
The Status of College Readiness in Maryland

**Presentation to the
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and the
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Contributing Staff

Writers

Sara J. Baker
Richard H. Harris
Rachel N. Silberman

Coordinator

Erika S. Schissler

Reviewers

Rachel H. Hise
Mary E. Clapsaddle

For further information concerning this document contact:

Library and Information Services
Office of Policy Analysis
Department of Legislative Services
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The Status of College Readiness in Maryland

Introduction

In the United States, a postsecondary education has long been seen as the best way to advance in a career or to find a job in the first place. In recent years, college degrees are becoming increasingly important as high wage but unskilled jobs are disappearing. Further, a college preparatory curriculum provides useful, even necessary, skills for any postsecondary education including training. However, before one can perform well in college or postsecondary training, that person has to be ready to study at the college level.

Unfortunately, many students and adults are arriving at higher education institutions unprepared for college-level work. They fall into the following two groups:

- those enrolling directly from high school; and
- those returning to education after years in the workforce or elsewhere.

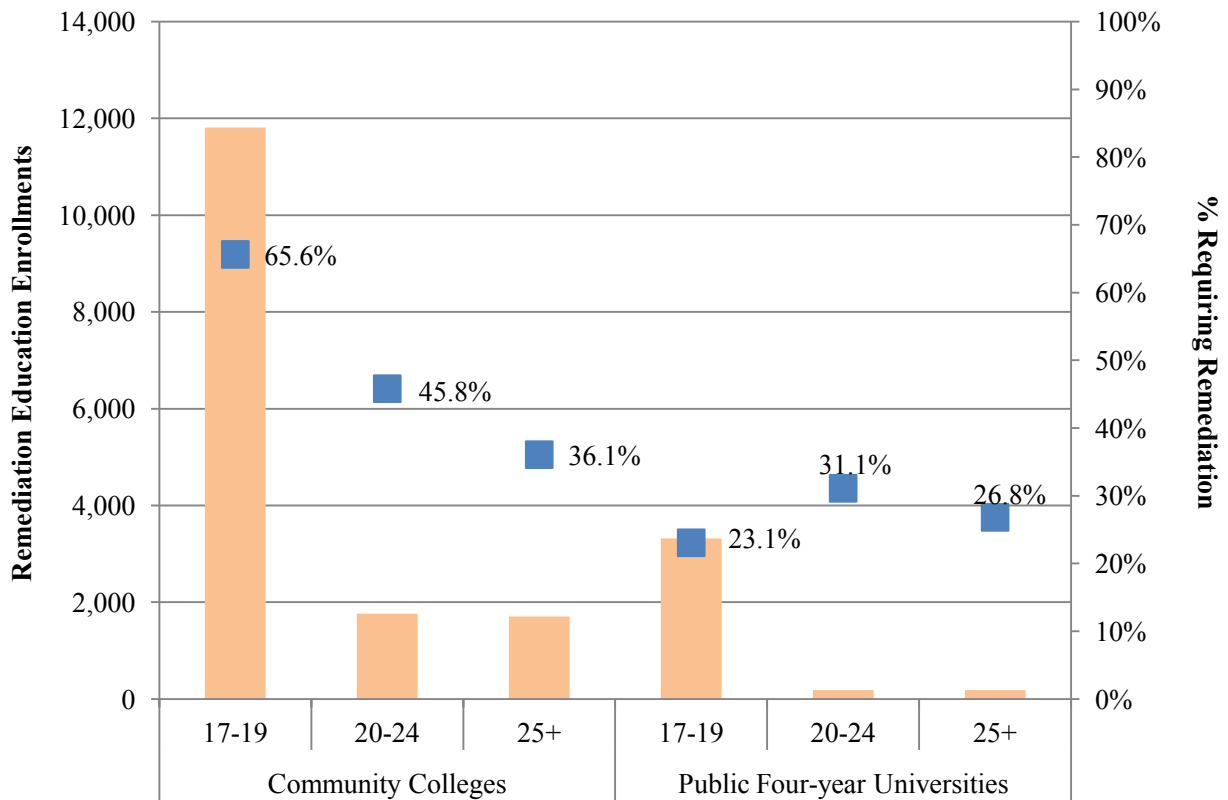
Students in the first group graduated from high school but arrive at college unprepared for college-level academics. There may be several reasons for this but a main one is that the requirements for high school graduation do not align with what is generally regarded as “college ready.” This is especially true in math, where the highest level a student is required to pass is below the college-ready level and may be taken in the student’s junior year of high school. As discussed later in this paper, the Common Core State Standards (CCSS) aim to align K-12 education with college-ready standards in English and mathematics. Assessments are currently being developed to measure proficiency with the CCSS. In the short term, this will likely indicate that even more students are not ready for college; however, students will know this before they graduate from high school so that they can use their senior year to improve their college readiness. Students enrolling directly from high school make up 79.8% of students enrolled in remedial courses.

The second group represents people who left formal education after high school and are returning after a couple years or more. They return for a variety of reasons, perhaps losing their jobs in the weak economy or needing college degrees to advance their career. In fall 2007, so-called “nontraditional” students represented 20.2% of all students enrolled in remedial courses at public higher education institutions.

Remediation Rates in Public Higher Education

At community colleges, 58% of students need remediation in at least one subject. At four-year institutions, it is just under one-third of students. The vast majority need remediation in math, although often students require remediation in both math and English. **Exhibit 1** shows the rates for both segments of higher education by age group. The percentage figures shown represent the percentage of students in each age group requiring remediation in at least one subject. Of students ages 17 through 19 at community colleges, for example, 65.6% enrolled in a remedial course in fall 2007.

Exhibit 1
Remediation Enrollments and Rates by Age
Community Colleges and Public Four-year Universities
Fall 2007



Source: Complete College America

In both segments, students arriving directly from high school make up the great majority of those enrolled in remedial courses. The rates for older students are higher at community colleges than at four-year institutions, but at four-year institutions, they outpace those who arrive directly from high school although their numbers are few (only 371 students).

The Student Outcomes and Achievement Report

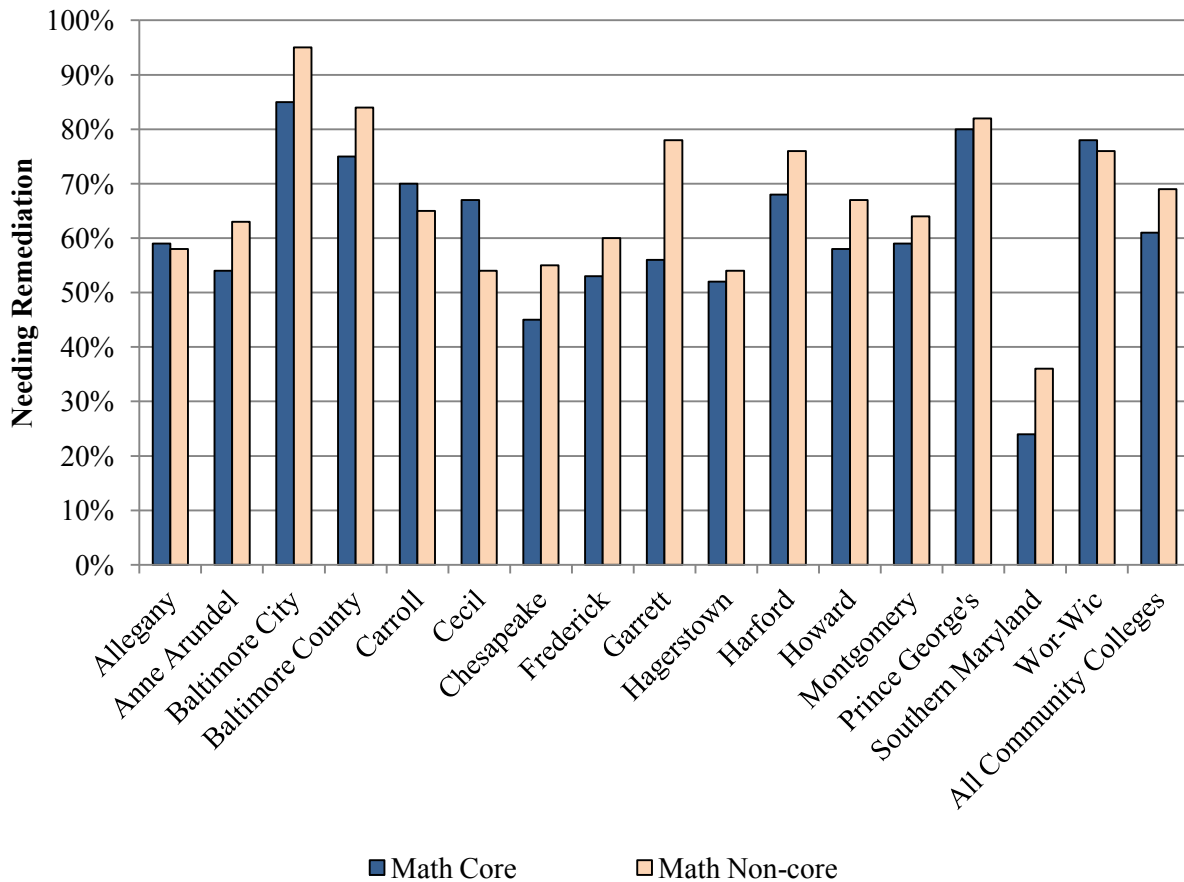
The Maryland Higher Education Commission (MHEC) produces a report every two years called the *Student Outcomes and Achievement Report* (SOAR). The SOAR reports to local education agencies (LEA) the performance of their recent graduates in college, including on placement exams and the percent of students requiring remediation. The report splits the data between students who, in high school, took a “core” college preparatory curriculum and those who did not. In response to a 2011 *Joint Chairmen’s Report* requesting information as to what extent LEAs read and respond to SOAR findings, however, it was found that LEAs largely did not find the report useful. In particular, they felt the data was out-of-date (the most recent report, from June 2011, contains data for 2008 high school graduates), and they did not trust the self-reported distinction of “core” and “non-core” students.

Nonetheless, the SOAR report does provide some useful data on remediation of students. **Exhibit 2** shows SOAR’s math remediation data by community college. The College of Southern Maryland has the lowest rates, where even the non-core students outperform all other colleges. The opposite is true at Baltimore City Community College (BCCC), where the rate for core students is still higher than the others’ non-core students. Community college enrollments come mainly from local school systems.

One would assume that core students would have lower remediation rates than non-core students since they had a more rigorous high school curriculum. It is the reverse at four colleges including Cecil College, which had the largest gap with a math remediation rate of 67% compared to 54% for non-core students. The gap for English remediation was much closer but still higher for core students.

The reason for this at Cecil College and other colleges where this result is seen could be from errors in self-reporting, that the more prepared core students were accepted to and enrolled in a four-year institution, or that there were not enough core students to make a representative sample. Indeed, LEAs reported that another issue with the SOAR is that data is only provided in percentages, so it is not known if a poorly performing group represents only a handful of students or a large number of local graduates.

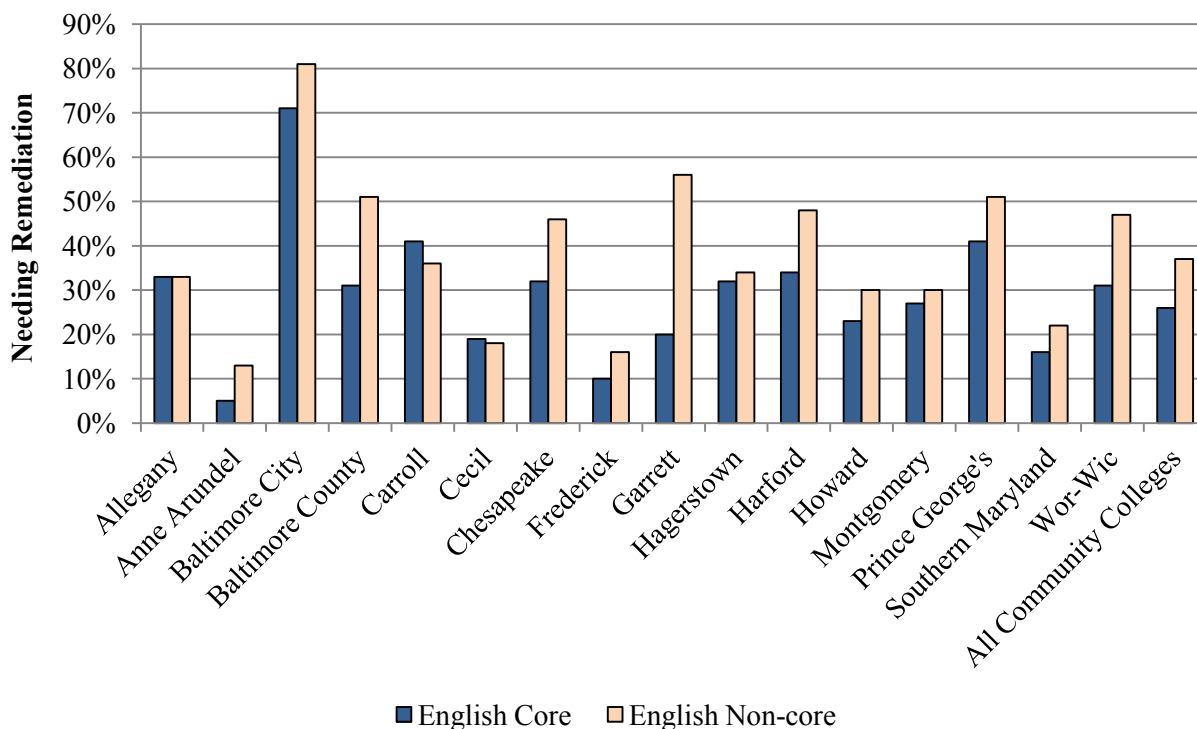
Exhibit 2
Math Remediation Rates at Community Colleges
Core and Non-core Students
2008 High School Graduates



Source: Maryland Higher Education Commission, *Student Outcomes and Achievement Report*, June 2011

Exhibit 3 shows the remediation rates for English, which are much lower than math at most colleges. BCCC again has the highest rates, while Anne Arundel Community College has the lowest. That college’s non-core students outperform all others except for core students at Frederick Community College.

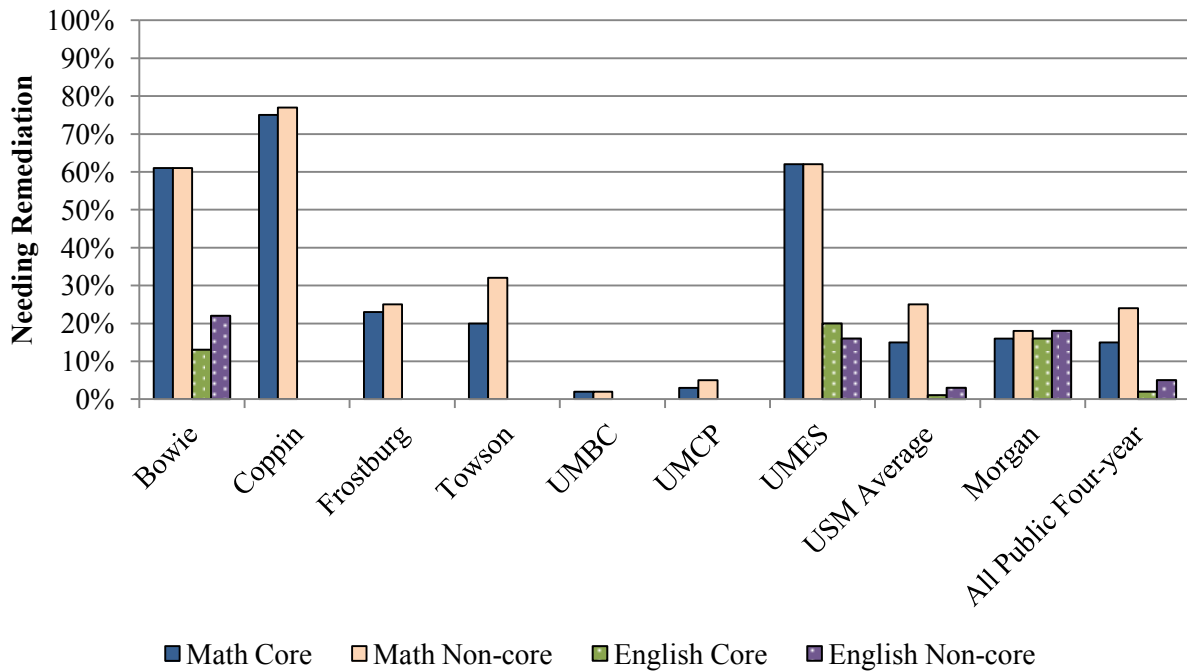
Exhibit 3
English Remediation Rates at Community Colleges
Core and Non-core Students
2008 High School Graduates



Source: Maryland Higher Education Commission, *Student Outcomes and Achievement Report*, June 2011

The SOAR also contains student performance data at public four-year universities, as shown in **Exhibit 4**. The data is not quite as consistent as that for community colleges, as many do not offer English remediation, and two colleges do not offer either math or English (St. Mary's College of Maryland and Salisbury University). The data shows that the colleges with the highest remediation rates correspond with those with the lowest graduation rates. At Coppin State University (CSU), for example (six-year graduation rate: 18%), at least 75% of students require math remediation.

**Exhibit 4
Public Four-year Remediation Rates
Core and Non-core Students
2008 High School Graduates**



UMBC: University of Maryland Baltimore County
 UMCP: University of Maryland, College Park
 UMES: University of Maryland Eastern Shore
 USM: University System of Maryland

Source: Maryland Higher Education Commission, *Student Outcomes and Achievement Report*, June 2011

New Data Collections on Student Progress

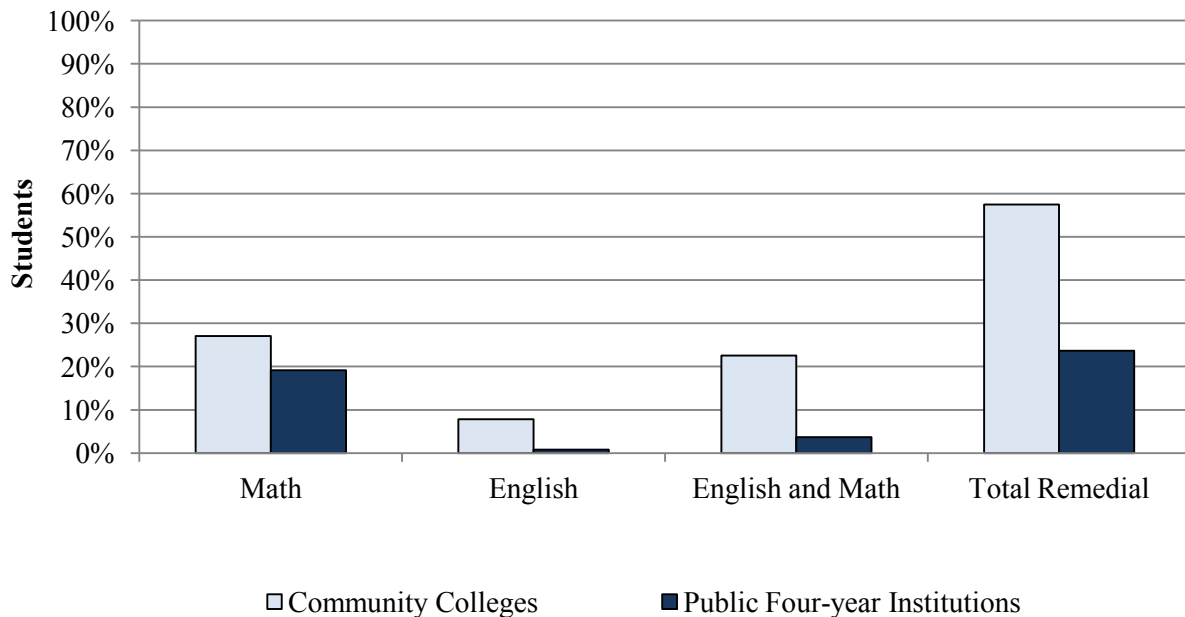
SOAR shows how many students require developmental education and reports that information back to LEAs. Two new data sets will soon shed more light on how those students progress through higher education. The first is the Maryland Longitudinal Data System (MLDS), housed at Maryland State Department of Education (MSDE). Although data is starting to be entered into MLDS, it is expected that by 2014 it will be able to give detailed, classroom-level performance data for every college and high school in the State.

Additionally, MHEC has been collecting detailed college performance data as part of the Complete College America (CCA) alliance of states. Maryland is one of 33 states in CCA, a nonprofit organization that awarded \$1.0 million to the State primarily to focus on course redesign efforts.

CCA Data

The data reported to CCA tracks student progress in college. It also distinguishes between students needing remediation in one subject compared to those who need it in more than one subject – those who are even further behind academically. **Exhibit 5** shows the rates of students enrolling in a remedial course at community colleges and public four-year institutions in fall 2007, the most recent year available. For community colleges, 27.0% took a math remediation course only, 8.0% took an English remediation course only, and 23.0% took both math and English remediation courses. In total, 57.5% of community college students took a remedial course in fall 2007.

Exhibit 5
Total Remediation Enrollments by Subject
Fall 2007
First-time Degree Seeking (at Entry) Students



Source: Complete College America

At the State's public four-year institutions, the number of students enrolling in only math far exceeds those in English only, or in English and math. Exhibit 4 showed that most public four-year colleges offer only math remediation, so this is not unexpected. Overall, 24% of public four-year students enrolled in a remediation course in fall 2007.

CCA's data tracks a large number of metrics for the groups noted above and various sub-groups of students including by age (seen in Exhibit 1), race, gender, students receiving Pell grants, and more. This is data that has not previously been available outside of the institutions themselves and in some cases not available at all. CCA's data also sheds light on how colleges are teaching students with the most academic need.

Student Progress at Public Four-year Institutions

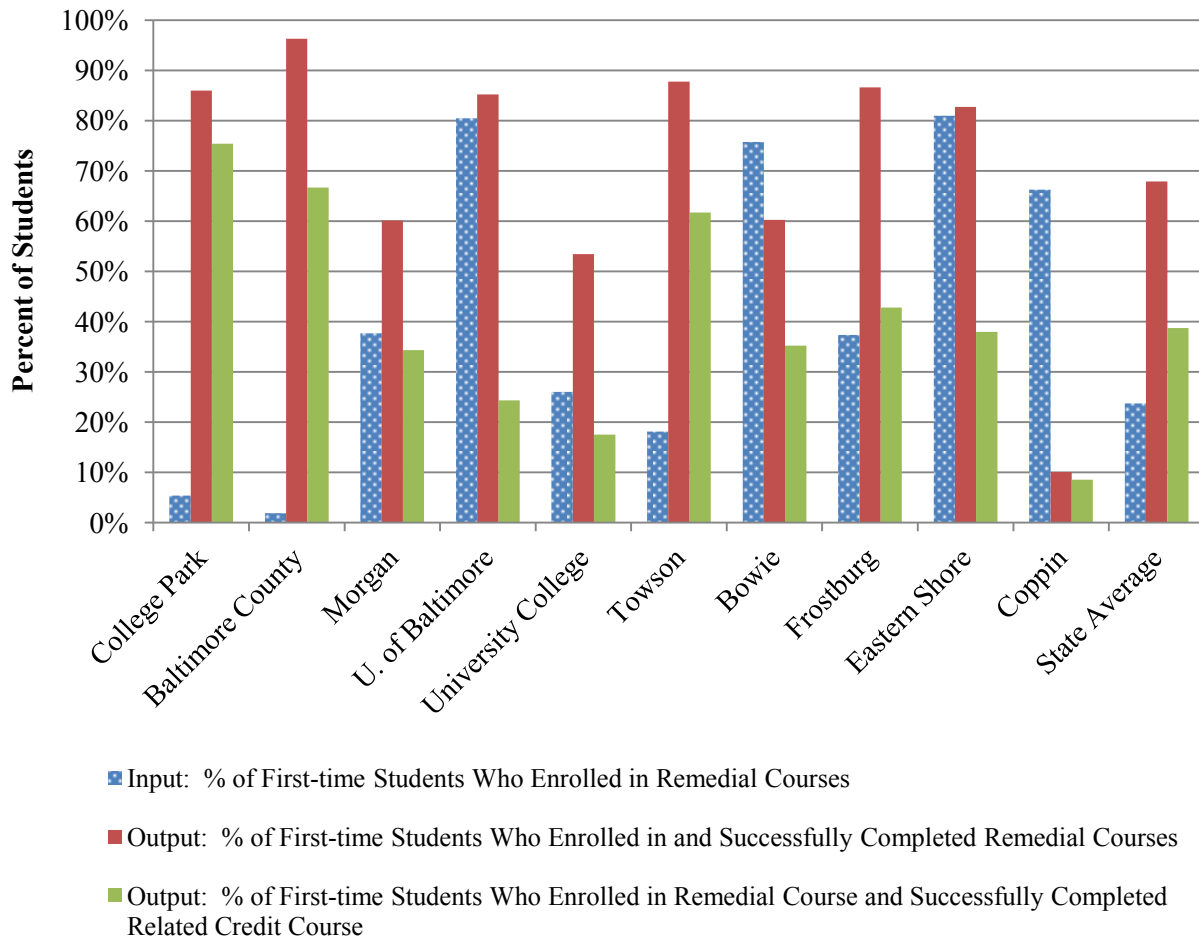
Students taking effective remediation programs will show success not only in the remedial courses but also in the related credit course. For the State's public four-year colleges with a remediation program, **Exhibit 6** shows the percent of students enrolling in a remedial course (fall 2007 cohort) and the percent of those students who successfully complete the course and then successfully complete a related credit-bearing course. This data differs from the SOAR in that it includes all first-time students who enrolled in a remedial course, whether they are required to do so or not. Some students may choose to delay taking their remedial courses. SOAR data captures placement exam scores of first-time students who graduated high school in the previous year and does not account for actual enrollment in a remedial course.

The exhibit shows that Bowie State University (BSU), the University of Baltimore, and the University of Maryland Eastern Shore (UMES) enroll the most students needing remediation – all over 70%. BSU and UMES students show moderate success completing remedial courses compared to other colleges but only about one-third of students successfully complete a related credit course.

Institutions with the most remedial student success are the colleges that also have the fewest remedial students – the University of Maryland, College Park (UMCP), the University of Maryland Baltimore County, and Towson University. UMCP has the highest success of remedial students in credit classes, though its cohort is small, 228 students, or 5.4% of the fall 2007 freshmen class.

CSU has the lowest rate of remedial student success of any State four-year university. Of all students enrolling in a remedial course in fall 2007 at CSU, 10.1% successfully completed that course, and 8.5% of those students went on to complete the related credit course.

Exhibit 6
Remedial Student Progress at Maryland's Public Four-year Colleges
First-time Degree Seeking (at Entry) Students
Fall 2007 Cohort



Note: These output measures for remedial students are percentages of the input students, those who enrolled in remedial courses.

Source: Complete College America

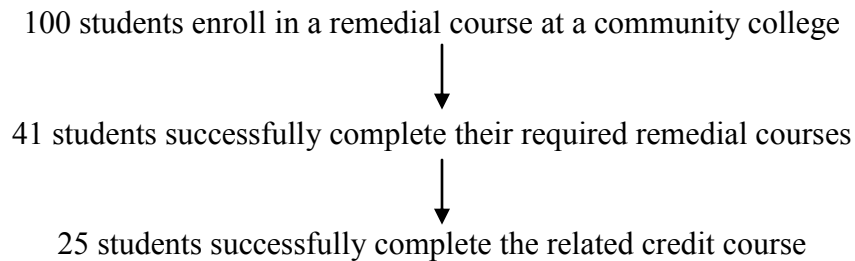
CSU recently revamped its remedial program for a portion of its students who are first-time full-time freshmen and have graduated from high school within the previous two years. These students must enroll in the Summer Academic Success Academy, a six-week program

where students receive tutoring in both math and English, attend academic success workshops, and in some cases complete college-level courses.

However, first-time full-time students make up only about one-third of the total CSU freshman class. There have not been changes to the traditional remedial courses that the other two-thirds of students may take. Nevertheless, the success of students who complete remediation at CSU is high. Though only 10.1% of students who start the remedial course move on to the credit course, 84.6% of those who do, successfully complete the credit course.

Student Progress at Community Colleges

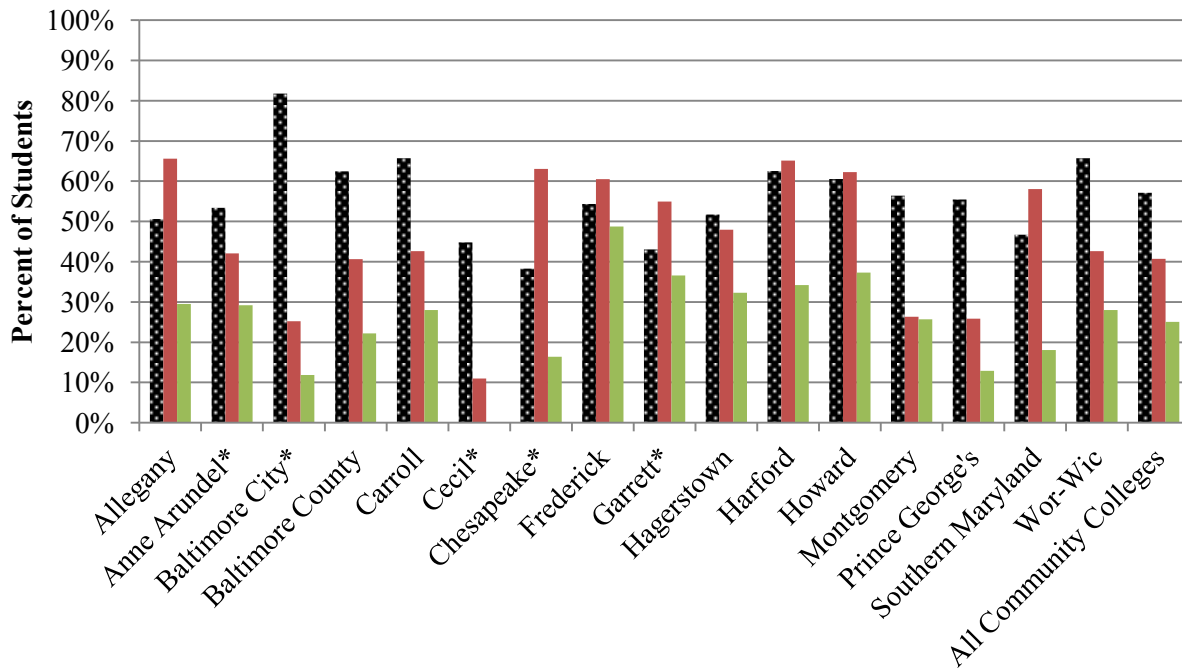
Similar progress data is also available for the State's community colleges. The schematic below shows aggregate outcomes for every 100 first-time degree seeking community colleges students who took a remedial course in fall 2007. Shown is how many successfully completed the course and a related credit course after two years.



It should be noted that a number of community college students transfer to other institutions before completing an associate's degree, which will deflate the college's actual completion rate. Nevertheless, as 58% of all community college students enroll in remedial courses, the fact that only 25% of them complete a related credit course in two years suggests an area for great improvement as a large contributor toward the State's degree completion goals.

Exhibit 7 shows the college-by-college data for the above flow-chart. Shown is the percent of students who enrolled in remedial education in fall 2007, the percent of students who successfully completed remedial courses, and the percent of students who successfully completed remedial courses and a related credit-bearing course within two years.

Exhibit 7
Remedial Student Progress at Maryland's Community Colleges
First-time Degree Seeking (at Entry) Students
Fall 2007 Cohort



- Input: % of Students Who Enrolled in Remedial Courses
- Output: % of Students Who Enrolled in and Successfully Completed Remedial Courses
- Output: % of Students Who Enrolled in Remedial Course and Successfully Completed Related Credit Course

* These colleges were unable to report some output data due to restrictions of the Family Educational Rights and Privacy Act, which requires that individual students must not be able to be identified when reporting institutional data like that shown in this exhibit. For these institutions, students enrolling in only English remedial courses are excluded. In addition, the data for Chesapeake College also excludes students enrolling in only math.

Note: These output measures for remedial students are percentages of the input students, those who enrolled in remedial courses.

Source: Complete College America

Similar to the public four-year institutions, colleges with output bars close together are those that have the most successful remedial completers. At Montgomery College, for example, 97.7% of students who complete remedial education will also complete a related credit course. However, only 26.3% of students complete the remedial course, indicating room for improvements.

At six colleges, less than half of students that successfully complete a remedial course subsequently pass the related credit-level course. Chesapeake's credit-completer rate is 26%, and Cecil College has so few remedial completers (out of an initial cohort of 319), that it cannot report data without violating the federal Family Educational Rights and Privacy Act (FERPA), indicating a credit-completer rate below 9.5%.

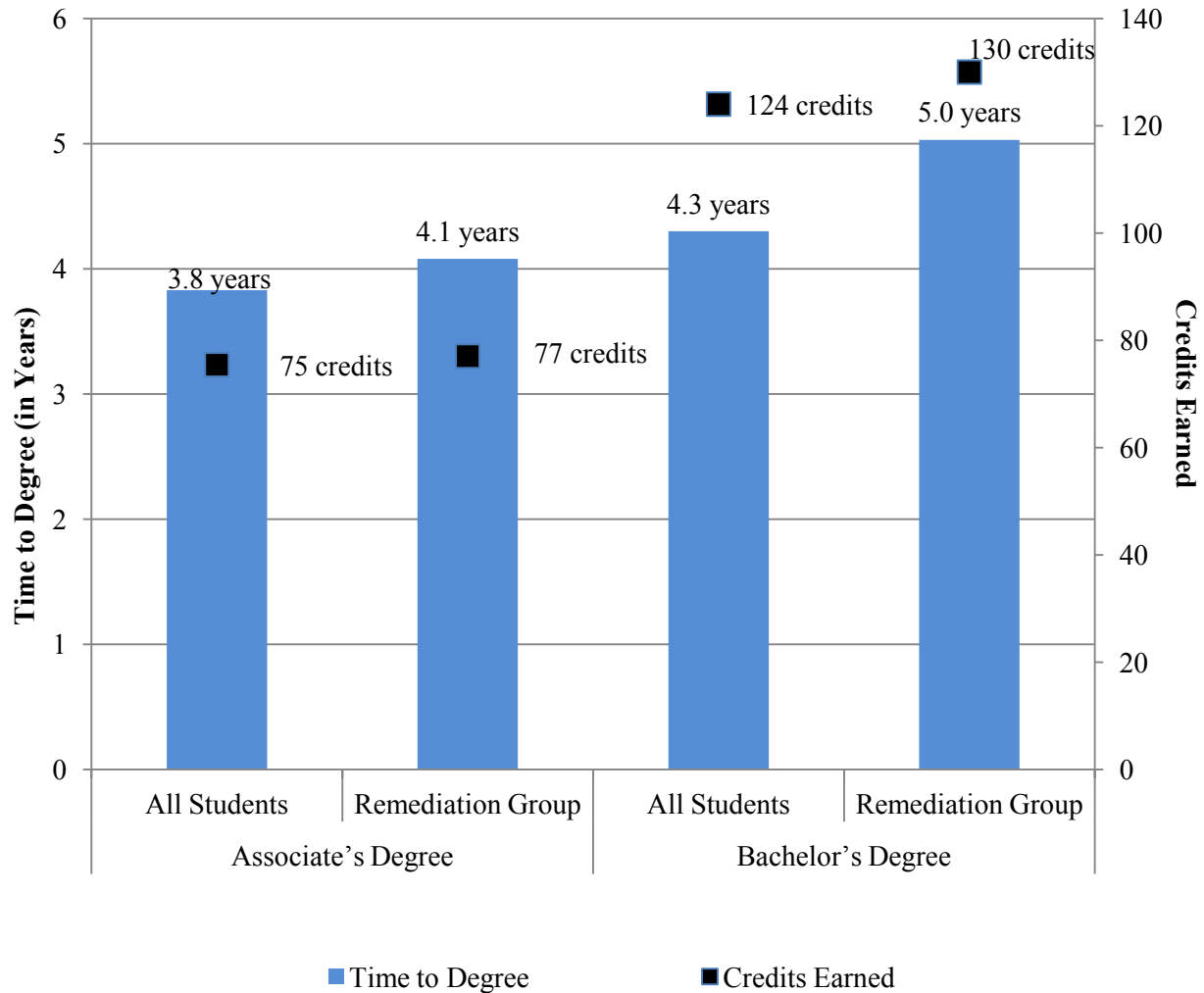
Discussed later in this report are initiatives intended to improve the success of students taking remedial courses. The Community College of Baltimore County's (CCBC) Accelerated Learning Program (ALP), for example, is specifically targeted toward getting students beyond the first related credit course. Many initiatives have started since the initial enrollment date of students shown in these CCA exhibits, fall 2007.

Completion Rates of Remedial Students

Although only 25% of remedial students successfully continue past remedial courses, CCA's data shows that, at least for community college students, those that do graduate do not take significantly longer than the average for all students. As shown in **Exhibit 8**, the average community college student graduates in 3.8 years, compared to 4.1 years for a student who started with at least one remedial course. A note of caution about the data – some Maryland institutions are reporting remedial courses (which are noncredit) in credits to degree and some are not. This makes comparisons between the data difficult. Nonetheless, as reported to CCA, the credits earned by students who took remedial courses toward their associate degree are also not significantly higher, 77 compared to 75, less than one standard three-credit course. However, it should be noted that generally only 60 credits are required for an associate degree and both community college groups are earning at least a semester's worth of credits more than necessary.

The rates are not quite as close for students at the State's public four-year institutions. A remedial student completed his or her degree in an average of 5.0 years, compared to 4.3 years for all students. The remedial student also earned 130 credits, compared to 124 credits for all students – the equivalent of two additional courses. (See cautionary note above.)

Exhibit 8
Credits Earned Toward Degree
Fiscal 2009 Graduates



Source: Complete College America

Much of the data presented thus far has not been presented or otherwise seen on a systematic, statewide level before CCA required the data to be collected. The continued reporting of CCA will show the success of the various colleges' initiatives to improve student outcomes like course redesigns or summer bridge programs.

Boosting Student Performance through Course Redesign

For several years, Maryland’s community colleges and public four-year institutions have been redesigning the format of hard to pass, or “bottleneck” courses and introductory, or “gateway” courses. The purpose is to move toward more innovative instructional delivery methods that result in improved student performance. Maryland is recognized nationally for course redesigns and has received \$2 million in grants to help fund course redesigns throughout the State.

The standard format of a redesigned course is a combination of less lecture time paired with self-paced learning on computer modules. Results of redesigns have generally been positive, with increased pass and retention rates.

Exhibit 9 shows three breakdowns of the 68 courses that were redesigned through the State’s four major initiatives, though individual institutions have undertaken redesigns independently of grants received by the State. The two programs focused specifically on USM resulted in 33 course redesigns, 10 using USM’s institutional funds and 23 from the Carnegie Foundation in recognition of that work. The Lumina Foundation and Complete College America funded redesigns of 35 additional courses. USM institutions and community colleges have completed the most redesigns, 37 and 23 specifically, and the majority of them focus on the sciences and developmental math.

Exhibit 9 Major Course Redesign Initiatives in Maryland

Redesigns by Initiative			
Carnegie (USM)	23	Lumina Foundation	19
Complete College America	16	University System of Maryland	10
Redesigns by Segment			
USM	37	Community College	23
Notre Dame of Maryland	4	Morgan State University	2
St. Mary’s College	1	Stevenson University	1
Redesigns by Course Type			
Science	27	Developmental Math	24
Humanities	7	Math	4
English	4	Developmental English	1
Other	1		

USM: University System of Maryland

Source: University System of Maryland

Community College of Baltimore County's Accelerated Learning Program

The Community College of Baltimore County's (CCBC) Accelerated Learning Program (ALP) is one example of a successful course redesign. Unlike most, it does not use self-paced, computer-based modules. CCBC has three levels of remedial placement, and students are placed based on the results of a placement exam. Students who place into the highest level actually enroll in a credit-level course, where roughly half the enrollment is college-ready students and the rest are remedial students. Those remedial students then meet one additional time per week. The extra time is used to address questions from the main class and further develop their skills. For students testing into the lowest level, they can register for a similar course that covers that level and the next highest, effectively passing two of their three required courses in one semester.

The ALP was piloted in English starting in fall 2007, and those students have outperformed those in the traditional remedial course each year since. In its first year, 24% of traditional remedial course students passed English 101, while 69% of ALP students passed English 101. As the program has been tweaked, the results have further improved. CCBC has expanded the ALP to math, which has shown positive results so far, and piloted a reading ALP in spring 2012.

An added benefit of CCBC's ALP is that it directly addresses one major hurdle for developmental students – the transition of students from a remedial course to a successful credit-completion. Statewide, only 41% of students overcame that hurdle. But CCBC's approach of remediating students concomitant with a credit-level course has shown significant progress over this bottleneck – 74% of ALP students passed English 101 compared to 33% of students in the college's traditional remedial course.

Garrett College's Remedial Math Redesign

Garrett College pursued a remedial math redesign after a previous redesign proved unsuccessful. The college had collapsed its previous five-class sequence into two, and students placing near the bottom of a course's cut-off score had great difficulty in learning the material while it was too easy for those placing near the top. The more recent redesign has three levels that allow for self-paced computer-based modules in addition to classroom based lectures.

Additionally, every couple of weeks, students do "real world" experiments and examine the results using skills learned in the classroom. One example is the temperature of water inside a metallic tube left sitting in the sun – the temperature can be graphed and shown to have a logarithmic slope. Another experiment blasts an air-powered rocket into the air. A lower level remedial course could examine the height achieved after blast-off, while a higher level course could chart its distance if sent off at an angle.

Compared to the two previous semesters, the pass rate of students in Garrett College's remedial math program grew from around 65.0% to 76.9%,

University System of Maryland

The University System of Maryland (USM) reports that it currently has 37 course redesigns in pilot phases and another 33 that are funded with additional grant money. An additional 13 to 15 pilots will begin in spring 2013 or in fall 2013. It will take time to tell how effective individual redesigns are.

Building on the success of the first course redesign initiative from fall 2008, USM launched the Carnegie Course Redesign 2 (CR2) funded by \$500,000 from the Carnegie Foundation and \$1.8 million from fundraising efforts. In order to provide for long-term integration of course redesign into institutional planning, the CR2 established three cohorts that run on a yearly cycle with additional courses added each year. The Cohort 1 courses were piloted in fall 2011 and fully implemented in spring 2012. Institutions submitted reports analyzing student outcomes and relative cost savings achieved with the Cohort 1 courses.

The CR2 provides opportunities for institutions to apply various technologies and teaching methods to gateway courses to improve student outcomes and achieve cost savings. In the process, institutions determined that some methods were more successful than others. While institutions are taking these lessons learned to refine their courses, some of those implemented in 2012 did not achieve better outcomes than the traditional courses although costs were reduced in some cases significantly.

Exhibit 10 summarizes the results of three of the CR 1 courses. Similar data is available for USM's other CR1 courses. Because they are newer initiatives, there is less data available for the Lumina Foundation and Complete College America initiatives. As it takes some time for redesigns to be developed and phased in, it will take some time for the results to show in the statewide metrics. There are initiatives at the high school level as well, which will hopefully address remediation needs before students arrive in college.

Exhibit 10 Summary of Cohort 1 Course Redesign Results

Student Outcomes

- Pass rate of C or better
- 57.3% vs. 42.0% for spring 2010 (UMES/Chemistry 112)
 - 86.6% vs. 91.0% for traditional course; may be due to different grading standards of instructors or some aspect of the redesigned course (SU/Psychology 101)
 - 87% vs. 92.0% and 95.0% for spring 2011 and fall 2011 traditional course (SU/Physical Education 106)

Cost Savings

- Cost per student
- Decreased from ~\$593 to ~\$418 (UMES/Chemistry 112)
 - Declined from \$241 to \$145 (SU/Psychology 101)
 - Declined from \$229.15 to 165.92 (SU/Physical Education 106)

SU: Salisbury University

UMES: University of Maryland Eastern Shore

Source: University System of Maryland

Transition Courses and Common Core

Together with the Southern Regional Education Board (SREB), Maryland issued a report in 2010 on improving college success in the State by improving and smoothing the process from pre-school to college graduation. One of the methods identified was the use of transition courses in a student's senior year of high school. Students in their junior year are tested to identify those at risk of graduating below the college-ready level. Those identified as at-risk take transition courses in their senior year to raise their skills so that they will be able to enroll directly into credit-bearing coursework in college.

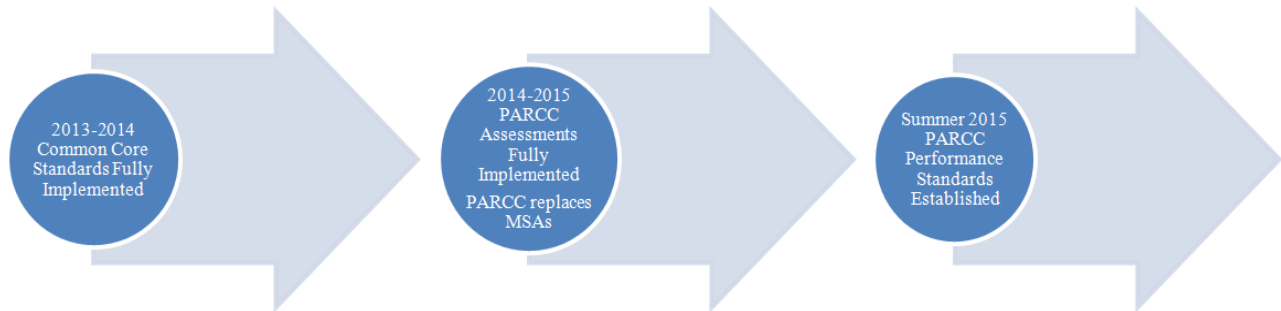
Many school districts across the State offer transition courses, and the 2010 report by the State's P-20 College Success Task Force called for their expanded use and for more subjects to be included. That report also called for aligning current transition courses with the Common Core State Standards. The Common Core Standards are academic standards in English/language arts (ELA) and mathematics that define the knowledge and skills that all students must acquire at

the conclusion of each grade level to be on track to attain college readiness. The standards were created through a joint initiative led by the National Governor’s Association and adopted by 45 states and the District of Columbia, including Maryland.

Maryland Joins Consortium to Develop and Implement College and Career Ready Assessments

Maryland is a governing state in the Partnership for Assessment of Readiness for College and Careers (PARCC), a consortium of 24 states designing an assessment system aligned with the Common Core Standards for ELA and mathematics. PARCC assessments will measure student progress toward college- and career-readiness. The assessments will be computer-based and designed to evaluate higher order skills, including critical thinking, communication, and problem solving. As shown in **Exhibit 11**, the Common Core Standards will be fully implemented in Maryland in the 2013-2014 school year, while the PARCC assessments will be fully implemented the following year (2014-2015), when they will replace the Maryland School Assessments (MSA). MSDE is working to develop a plan to phase-out the High School Assessments (HSA) and phase-in the new PARCC assessments.

Exhibit 11
Common Core State Standards and PARCC Implementation



Source: Department of Legislative Services; Maryland State Department of Education

PARCC Governing Board Adopts College- and Career-Ready Determination Policy

PARCC Performance Level Descriptors also established by the Governing Board describe the knowledge, skills, and educational implications that characterize each PARCC performance level. Five levels were chosen to categorize student performance, help schools better target assistance to students at each level, provide greater precision for accountability mechanisms, and allow opportunity for students and schools to demonstrate growth. Cut-scores for each level will be determined in summer 2015 following the first full PARCC assessment administration in the 2014-2015 school year.

On October 25, 2012, the PARCC Governing Board (on which both the State Superintendent and Chancellor of USM serve) voted to adopt a College- and Career-Ready Determination policy, defining the level of academic preparation (as demonstrated by performance on PARCC assessments) that students need to be successful in entry-level, credit-bearing courses in two- and four-year public institutions of higher education. Students that achieve at least a level 4 (of 5) on PARCC high school assessments will enter directly into certain entry-level, credit-bearing courses without having to take placement tests. Students scoring a 4 on PARCC assessments are expected to have a 75% chance of attaining a C or better in entry-level, credit-bearing English or mathematics courses at public institutions of higher education. USM reports that admitted students receiving at least a 4 on the grade 11 English or Algebra 2 PARCC assessment will be allowed to enter directly into an entry-level, credit-bearing mathematics or English course at all USM institutions, though the institutions may still require such students to take placement exams to determine which credit-bearing courses are appropriate.

While the MSAs and HSAs were designed to determine whether students meet a minimum level of proficiency, PARCC assessments are intended to indicate whether students have met the higher bar of college and career readiness. As a result, the proportion of students achieving at college and career readiness levels is expected to be lower than the proportion of students deemed proficient by MSA and HSA standards.

Policy Issues and Recommendations

A significant number of students graduate high school unprepared for college-level work. Maryland's education segments are innovating at the high school level to reduce the number of graduates who are not college ready, and PARCC assessments will be able to more easily identify the students that still need more development. At the college level, redesigned remedial courses will better prepare students for credit-level coursework.

With the use of CCA data and the Maryland Longitudinal Data System, educators and policymakers will be able to better understand the performance of students as they move from

high school to college. In the near future, the State will be able to identify the students most in need of improvement, and support those that are successful.

Together the goal of these initiatives is to align the K-12 and higher education systems and to greatly reduce the need for students to take remediation courses in college. This will result in a more efficient system of education to prepare Maryland's students for the workforce. The following recommendations are intended to encourage discussion of the policy issues discussed in this paper.

The College Readiness and Completion Act of 2013 (SB 740/HB 833) has been introduced and includes provisions that address many of the policy issues and recommendations raised in this paper and in the College Completion paper discussed at the first higher education policy briefing on January 28, 2013.

- **MHEC should redesign the SOAR in collaboration with local school systems and the higher education segments to provide more useful feedback on recent high school graduates' performance in college.**
- **MHEC should continue to submit to the General Assembly in an electronic format the annual updates to the CCA dataset. In addition, the Secretary, Superintendent, and segments should comment on how they plan to use the Maryland Longitudinal Data System and CCA data to improve student outcomes, as the data becomes more widely available and analyzed.**
- **Successful course redesigns should be replicated at other institutions, especially developmental courses that should be based on standard expectations for basic college-ready credit courses.**
- **MSDE should work with the LEAs to develop transition courses that are aligned to the Common Core Standards in collaboration with higher education, possibly even using redesigned developmental courses.**
- **The State Superintendent and LEAs should develop a plan to intervene when students fail to perform at the college- and career-ready level.**