implemented for fiscal 2008 budget requests but has not been fully funded to date. **Attachment A** shows revenue and expenditures for the RHECs for fiscal 2008 and **Attachments B** and **C** provide a comparison of general funds and general funds per FTES for each of the eight centers. The average State operating funding per FTES in fiscal 2008 at the USM centers is \$4,993 compared to \$778 at the non-USM centers.

To provide a comprehensive comparison of operating dollars, the workgroup collected revenue and expenditure data for each center. Total revenue includes State and county appropriations, institutional subsidies, fees and usage income, transfers from fund balances, and in-kind support. Overall funding per FTES is \$6,377 at the USM centers compared to \$3,271 at the six non-USM centers.

Findings

Based on the information provided at the regional RHEC meetings and the above data analysis, the workgroup can draw the following conclusions regarding the State's RHECs:

- Funding has been lower and less consistent to the centers outside of USM. An equitable funding strategy has been developed for the six non-USM centers; however it has not been funded to date.
- As evidenced in the presentations and financial data on usage fees collected from corporate/nonprofit organizations, RHECs are working with businesses and the communities to provide programs in demand in each center's representative region.
- Even though centers are defined to have a specified purpose, each center operates differently and provides different types of courses. Some centers provide upper division and graduate level courses, while others are mostly lower and upper division. Some centers provide all three levels, lower and upper division, and graduate.

- Each non-USM center has a different governance structure, and although there is a defined purpose in guidelines, the overall role of these centers is not clearly defined. This has allowed the centers to evolve into very different entities.
- Each center works with its partner institutions to develop articulation agreements with local community colleges. However, the non-USM centers have expressed some difficulty in the development of these agreements.
- Non-USM centers have also expressed difficulty in working with institutions to locate certain demand programs at the center.

Recommendations

In order to address the above findings, the workgroup makes the following recommendations:

Recommendations Using Existing Resources

- RHECs should be encouraged to be entrepreneurial to raise revenue through businesses and other functions to supplement operations of the center. This will allow the centers to offer more services and programs to area businesses and the community.
- The six non-USM RHECs have different governance structures ranging from independent boards, community college advisory boards, and intersegmental governance. Since affiliated entities are not governed by the same body, like the USM centers, participation in the centers is sometimes difficult. A workgroup should be established to examine and recommend one standard governance structure for each center to adopt that provides some level ownership for all partners and an incentive to offer programs at the centers.
- The role of RHECs is not clearly defined or articulated so each RHECs has evolved into very different entities. Before more RHECs are approved to operate in the State, an analysis should be performed to determine the educational needs of the surrounding area, what role RHEC will play in meeting these needs, if some or all of the needs are being met through existing means, and if some or all of the needs are not being met through existing means, whether a RHEC is the best way to meet them.
- All centers should proactively reach out to the local community colleges within their jurisdictions or region for the development of articulation and to get students to transfer to their campuses.

Recommendations Requiring Additional Resources

- To provide for a more equitable and consistent funding stream, the funding strategy for the six non-USM centers developed in 2007 should be implemented and funded.
- Incentive Grants should be made available to RHECs to assist with program development, offset costs of a new program, and to promote the articulation of programs between the two and four-year institutions represented at the center.

Topic 4: Examining the Impact of BRAC on Higher Education and Workforce Training

Data Examined

The workgroup was charged with examining the impact BRAC will have on the educational needs of the State and workforce training. Much work has already been completed in these areas by the Subcabinet for BRAC, chaired by Lt. Governor Anthony G. Brown. The Subcabinet has produced a *State of Maryland BRAC Action Plan Report* addressing these needs, as well as other infrastructure, transportation, and business needs of the State.

Through the 2005 BRAC decisions, Maryland will be called upon to accommodate a significant expansion of the United States military installations located here. With the arrival of new residents, jobs, and national defense and security activities, postsecondary education will be more important than ever in meeting the challenge of providing a first-rate, highly trained workforce. The State will need more trained individuals to fill the jobs created by BRAC. Many of the jobs associated with the military installations and the BRAC transition generally will require specialized or technical training. The State must, therefore, ensure that it establishes adequate education programs capable of producing a pipeline of future workers with the skills necessary for BRAC-related employment.

Maryland's postsecondary educational institutions are ready to provide courses, programs, degrees (at levels from Associate to Doctorate), continuing education, certificates, and customized training ranging from the cradle to the crypt. Our many two-year, four-year, public, and independent campuses offer a great diversity of programs and customized manpower training.

Findings

Based on a review of studies related to BRAC and information presented to the workgroup by the Maryland Higher Education Commission, the workgroup can draw the following conclusions:

- In anticipation of an influx of BRAC-related students at all levels, the University System of Maryland and Morgan State University have agreed to waive the residency requirements to receive in-state tuition for civilian personnel and contractors to facilitate transfers, especially in graduate programs, and in science, technology, engineering, and mathematics (STEM) majors.
- Military, civilian personnel and defense contractors, and their spouses and children, who relocate to Maryland as a result of BRAC and enroll in postsecondary education programs in the State will be considered Maryland residents for State financial assistance beginning in the 2008-2009 academic year. Maryland residency requirements will be waived for these students when appropriate documentation is provided to the Maryland Higher Education Commission (MHEC).
- MHEC is seeking information from the Defense Information Systems Agency and Ft. Monmouth to identify students who will transfer into programs in Maryland.
- Military bases will form higher education advisory councils to identify needs and Maryland resources to meet those needs.
- MHEC is communicating with Maryland higher education about the need for Memorandums of Understanding to facilitate transfer of credit; internship opportunities for students; and the need to supply students with information on security clearance requirements. With respect to graduate programs, institutions are being encouraged to offer programs through distance education to make the transfer and relocation to Maryland easier.
- MHEC has conducted a study to determine the preparedness and capacity of higher education institutions in Maryland and neighboring states to meet the higher education needs of employees moving to the State as a result of BRAC.
- MHEC is implementing a BRAC Higher Education Investment Fund to fund various programmatic initiatives for BRAC-related personnel. Initiatives may include expanding campus capabilities, developing courses or programs to meet BRAC educational needs, technology upgrades, and projects that advance Maryland's competitiveness in STEM fields. Other initiatives may be focused on BRAC literacy to provide English skills, soft skills, workplace literacy, workplace survival skills, communication skills, customer service, and career ladders.

Recommendations

The workgroup makes the following recommendations to support the above findings:

Recommendations Using Existing Resources

- The Commission to Develop the Maryland Model for Funding Higher Education should endorse the recommendations in the *State of Maryland BRAC Action Plan Report* on education, infrastructure, transportation, and business needs and support actions to implement these recommendations.
- All effective actions taken so far to facilitate student transfer should be expanded and continued.
- Communication with the military installations and postsecondary education institutions should be expanded and continued to ensure educational needs of installations are identified and Maryland has resources to meet those needs.

Recommendations Requiring Additional Resources

- The BRAC Higher Education Investment Fund should be continued in fiscal 2010 at the same level as fiscal 2009 to fund programmatic initiatives to meet the educational needs of BRAC. This will ensure Maryland is producing a well-educated and trained workforce to fill BRAC related positions.