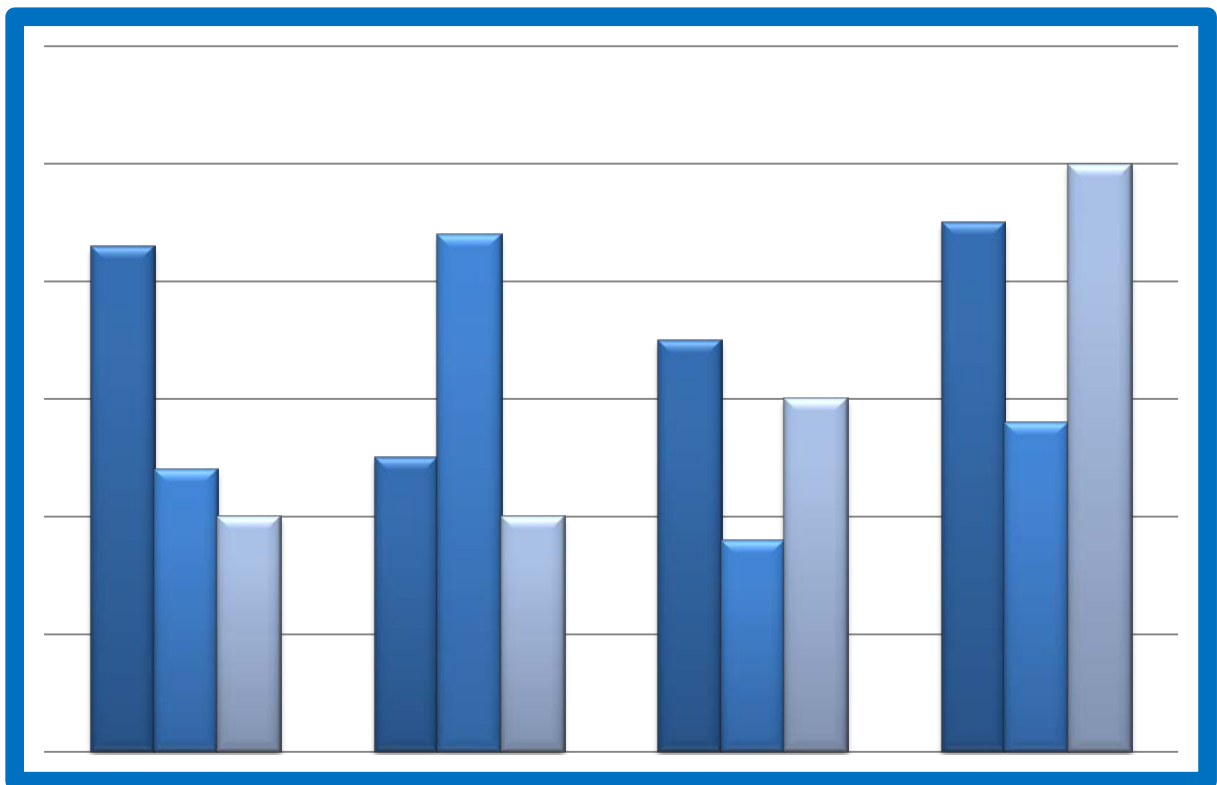# MARYLAND
TEACHER STAFFING REPORT
2016-2018

Maryland State Department of Education
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Baltimore, Maryland 21201-2595

msde.maryland.gov

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EXECUTIVE SUMMARY

The Maryland State Department of Education (MSDE), in conjunction with local school systems (LSS) and institutions of higher education (IHE), has conducted an annual educator supply and demand study since 1986, the original purpose of which was to determine critical teacher shortage areas. Although data are collected annually, since 2008 the report has been published biennially. The latest *Maryland Teacher Staffing Report, 2016-2018,* provides data on teacher candidates completing programs at IHEs that have Maryland Approved Programs (MAP) and in Maryland Approved Alternative Preparation Programs (MAAPP). The report also includes the hiring data and projected needs of the LSSs. In addition, each data set includes demographic data of the candidates. In 2015, at the direction of the Maryland State Board of Education (hereafter, the State Board), the MSDE Division of Educator Effectiveness (DEE) which produces this report, in collaboration with the Maryland Assessment Research Center (MARC), adopted a revised formula for determining critical shortage areas. This formula provides an updated and simplified methodology for analyzing the data referenced above and for applying that formula using the posted criteria. Analysis is based on actual data rather than survey data, with the exception of LSSs' projections of need.

The State Board, pursuant to HB 688*, Workforce Shortage Student Assistance Grants,* Education Article §18-708, adopts the recommended list of critical shortage teaching areas that then serves many purposes throughout the State. This report provides the basis for the Maryland Higher Education Commission (MHEC) to offer scholarships to qualified individuals who want to become teachers if pursuing certification in one of the critical shortage areas. The list also helps determine the criteria for (1) deferment or forgiveness of student loan repayments for teachers who teach in critical shortage areas; (2) access to grants from the federal Teacher Education Assistance for Colleges and Higher Education (TEACH) Grant Program Act; and (3) eligibility to participate in the Retire/Rehire Program in Maryland. The Retire/Rehire

Program allows for LSSs to hire retired teachers, mentors or principals in select schools in critical shortage areas.

In addition, this report also provides information for IHEs, alternative preparation programs, and LSSs as they recruit, prepare and hire teachers for Maryland's schools. Finally, each state must submit on a yearly basis the identified areas of critical teaching shortage to the United States Department of Education (USDE), which annually publishes *Teacher Shortage Areas Nationwide.*

The scope of the Maryland report has expanded over the years, and now includes:

- Shortage areas for both teachers and select non-classroom professionals;
- Enhanced information regarding traditional higher education as well as alternative preparation programs;
- Demographic data for recent program completers;
- Demographic data for new hires;
- Geographic shortage areas;
- Teacher attrition;
- The number of retired/rehired teachers and principals as allowed for by law; and,
- Incentives and strategies for the recruitment and retention of quality teachers and principals in Maryland public schools.

The 2016-2017 list of shortage areas was published in the 2014-2016 Teacher Staffing Report. As a result of the most currently-available data collection and analysis from all relevant parties, the following recommendations pertaining to teacher shortage areas for the 2017-2018 school year are made to the State Board:

Recommendation 1: The Maryland State Board of Education declares the following content areas as critical shortage areas:

- Career and technology areas (7-12)
  - Technology education
  - Family and Consumer Sciences
- Computer science (7-12)

- Business Education (7-12)
- English (7-12)
- English for Speakers of Other Languages (ESOL) (PreK-12)
- Mathematics (7-12)
- Middle School Education (4-9)
    - English/Language Arts
    - Mathematics
    - Science
    - Social Studies
- Science areas (7-12)
    - Biology
    - Chemistry
    - Earth/Space Science
    - Physical Science
    - Physics
- Special education areas
    - Generic: Infant/primary (birth-grade 3)
    - Generic: Elementary/middle school (grades 1-8)
    - Generic: Secondary/adult (grades 6 – adult)
    - Hearing impaired
    - Blind and Visually impaired
- World language areas (PreK-12)
    - French
    - Spanish
- The Arts:
    - Art (PreK-12)
    - Dance (PreK-12)

The above areas of certification will be reported to the USDE as Maryland's teaching areas of critical shortage for 2017-2018 in November 2016, with the State Board adoption of this report.

Recommendation 2: The Maryland State Board of Education declares the following twenty-four (24) Maryland jurisdictions as geographic areas of projected shortage of certified teachers:

1. Allegany County
2. Anne Arundel County
3. Baltimore City
4. Baltimore County
5. Calvert County
6. Caroline County
7. Carroll County
8. Cecil County
9. Charles County
10. Dorchester County
11. Frederick County
12. Garrett County
13. Harford County
14. Howard County
15. Kent County
16. Montgomery County
17. Prince George's County
18. Queen Anne's County
19. St. Mary's County
20. Somerset County
21. Talbot County
22. Washington County
23. Wicomico County
24. Worcester County

Recommendation 3: The Maryland State Board of Education declares a shortage of teachers who are males, and a shortage of teachers who are members of minority groups.

Recommendation 4: The Maryland State Board of Education declares a shortage of the non-classroom professional positions of library/media specialist, school psychologist, and speech/language pathologist.

MSDE, which has traditionally calculated new shortage areas every two years to coincide with the publication of this report, will now calculate the shortage areas annually rather than biennially. As a result of the analysis of the most current data, MSDE will submit the above-listed shortage areas to the USDE for the 2017-2018 listing, and will continue to provide annually-calculated data in future years.

INTRODUCTION

MSDE, in conjunction with LSSs, IHEs and MAAPPs, conducts an annual study to determine critical teacher shortage areas. Although data are collected annually, the report has been published biennially in *The Maryland Teacher Staffing Report* since 2008. In addition to publishing the content areas that are considered to be shortage areas, the *Maryland Teacher Staffing Report* provides information on the number of teacher candidates produced through traditional teacher preparation programs, MAPs, and MAAPPs. Further, the actual and anticipated hiring needs of the 24 local school systems are collected. This information addresses both the supply of new Maryland teachers and the demand that local school systems expect in hiring. Beginning with the current reporting cycle, MSDE will report, both to the State Board and to the USDE, an annually-updated listing of shortage areas.

The *Maryland Teacher Staffing Report* is now compatible with the digital age in which we live. *Race to the Top* funding targeted toward the development of data systems that support instruction, was allocated to MSDE to develop a series of dashboards, the purpose of which was to create graphic representations of data designed to make that data accessible, easy to read, and simple to understand, with a minimum of explanation. The dashboard project makes available to the public a great deal of data heretofore written into textual reports.

Background

Legislation originally passed by the Maryland General Assembly in 1984 and revised in 2006 requires the state to declare what teaching fields are designated as critical shortage areas. This information is often used to award state grants and scholarships to prospective teachers. The General Assembly unified several pieces of legislation to include scholarships in many workforce areas.

See **§ 18-708 Workforce *Shortage Student Assistance Grants*** by copying and pasting the following link into the browser: *mhec.mayland.gov/Pages/default.aspx*

This bill consolidated all state grants and scholarships across professions, including teaching. In addition**, SB 663*: Retirement and Pensions – Reemployment of Retirees*** uses the declared teacher shortage areas to exempt certain retired educators from an earnings limitation if they are reemployed in one of the critical shortage areas and/or in qualifying schools. This law also includes principals and mentors.

The USDE annually publishes the ***Teacher Shortage Areas Nationwide***, and allows certain students who teach in critical shortage areas to qualify for deferment of loan repayment and/or loan forgiveness. Maryland contributes its findings each year to this publication.

In 2007, Congress passed the ***TEACH Grant Program.*** This law continues to provide grants of up to $4,000 per year to students who intend to teach in a public or private elementary or secondary school in a state's critical teacher shortage areas.

Summary and Overview

The procedures for determining teacher shortage areas were established and documented to ensure systematic replication in state reports of teacher staffing as well as formative review for ongoing improvements to the report. Further, the information contained in this report helps to provide a picture of supply and demand along with actual hiring data that is helpful in planning at almost every level in Maryland public schools, colleges and universities, and in alternative preparation programs.

Most data tables are now displayed on dashboards to which the report will provide a link. One of several tables included in this report is ***Incentives and Strategies for the Recruitment and Retention of Quality Teachers and Principals***. This information is not represented on a dashboard. All data gathered for this report is

posted on the MSDE website or the MHEC website. Data supporting this report is gathered annually but published only biennially; hence, the website data will be accurate and current during the off years of publication. Sections of this report that cover staffing patterns, geographic areas of projected shortage, Maryland-prepared teachers, minority and gender data, and hiring data on select non-classroom professionals are also represented on dashboards. Finally, this report includes the recommendations to the State Board which provides information for IHEs, MAAPPs, and LSSs as they recruit, educate and hire future teachers for Maryland's schools.

Part I: INCENTIVES AND STRATEGIES FOR THE RECRUITMENT AND RETENTION OF QUALITY TEACHERS AND PRINCIPALS

Historically, Maryland has had a shortage of qualified teachers in certain content areas. Maryland has long been an import state, hiring a significant number of teachers prepared in other states. Early-career attrition, flat teacher preparation program completion rates, and teacher retirements all contribute to shortages. Maryland has instituted state scholarships in all workforce shortage areas including those in education, and has implemented certain strategies to attract and retain teachers. The federal government also has several programs, such as the *TEACH Act,* loan deferment and loan forgiveness programs*,* and *Troops to Teachers (TTT)* to attract retiring military personnel into second careers as teachers. An overview of select incentives and strategies with websites for obtaining the most current information is provided below.

NATIONAL AND FEDERAL INITIATIVES
TEACH Grant Program

Congress created the **TEACH Grant Program** to provide grants of up to $4,000 per year to students who intend to teach in a public or private elementary or secondary school that serves students from low-income families. Areas of need in the law are: bilingual education and English language acquisition; foreign languages; mathematics; reading specialist; science; and special education, as well as any other field that has been identified as high-need by the federal government, a state

government, or a local education agency and that is included in the USDE's annual *Teacher Shortage Area Nationwide* Listing (Nationwide List). To be eligible for a *TEACH* grant, candidates must meet certain criteria. Information is available through financial aid offices at participating institutions and the USDE website at: http://www.ed.gov/index.html.

Federal Student Aid and Loan Forgiveness Programs

The federal government supports loan programs for students who wish to attend college. The amount of funding for these programs varies from year to year. Current information is located at the federal loan site: http://www.FederalStudentAid.ed.gov.

The federal government also has several discharge or loan forgiveness programs connected to federal loans for teachers. The programs include deferment for borrowers under the Family Federal Education Loan (FFEL); Federal Supplemental Loans for Students programs; debt incurred under the Federal Perkins Loan Program; reduction of teaching obligation under the Paul Douglas Teacher Scholarships Program; and the teaching obligation for recipients of the TEACH Grant Program. Details and applications are available on the FFEL website.

Troops to Teachers

In 1994, the Department of Defense, in cooperation with the Department of Education, established the *Troops to Teachers (TTT)* Program. The program assists military personnel in making successful transitions to new careers in teaching. For information call 1-866-251-3123 or go to the website, www.proudtoserveagain.com. The Veterans Full Employment Act of 2013 is also implemented by MSDE. MSDE requires educators in Maryland Public Schools and in Non-Public Special Education Schools under COMAR 13A.09.10 to hold a valid teaching certificate. DEE holds the authority to issue those credentials as individuals complete requirements. Maryland implemented the Act effective July 1, 2013, by expediting credentialing for U.S. Armed

Forces service members and their spouses seeking employment as educators in these entities. For detailed information, visit
http://test.msde.maryland.gov/about/Pages/DEE/Certification/Veterans.aspx

STATE INITIATIVES

Workforce Shortage Funding Assistance

There are a number of stipends, awards, and scholarship opportunities available for potential and continuing teachers. Information can be found on the MHEC website which administers funding. Visit the link below by copying and pasting into the browser. Information is readily found under the heading *Financial Aid Resources.*
mhec.mayland.gov/Pages/default.aspx

State Tax Credits

Maryland classroom teachers enrolled in college courses are eligible for an annual $1,500 tuition tax credit on their Maryland income tax returns, designed to offset graduate tuition expenses necessary to achieve or maintain advanced teacher certification. To receive the credit, the teacher must successfully complete the courses with a grade of B or better, be employed by a LSS, have a satisfactory performance evaluation, and not have been reimbursed by the LSS for the tuition paid. Check the Annotated Code of Maryland Tax-General Article §10-717 at the website:
http://taxes.marylandtaxes.com/Individual_Taxes/General_Information/Tax_Credits_and_Deductions/Quality_Teacher_Incentive_Credit.shtml

Resident Teacher Certificate

The Resident Teacher Certificate (RTC) is designed to attract and recruit into teaching recent college graduates as well as career changers who possess academic content backgrounds in the arts and sciences, but who did not complete teacher preparation programs. All programs that use the RTC are state-approved teacher preparation programs and operate under the authority of the DEE at MSDE. These programs may be in partnership between a LSS and a program provider, or the LSS may act as its own provider and develop its own program. Each

program undergoes cyclical state program approval including onsite peer review that includes representatives from IHEs, both two- and four-year, LSSs, and other MAAPPs. For additional information, visit the MSDE home page, DEE, Program Approval where information relevant to Maryland's alternative pathways can be found.

MAAPPs have their own set of dashboards as well. For a detailed look at alternative programs and their candidates, visit [Dashboards Portal](). In the upper left, click on P12LDS, and choose P12LDS HOME from the pull-down menu. Click on *View all Dashboards* (right side of page), click on *MAAPP.*

National Board for Professional Teaching Standards

The National Board for Professional Teaching Standards (NBPTS) is an independent, non-profit, non-partisan organization established in 1987. It was established to improve student learning in America's schools by developing a system of advanced, voluntary certification for teachers. NBPTS has established rigorous standards and a performance-based certification system to recognize quality teaching. Certification is achieved through a performance-based assessment that typically takes more than a year to complete. It is designed to measure what accomplished teachers should know and be able to do. The process for becoming a Nationally Board Certified Teacher (NBCT) requires teachers to demonstrate how their activities, both inside and outside the classroom, strengthen student performance and contribute to student achievement. The certification process is open to anyone with a baccalaureate degree who holds a current and valid Maryland certificate and has completed three years of classroom experience. The certificate is valid for 10 years, after which a teacher may seek renewal. Maryland is proud that it has 2,785 NBCTs.

As of July 1, 2016, classroom teachers and other non-administrative, school-based employees who hold National Board Certification and work in a comprehensive needs school will be eligible to receive a stipend up to $2,000. Classroom teachers and other non-administrative school based employees who hold National Board Certification and work in a non-comprehensive needs school are eligible to receive a stipend up to $1,000.00. It should be noted that LSSs can implement more stringent standards. As

of July 1, 2017, the stipend will increase to $4,000.00 for classroom teachers and other non-administrative school based employees who hold National Board Certification and work in a comprehensive needs school. For more information, visit the link below.

Teachers of Promise

The *Teachers of Promise* mentoring program, underwritten by the Maryland Independent Colleges and Universities Association, Comcast, the Maryland State Education Association, Smart Technologies, and State Farm Insurance, began as an outgrowth of the Maryland Teacher of the Year Program. It capitalizes on the expertise of Teachers of the Year and other award-winning teachers by matching them with the most promising pre-service graduating seniors from Maryland colleges and universities. This program is designed to provide these promising candidates with support as they transition from the role of student to the new role of teacher. Mentoring begins in the candidates' senior year and continues through summer and fall placement in Maryland schools, creating a transitional mentoring program for beginning teachers. Research suggests that teacher mentors assigned to work with new teachers can be crucial in encouraging them to remain in the field. The Teachers of Promise Program has developed powerful partnerships among MSDE, corporations, and IHEs, that together enhance the chances of success and confidence for so many of our new teachers. The program is now in its 11th year and works with 21 Maryland colleges and universities.

Retire/Rehire Program

In 1999, the Maryland General Assembly passed a bill which exempted certain retired teachers and principals from an earnings limitation of their Maryland pension, provided they are re-employed as classroom teachers, substitute teachers, teacher mentors or principals. The revision in 2005 was SB 663*: Retirement and Pensions - Reemployment of Retirees*, and is aimed at rehiring teachers to work in specific schools and teach in critical shortage content areas.

These retired rehires represent experienced teachers or principals or others who qualify and are placed in the lowest performing schools in critical teacher shortage areas or in positions that qualify. The 2015-2016 report follows:

	Position Title	Annual Salary	Name of School	Qualifying School	Critical Subject	Date of Re-Employ.
Individuals by Local School System Participating in the Retire/Rehire Program						
Maryland State Department of Education						
SB663 Retirement and Pension - Reemployment of Retirees 2015-2016						
BALTIMORE CITY PUBLIC SCHOOLS						
1	Teacher	76,862	James McHenry Elementary/Middle School	Critical Shortage Area	Special Education	9/19/2015
DORCHESTER COUNTY PUBLIC SCHOOLS						
2	Social Worker	77,700	New Directions Learning Academy	Alternative Education	Social Work	10/20/2014
FREDERICK COUNTY PUBLIC SCHOOLS						
3	Teacher	29,514	Catoctin High School	Critical Shortage Area	Mathematics	1/28/2016
HARFORD COUNTY PUBLIC SCHOOLS						
4	Teacher	66,410	Aberdeen Middle School	Critical Shortage Area	Special Education	8/20/2015
KENT COUNTY PUBLIC SCHOOLS						
5	Title I Coordinator	88,629	County-wide	Critical Need	Title I	7/1/2015
PRINCE GEORGE'S COUNTY PUBLIC SCHOOLS						
6	Teacher	95,976	Princeton Elementary School	Title I	Special Education	8/17/2015
7	Teacher	72,906	G. James Gholson Middle School	Title I	Mathematics	8/17/2015
8	Teacher	45,704.50	Fort Washington Elementary School	Critical Shortage Area	ESOL	8/17/2015
9	Teacher	38,390.40	James Duckworth School	Critical Shortage Area	Special Education	9/9/2015
10	Teacher	74,817.76	DuVal High School	Critical Shortage Area	Mathematics	8/17/2015
11	Teacher	43,527.50	Berwyn Heights Elementary School	FARM	ESOL	8/17/2015

			ST. MARY'S COUNTY PUBLIC SCHOOLS			
12	School Nurse	62,993	Green Holly Elementary School	Title I		10/20/2014
13	Director of Special Education	118,676	Central Office	Allowable one of five		7/2/2007
14	Bus Driver Trainer	43,075	Department of Transportation	Allowable two of five		9/6/2010
15	Teacher	80,505	Various Sites	Critical Shortage Area	ESOL	8/19/2009
16	Teacher	75,862	Benjamin Banneker Elementary School	Critical Shortage Area	Special Education	9/22/2009
17	Principal	133,571	Chopticon High School	Allowable three of five		7/1/2008
18	Teacher	43,141.50	Chopticon High School	Allowable four of five	Latin	8/19/2005
			WICOMICO COUNTY PUBLIC SCHOOLS			
19	Teacher	55,461	Wicomico High School	FARM	Special Education	8/25/2015
20	Teacher	55,461	Wicomico High School	FARM	Special Education	8/25/2015
21	Speech Therapist	85,652	Wicomico High School	FARM	Speech Education	8/25/2015
22	Teacher	55,461	Wicomico High School	FARM	Special Therapist	8/25/2015
23	Teacher	55,461	Wicomico High School	FARM	Special Education	8/25/2015

Revised 8/18/2016

Summary Report of Retire/Rehire Program
Maryland State Department of Education
Report for 2015 – 2016

	Baltimore	Dorchester	Frederick	Harford	Kent	Prince George's	St. Mary's	Wicomico	TOTALS
Total # Rehires									
Teachers	1		1	1	1	6	3	4	17
Speech Pathologist								1	1
Principals							1		1
Counselor or other specialized area		1			1		3	1	5
Total	1	1	1		1	6	7	6	23
Condition of Rehire									
Title I						2	1		3
Alternative Education		1							1
Exemption*					1		4		5
FARM						1		5	6
Critical Shortage Area	1		1	1		3	2		8
Total	1	1	1	1	1	6	7	5	23
Content Areas									
Biology									
ESOL						2	1		3
Earth Science									
Latin									
Mathematics			1			2	1		1
Psychology*									
Physical Science									
Spanish									
Special Education	1			1		2	1	3	8
Total Retire/Rehire	1	1	1	1	1	6	7	5	23

*Exceptions: The law allows a minimum of five exemptions per system, or 0.2% of the total full-time equivalent teachers, not to exceed 15 per school system. The exemptions may be either a regular school or a non-critical content area.

Data provided to Maryland State Retirement and Pension System (MSRP) and MSDE by the local school systems, 2015-2016 school year.

Comprehensive Teacher Induction Program

In response to the Maryland General Assembly, which passed a law requiring mentoring programs, COMAR 13A.07.01 *Comprehensive Teacher Induction Program* was adopted by the State Board on April 27, 2010. This law provides greater

consistency in the quality of support provided to new teachers throughout the state and it also provides training for mentors. The policy requires each local school district to "establish and maintain a comprehensive induction program for all new teachers" "until they receive tenure." The regulations referenced below provide detail.

13A.07.01.03; 13A.07.01.04; and 13A.07.01.05.

State regulations also require LSSs to provide a comprehensive induction program report to MSDE. The report must include a description of the mentoring program; data, including the number of teachers using a conditional certificate and the number of mentors who have been assigned; and, how effectiveness of the program is measured. In summary, various incentives and strategies have been implemented in an effort to recruit and retain quality teachers and principals. The strategies have been implemented to attract and retain teachers for public school classrooms. This report makes no effort to assign causality to improved early retention rates as mentioned above, but MSDE's efforts through the programs mentioned here will continue, as will data tracking in the search of continuous and ongoing improvement.

Part II: STAFFING PATTERNS

This section presents information on the number of new hires by Maryland LSS, by certification area. Included also is the methodology for determining teacher shortage areas; certification areas by extent of staffing need; trend data; and teacher experience and attrition. It is also in this section where the report moves into the digital age and derives its data from the dashboards. The Dashboards Portal ("control" + click) will take the reader to the Teacher Supply dashboard. To view all of the dashboards available, go to the upper left and click on *P12LDS Home*, choose *P12LDSHOME* from the pull-down menu, then choose *View all Dashboards*, found on the right of the page. All available dashboards are displayed here.

MSDE is dependent upon IHEs and LSSs for accuracy. All data are validated and triangulated for accuracy through collaboration between DEE and the Division of Curriculum, Assessment and Accountability (DCAA).

From the *Teacher Supply* dashboard, click on *Teacher Supply,* **Multimedia.** This tutorial provides a preview of the dashboards and some suggestions for interpreting data. In addition to the preview, below is a listing of the tabs included on the dashboard. While not all tabs are included in the preview, all are visible from the main page of the *Teacher Supply* dashboard in a list found on the right side of the page. They are presented in the order in which each tab appears on the dashboard and, consequently, in this part of the report.

Teacher Supply Dashboards

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New Hires by Certification Area
New Hires: Transferred from LSS to LSS
New Hires by LSS
New Hires Trends
Teachers by Years of Experience
Teacher Attrition
Supply from MAP by Certification
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Graduates by IHE
Hires from MAAPP
Trend Data : Minorities from IHE
Minority New Hires by Certification
Trend Data: Minority New Hires
New Hires by Gender
MAP Graduates by Gender

DEE suggests that the user open the dashboard as directed above, and leave it open on the computer, toggling back and forth between the Word document, *Teacher Staffing Report*, and the dashboard *Teacher Supply.* (Each document is, in all likelihood, at the bottom of the computer screen.) Each of the tabs on the dashboard has comments and in some cases possible interpretation of the data. Again, to get started, (the link is Dashboards Portal), begin with *New Hires.* In order to assure accessibility of the information even if, for any reason, technology is not available, many

data tables are also presented as screen shots in this report.

New Hires

   Actual New Hires by Certification Area reports the number of new hires between October 2013 and October 2014. This closing date (2014) reflects the first of the years reported on the dashboard. In other words, while the data reflect collection between the above two dates, they are reflected on the dashboards as 2014-2015. New hires are categorized as beginning or experienced, Maryland prepared or out-of-state prepared, and by the certification area for which they were hired. During this period, there were 6,048 new hires, an increase of 536 new hires over 2013-2014, or about 9%. This is a predictable and reasonable increase considering that PreK-12 student population rose at almost the same rate during the same time period, from 866,169 to 874,514. Occasionally there are anomalies in hiring that show up as spikes for a particular year, which did occur between 2011-2012 and 2012-2013 when there was a 17% hiring increase that was unanticipated and not projected by LSSs, while at the same time the statewide student population rose only about 1%. Both the rates of PreK-12 student population growth and the rate of new teacher hires have remained fairly static since this time. The dashboard offers five years of data for a more extensive review of hiring.

Certification Area		Total New Hires	Beginning New Hires Total	Beginning New Hires- Maryland Prepared	Beginning New Hires - Out of State	Experienced New Hires Total	Experienced New Hires - Maryland	Experienced New Hires - Outside Maryland
Total New Hires		**6,048**	**3,597**	**1,049**	**2,548**	**2,451**	**1,302**	**1,149**
The Arts Total		**405**	**265**	**79**	**186**	**140**	**68**	**72**
The Arts	Art (PreK-12)	175	123	42	81	52	25	27
	Dance (PreK-12)	17	12	7	5	5	2	3
	Music (PreK-12)	204	126	29	97	78	37	41
	Theatre (7-12)	9	4	1	3	5	4	1
Career/Technology Education (7-12) Total		**188**	**109**	**8**	**101**	**79**	**42**	**37**
Career/Technology Education (7-12)	Agriculture	7	4	0	4	3	2	1
	Agriculture/Agribusiness	1	1	0	1	0	0	0
	Business Education	33	14	2	12	19	9	10
	Family and Consumer Sciences	27	11	2	9	16	9	7
	Health Occupations	2	0	0	0	2	2	0
	Technology Education	54	33	4	29	21	10	11
	Trades & Industry	64	46	0	46	18	10	8
Computer Science (7-12) Total		**19**	**12**	**1**	**11**	**7**	**3**	**4**
Computer Science (7-12)	Computer Science (7-12)	19	12	1	11	7	3	4
ESOL (PreK-12) Total		**96**	**41**	**3**	**38**	**55**	**21**	**34**
ESOL (PreK-12)	ESOL (PreK-12)	96	41	3	38	55	21	34
Early Childhood (PreK-3) Total		**570**	**384**	**152**	**232**	**186**	**96**	**90**
Early Childhood (PreK-3)	Early Childhood (PreK-3)	570	384	152	232	186	96	90
Elementary Education (1-6) & Middle School Total		**1,975**	**1,220**	**436**	**784**	**755**	**445**	**310**
Elementary Education (1-6) & Middle School	Elementary Education (1-6)	1,975	1,220	436	784	755	445	310
English (7-12) Total		**459**	**275**	**66**	**209**	**184**	**93**	**91**
English (7-12)	English	459	275	66	209	184	93	91
Foreign Language (7-12)*** Total		**276**	**149**	**30**	**119**	**127**	**64**	**63**
Foreign Language (7-12)***	Arabic	2	0	0	0	2	0	2
	Chinese	10	5	2	3	5	0	5
	French	35	13	4	9	22	11	11
	German	8	5	0	5	3	2	1
	Italian	9	4	0	4	5	4	1
	Latin	5	3	0	3	2	0	2
	Other Foreign Languages	6	4	0	4	2	1	1
	Russian	3	1	0	1	2	2	0
	Spanish	198	114	24	90	84	44	40
Health (PreK-12) Total		**47**	**28**	**8**	**20**	**19**	**12**	**7**
Health (PreK-12)	Health (PreK-12)	47	28	8	20	19	12	7
Health/Physical Education (PreK-12) Total		**35**	**22**	**6**	**16**	**13**	**7**	**6**
Health/Physical Education (PreK-12)	Health/Physical Education (PreK-12)	35	22	6	16	13	7	6
Mathematics (7-12) Total		**391**	**237**	**40**	**197**	**154**	**74**	**80**
Mathematics (7-12)	Mathematics (7-12)	391	237	40	197	154	74	80
Middle School Education (4-9) Total		**89**	**48**	**13**	**35**	**41**	**15**	**26**
Middle School Education (4-9)	Middle School Ed: English/Lang Arts	25	16	4	12	9	2	7

Certification Area		Total New Hires	Beginning New Hires Total	Beginning New Hires- Maryland Prepared	Beginning New Hires - Out of State	Experienced New Hires Total	Experienced New Hires - Maryland	Experienced New Hires - Outside Maryland
Middle School Education (4-9)	Middle School Ed: Mathematics	34	16	4	12	18	8	10
	Middle School Ed: Science	16	9	4	5	7	0	7
	Middle School Ed: Social Studies	14	7	1	6	7	5	2
Other Teaching Areas Total		111	55	1	54	56	17	39
Other Teaching Areas	Other Teaching Areas	111	55	1	54	56	17	39
Physical Education (PreK-12) Total		135	81	30	51	54	30	24
Physical Education (PreK-12)	Physical Education (PreK-12)	135	81	30	51	54	30	24
Science (7-12) Total		313	193	36	157	120	66	54
Science (7-12)	Biology	147	85	22	63	62	40	22
	Chemistry	42	23	4	19	19	11	8
	Earth/Space	20	14	4	10	6	6	0
	General Science	84	59	3	56	25	7	18
	Physical Science	5	3	0	3	2	0	2
	Physics	15	9	3	6	6	2	4
Social Studies (7-12) Total		313	192	64	128	121	65	56
Social Studies (7-12)	Social Studies (7-12)	313	192	64	128	121	65	56
Special Education Total		626	286	76	210	340	184	156
Special Education	Generic: Elementary/middle (grades 1-8)	262	136	18	118	126	69	57
	Generic: Infant/primary(birth-grade 3)	22	12	5	7	10	5	5
	Generic: Secondary/adult (grades 6-adult)	143	44	17	27	99	49	50
	Hearing Impaired	8	2	0	2	6	4	2
	Other(SpED k-12 and SpEd –Generic:infant-Adult)	181	89	35	54	92	51	41
	Severely & Profoundly Disabled	6	1	1	0	5	4	1
	Visually Impaired	4	2	0	2	2	2	0

Rows 1 - 66 (All Rows)

The next dashboard tab displays data on teachers who move from school system to school system, known as "within-state" movement of teachers. Teachers who change jobs within the state are reported as "new" by their school systems, although they are not new to teaching in Maryland. Since including this movement of teachers from system to system skews the number of new hires, these teachers are extracted from the totals. The **Number of New Hires Who Transferred from Local School System to Local School System** displays the number of teachers from each "sending" and each "receiving" school system. The chart lists which school systems are hiring from other in-state systems and which systems are losing teachers to other in-state systems. Attention to the within-state new hiring data is important for understanding the

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teacher shortage issue. The impact of what is viewed as the teacher shortage areas is mitigated by within-state movement, which is analyzed only rarely as a component of new hire data. The number of teachers who moved within the state during 2014-2015 was 557, or about 9% of the new hires. No screen shot is provided for this table, so it is important to select the appropriate year, in this case 2014-2015, when looking at the dashboards.

New Hire Trends shows the number of new hires for the past five years prepared in Maryland and prepared outside of Maryland. Maryland has traditionally been a state that imports more new teachers than it prepares; however, the rate of those prepared outside of Maryland, both new to teaching and experienced, has risen to 59% in this data cycle, leaving 41% of new hires actually prepared in Maryland as illustrated by the pie chart below.

New Hires: Beginning and Experienced and Out-of-state and In-State Comparision
Date run: 8/19/2016

Experienced Last taught outside Maryland, 17.4%

Beginning Maryland prepared, 22.1%

Experienced Last taught in Maryland, 19.2%

Beginning Out-of-state prepared, 41.3%
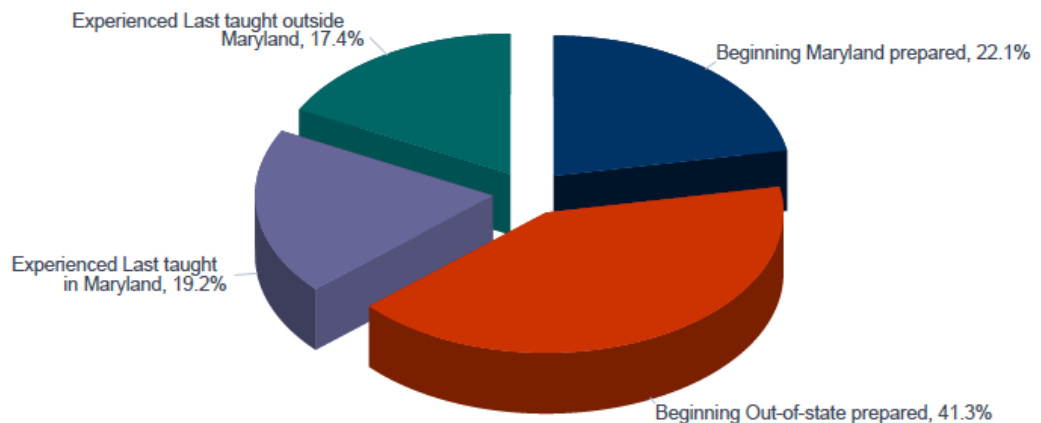
Teachers by Years of Experience displays the total number of teachers by LSS and the years of experience of those teachers. (It is important to select the year for *Teachers by Years of Experience.*) Comparison of three years of data reveals no significant changes in the levels of experience of teachers in Maryland Public Schools. The screen shot below shows the data from 2014-2015, (note that the collection is between October 2013 and October 2014).

Teachers by Years of Experience
Maryland Public Schools : 2014-2015

Local School System	Less Than One	One to Five	Six to Ten	Eleven to Fifteen	Sixteen to Twenty	Twenty One to Twenty Five	Twenty Six to Thirty	More Than Thirty	Total Teachers
State Total	3,555	13,983	14,176	10,955	7,506	4,226	2,624	2,866	59,891
Allegany	13	51	139	125	102	80	48	71	629
Anne Arundel	356	1,357	1,284	948	659	379	202	272	5,457
Baltimore County	468	1,881	1,788	1,417	891	501	231	225	7,402
Calvert	33	92	162	247	218	149	86	56	1,043
Caroline	23	81	97	62	56	32	29	23	403
Carroll	96	317	387	358	296	186	124	119	1,883
Cecil	63	261	366	189	116	48	58	44	1,145
Charles	121	405	559	237	154	115	76	109	1,776
Dorchester	28	125	80	50	30	25	11	22	371
Frederick	187	472	560	446	378	268	206	189	2,706
Garrett	6	23	48	61	40	39	37	35	289
Harford	200	538	576	471	402	212	129	91	2,619
Howard	168	784	957	806	568	351	243	196	4,073
Kent	13	43	28	21	22	11	14	7	159
Montgomery	469	2,185	2,263	2,113	1,609	862	476	597	10,574
Prince George's	588	2,840	2,404	1,464	780	308	187	156	8,727
Queen Anne's	32	99	126	84	74	42	33	28	518
Saint Mary's	29	188	238	229	138	76	68	82	1,048
Somerset	16	55	59	36	28	9	8	13	224
Talbot	12	66	72	79	34	19	13	22	317
Washington	64	346	444	283	150	103	70	87	1,547
Wicomico	89	213	258	191	135	86	64	62	1,098
Worcester	23	94	103	119	94	58	41	64	596
Baltimore City	458	1,452	1,163	915	529	265	170	295	5,247
SEED	0	15	15	4	3	2	0	1	40

NOTE: Only includes staff whose primary position is a teacher, including reading specialists.

Once having selected the appropriate year, the user finds information regarding when teachers left the classroom by LSS in 2014-2015 under **Teacher Attrition.** The three-year comparison available on the dashboard shows no marked increases or decreases either in the rate of attrition or the number of years in the teachers' career when separation occurred. No screen shot is available for this dashboard.

Not only is it critical to capture LSS hiring needs, but also the production of teachers by providers of preparation programs in Maryland. The next chart, **Supply from MAP by Certification Area,** shows the number of individuals who completed college or university programs in 2014-2015 by certification areas, as the title suggests. It should be noted that not all who complete programs actually seek Maryland certification. (Clicking on the **blue** hyperlink in the table reveals the results from individual IHE.) As has been the case for a number of years, both production and the areas in which program completers are being certified have remained relatively flat. Again, multiple years are available on the dashboard. For this table, 2014-2015 represents an academic year beginning in September and ending in August.

Programs by Certification Area
Maryland Institutions of Higher Education 2014-2015
Click on Teacher Supply blue hyperlink to go to IHE Production details

Certification Area		Teacher Supply
Total		2,759
Arts	Art (PreK-12)	85
	Dance (PreK-12)	8
	Music (PreK-12)	70
	Theatre (7-12)	2
		165
Career/Technology Education (7-12)	Agriculture/Agribusiness	0
	Business Education	6
	Family and Consumer Sciences	0
	Technology Education	2
		8
Computer Science (7-12)	Computer Science (7-12)	1
		1
ESOL (PreK-12)	ESOL (PreK-12)	35
		35
Early Childhood (PreK-3)	Early Childhood (PreK-3)	398
		398
Elementary Education (1-6)	Elementary Education (1-6)	912
		912
English (7-12)	English	154
		154
Environmental Education (PreK-12)	Environmental Education (PreK-12)	0
		0
Foreign Language (7-12)	Arabic	0
	Chinese	16
	French	6
	German	1
	Italian	0
	Japanese	0
	Latin	0
	Other (Specify)	0
	Russian	0
	Spanish	30
		53
Health (PreK-12)	Health (PreK-12)	27
		27
Mathematics (7-12)	Mathematics (7-12)	71
		71
Middle School Education (4-9)	Middle School Ed: English/Lang Arts	11
	Middle School Ed: Mathematics	32
	Middle School Ed: Science	26
	Middle School Ed: Social Studies	13
		82
Middle School: Grades 4-9	Middle School: Grades 4-9	44

Certification Area		Teacher Supply
		44
Other Teaching Areas	Other Teaching Areas	1
		1
Physical Education (PreK-12)	Physical Education (PreK-12)	86
		86
Science (7-12)	Biology	54
	Chemistry	22
	Earth/Space	12
	Physical Science	0
	Physics	7
		95
Social Studies (7-12)	Geography	0
	History	42
	Social Studies	122
		164
Special Education	Generic: Elementary/middle (grades 1-8)	289
	Generic: Infant/primary(birth-grade 3)	78
	Generic: Secondary/adult (grades 6-adult)	96
	Hearing Impaired	0
	Severely & Profoundly Disabled	0
	Visually Impaired	0
		463

IHEs are also asked to project their production of teachers for a two-year period following the current hiring year which is 2015-2016. The next chart, **Projected Candidates by MAP**, follows the same format as the one above. In this chart, if the user selects 2014-2015, the two projected years are academic years 2016-2017 and 2017-2018. It should be noted that, although students may be in the pipeline to complete a program at a specified time, many factors (economic, academic, life situations, etc.) can influence a delay in completion, including the decision not to complete at all. The chart begins on the next page.

Projected Teacher Candidates from Maryland Approved Programs by Certification Area Maryland Institutions of Higher Education

Maryland Institutions of Higher Education
2014-2015
Date run: 8/19/2016

Certification Area		Projected Candidate Supply	Projected Candidate Supply
Total		**2,926**	**3,047**
Arts Total		**143**	**166**
Arts	Art (PreK-12)	76	79
	Dance (PreK-12)	13	15
	Music (PreK-12)	51	69
	Theatre (7-12)	3	3
Career/Technology Education (7-12) Total		**4**	**6**
Career/Technology Education (7-12)	Agriculture/Agribusiness	0	0
	Business Education	3	6
	Family and Consumer Sciences	1	0
	Technology Education	0	0
Computer Science (7-12) Total		**0**	**1**
Computer Science (7-12)	Computer Science (7-12)	0	1
ESOL (PreK-12) Total		**43**	**39**
ESOL (PreK-12)	ESOL (PreK-12)	43	39
Early Childhood (PreK-3) Total		**425**	**466**
Early Childhood (PreK-3)	Early Childhood (PreK-3)	425	466
Elementary Education (1-6) Total		**1,007**	**987**
Elementary Education (1-6)	Elementary Education (1-6)	1,007	987
English (7-12) Total		**166**	**154**
English (7-12)	English	166	154
Environmental Education (PreK-12) Total		**2**	**2**
Environmental Education (PreK-12)	Environmental Education (PreK-12)	2	2
Foreign Language (7-12) Total		**55**	**43**
Foreign Language (7-12)	Arabic	0	0
	Chinese	9	10
	French	11	14
	German	2	0
	Italian	0	4
	Japanese	0	0
	Latin	0	0
	Other (Specify)	0	0
	Russian	0	0
	Spanish	33	15
Health (PreK-12) Total		**23**	**25**
Health (PreK-12)	Health (PreK-12)	23	25
Mathematics (7-12) Total		**78**	**108**
Mathematics (7-12)	Mathematics (7-12)	78	108
Middle School Education (4-9) Total		**115**	**115**
Middle School Education (4-9)	Middle School Ed: English/Lang Arts	12	17
	Middle School Ed: Mathematics	42	38
	Middle School Ed: Science	46	39
	Middle School Ed: Social Studies	15	21
Middle School: Grades 4-9 Total		**57**	**62**
Middle School: Grades 4-9	Middle School: Grades 4-9	57	62

Certification Area		Projected Candidate Supply	Projected Candidate Supply
Physical Education (PreK-12) Total		**87**	**81**
Physical Education (PreK-12)	Physical Education (PreK-12)	87	81
Science (7-12) Total		**105**	**102**
Science (7-12)	Biology	60	63
	Chemistry	25	23
	Earth/Space	17	13
	Physical Science	0	0
	Physics	3	3
Social Studies (7-12) Total		**157**	**176**
Social Studies (7-12)	Geography	0	0
	History	45	46
	Social Studies	112	130
Special Education Total		**458**	**511**
Special Education	Generic: Elementary/middle (grades 1-8)	288	305
	Generic: Infant/primary(birth-grade 3)	63	99
	Generic: Secondary/adult (grades 6-adult)	107	107
	Hearing Impaired	0	0
	Severely & Profoundly Disabled	0	0
	Visually Impaired	0	0

Rows 1 - 66 (All Rows)   .

The next chart breaks down the numbers of candidates who complete programs by IHE, by year. The chart below shows those data for academic year 2014-2015. Multiple years are available on the dashboard.

Newly Eligible Candidates from Maryland Approved Programs by Institution
Maryland Institutions of Higher Education 2014-2015

Institution	Maryland Approved Program Graduates
Grand Total	**2,759**
Bowie State University>	73
Coppin State University>	18
Frostburg State University>	141
Goucher College	36
Hood College	119
Johns Hopkins University	49
Loyola University Maryland	101
Maryland Institute College of Art	30
McDaniel College	31
Morgan State University	15
Mt. St. Mary's University	56
Notre Dame of Maryland University	351
Peabody Institute of the JHU	8
St. Mary's College of Maryland	26
Salisbury University>	230
Stevenson University	52
Towson University>	901
University of Maryland Eastern Shore>	16
University of Maryland University College>	47
University of Maryland Baltimore County>	102
University of Maryland College Park>	333
Washington Adventist University	7
Washington College	17

In addition to college and university traditional teacher preparation programs, Maryland has a robust and rigorous alternative route to certification that utilizes the Resident Teacher Certificate, as described earlier in this report. The data collection for MAAPPs is web-based, meaning that whenever a user submits new data, it is reflected immediately on the dashboard. The user will also note that a number of years of historical data can be found. This dashboard is called *Hires from MAAPP*. All MAAPP resident teachers represent new hires in the chart of new hires found on page 18 of this

report since candidates are accepted into a program only if the sponsoring LSS projects a need in a particular certification area and if the candidate is successful in the preparation program. Again, for complete data on MAAPPs, please visit the MAAPP dashboard.

The chart below shows the number of teachers hired in 2014-2015 who received initial certification, the Resident Teacher Certificate, through MAAPP. It should be noted that, of the 1049 inexperienced, new teachers hired in Maryland in 2014-2015, 480 (46%) were hired as Resident Teachers through MAAPPs. Because MAAPP data collection is live, MSDE is able to report that there are 372 Resident Teachers serving as teachers of record in 2016-2017. As revealed by the chart below and on the dashboards, MAAPPs are located exclusively in the central, highly populated LSSs in the state, offering no relief for smaller, but no less critical, needs for using alterative pathways outside the central Maryland region. MSDE is currently reaching out to both the Western and Eastern Shore LSS to discuss possible cost-effective expansion of this opportunity.

Initial Hires from Maryland Approved Alternative Preparation Programs
2014-2015
Date run: 8/19/2016

Local School System / Partner and Program Provider	Number of Initial Hires	
	2014 - 2015	2015 - 2016
Grand Total	**480**	**372**
Anne Arundel Co Public Schools / Anne Arundel Community College (AACPS/AACC)	6	8
Anne Arundel Co Public Schools/ Notre dame of Maryland University (AACPS/NDMU)	8	-
BCPS/TFA	9	-
Baltimore City Public Schools/TNTP Academy (formerly BCTR)	130	126
Baltimore City/Baltimore Co Public Schools Teach for America (BC/TFA)*	142	97
Baltimore City/Urban Teacher Center (BC/UTC)*	30	37
Baltimore County Public Schools/ Goucher COllege (BCPS/GC)	10	8
Montgomery Co Public Schools / Montgomery Community College (MCPS/MCC)	10	12
Prince George's Co Public Schools/MSMaRT (PGCPS/ UMCP)*	11	-
Prince George's Co Public Schools/Notre Dame of Maryland University (PGCPS/ NDMU)	40	22
Prince George's Co Public Schools/Resident Teacher (PGCPS/ RT)	45	37
Prince George's Co Public Schools/Teach for America (PGCPS/ TFA)	39	25

Research indicates that it is an advantage to students to have instructors who reflect to as great an extent as possible the demographic population of the school setting. IHEs are held accountable for not only the recruitment of a diverse population of teacher candidates, but providing them with the experiences necessary to teach a widely diverse population of children. The next dashboard shows the number and percentage of minority program completers from MAPs over a four-year period. On the dashboard, click on the **blue** hyperlinks to see the results by individual IHE. This dashboard is titled *Trend Data: Minorities from IHE.* In 2008-2009, minorities represented 21.3% of program completers followed by several years of reduced minority participation. Minority representation in the current completing class shows a gradual increase from 16.9% in 2011-2012 to 19.6% in 2014-2015.

Trend Data: Minority* Teacher Candidates from Maryland Approved Programs
Maryland Institutions of Higher Education

2011 -2012			2012 -2013			2013 -2014			2014 -2015		
Total	Minority	%	Total	Minority	%	Total	Minority	%	Total	Minority	%
2,823	478	16.9%	2,744	514	18.7%	2,778	462	16.6%	2,759	542	19.6%

Demographic data for MAAPPs often show a higher number of participants from minority groups than traditional preparation programs. Detailed information regarding MAAPPs can be found on the MAAPP dashboard. The most recent data are from 2013-2014 reflecting about 50% minority hiring through MAAPPs. (Click on *View All Dashboards* and select *MAAPP* for more years of data).

The next dashboard, *Minority New Hires by Certification,* offers additional information about the minority demographic in hiring. Four years of data are shown on the dashboards which illustrate a breakdown by general areas of certification as well as that same breakdown by each IHE. Screen shots are not available for these data.

Just as the minority status of supply and demand is tracked, so is the gender of those prepared and hired in Maryland. The next dashboard, *New Hires by Gender,* shows the results.

New Hires in Certification Areas by Gender Maryland Public Schools
Maryland Public Schools: 2014-2015
Date run: 8/19/2016

Certification Area	Total New Hires by Gender	Male Number	Male Percentage	Female Number	Female Percentage
Total New Hires	**6,048**	**1,300**	**21.5%**	**4,748**	**78.5%**
Career/Technology Education (7-12)	188	91	48.4%	97	51.6%
Computer Science (7-12)	19	10	52.6%	9	47.4%
ESOL (PreK-12)	96	12	12.5%	84	87.5%
Early Childhood (PreK-3)	570	26	4.6%	544	95.4%
Elementary Education (1-6 Middle School)	1,975	217	11.0%	1,758	89.0%
English (7-12)	459	105	22.9%	354	77.1%
Foreign Language (7-12)*	276	46	16.7%	230	83.3%
Health (PreK-12)	47	15	31.9%	32	68.1%
Health/Physical Education (PreK-12)	35	18	51.4%	17	48.6%
Mathematics (7-12)	391	145	37.1%	246	62.9%
Middle School Education (4-9)	89	25	28.1%	64	71.9%
Other Teaching Areas	111	25	22.5%	86	77.5%
Physical Education (PreK-12)	135	77	57.0%	58	43.0%
Science (7-12)	313	105	33.5%	208	66.5%
Social Studies (7-12)	313	160	51.1%	153	48.9%
Special Education	626	121	19.3%	505	80.7%
The Arts	405	102	25.2%	303	74.8%

New Hires in Certification Areas by Gender Maryland Public Schools
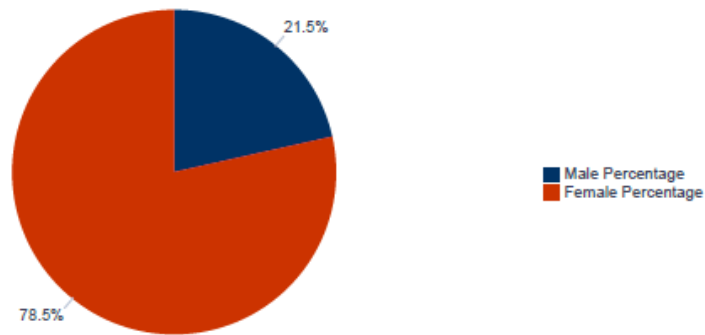
Even though the male population of new hires is significantly smaller in all areas of certification, the gap is even wider in the areas of ESOL, Early Childhood Education, Elementary Education, World Languages, and Special Education where males make up 20% or less of the new hires.

The final dashboard supplies the production side of the equation for program completers by gender. It is *MAP graduates by Gender.*

Teacher Graduates from Maryland Approved Programs by Gender
Maryland Institutions of Higher Education : 2014-2015
Click on Certification Area name to go to IHE detail

| Certification Area	Total	Male Number	Percent	Female Number	Percent
Total	**2,759**	**566**	**20.5%**	**2,193**	**79.5%**
Career/Technology Education (7-12)	8	5	62.5%	3	37.5%
Computer Science (7-12)	1	0	0.0%	1	100.0%
ESOL (PreK-12)	35	5	14.3%	30	85.7%
Early Childhood (PreK-3)	398	13	3.3%	385	96.7%
Elementary Education (1-6)	912	83	9.1%	829	90.9%
English (7-12)	154	37	24.0%	117	76.0%
Environmental Education (PreK-12)	0	0	0.0%	0	0.0%
Foreign Language (7-12)^	53	7	13.2%	46	86.8%
Health (PreK-12)	27	12	44.4%	15	55.6%
Mathematics (7-12)	71	22	31.0%	49	69.0%
Middle School Education (4-9)	82	82	100.0%	0	0.0%
Middle School: Grades 4-9	44	9	20.5%	35	79.5%
Other Teaching Areas	1	1	100.0%	0	0.0%
Physical Education (PreK-12)	86	52	60.5%	34	39.5%
Science (7-12)	95	34	35.8%	61	64.2%
Social Studies (7-12)	164	97	59.1%	67	40.9%
Special Education	463	66	14.3%	397	85.7%
The Arts	165	41	24.8%	124	75.2%

Production data nearly mirrors that of hiring data in the certification areas where males make up 20% or less of the completers.

It should be noted, when attempting to make comparisons between traditional and alternative programs in the discussion of minority and gender participation, that there are career changers participating in MAAPPs. A number of Resident Teachers, therefore, already had successful careers and often are not in search of the financial rewards that opportunities outside of education may afford, but see teaching as a way of "giving back" to the community. There are significant differences between the young college graduate and the more mature career changer which may be reflected in these data. The bar chart below reflects 2013-2014 data from MAAPP. Comparison data from other years can be found on the MAAPP dashboard.
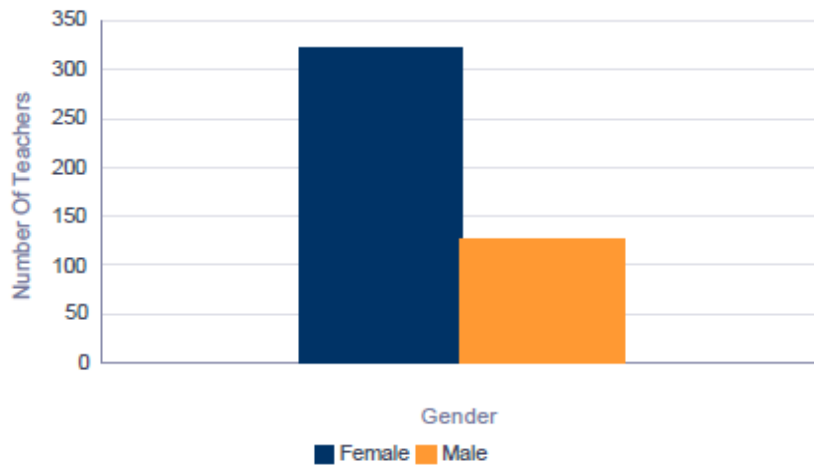
Conditional Teachers

The chart on the next page reflects a two-year comparison of the total number of conditionally certified teachers by local school system. *Newly Hired Maryland Teachers with Conditional Certificates* reports the total number of newly hired teachers in 2014-2015 and 2015-2016 holding Conditional Certificates.

Teachers Issued a Conditional Certificate: Two-Year Comparison*
Maryland Public Schools
2014-2015 and 2015-2016

Local School System	2014-2015**			2015-2016***		
	Number of Teachers	Number of Conditional Teachers	Percent of Conditional Teachers	Number of Teachers	Number of Conditional Teachers	Percent of Conditional Teachers
Allegany	629	3	0.5%	609	1	0.2%
Anne Arundel	5,457	101	1.9%	5,524	91	1.6%
Baltimore City	5,247	119	2.3%	5,264	147	2.8%
Baltimore	7,402	121	1.6%	7,373	103	1.4%
Calvert	1,043	14	1.3%	1,005	10	1.0%
Caroline	403	6	1.5%	405	5	1.2%
Carroll	1,883	34	1.8%	1,856	30	1.6%
Cecil	1,145	3	0.3%	1,160	1	0.1%
Charles	1,776	36	2.0%	1,791	45	2.5%
Dorchester	371	14	3.8%	386	13	3.4%
Frederick	2,706	14	0.5%	2,640	10	0.4%
Garrett	289	0	0.0%	292	1	0.3%
Harford	2,619	14	0.5%	2,609	16	0.6%
Howard	4,073	40	1.0%	4,148	42	1.0%
Kent	159	2	1.3%	156	2	1.3%
Montgomery	10,574	38	0.4%	10,541	50	0.5%
Prince George's	8,727	264	3.0%	8,901	284	3.2%
Queen Anne's	518	4	0.8%	518	5	1.0%
St. Mary's	1,048	6	0.6%	1,061	15	1.4%
SEED School	40	2	5.0%	39	2	5.1%
Somerset	224	4	1.8%	229	3	1.3%
Talbot	317	1	0.3%	321	4	1.2%
Washington	1,547	10	0.6%	1,524	9	0.6%
Wicomico	1,098	17	1.5%	1,111	18	1.6%
Worcester	596	4	0.7%	590	5	0.8%
STATE TOTAL	**59,891**	**871**	**1.5%**	**60,053**	**912**	**1.5%**

* A conditional certificate is issued at the request of the local school system superintendent for two years to individuals who do not me

  all certification requirements. The local school system may request a renewal according to state regulations.

** Based on teachers employed by local school systems as of October 2014.

*** Based on teachers employed by local school systems as of October 2015.

SOURCE: Maryland State Department of Education, 2016

Data Sources Used to Determine Shortage Areas

In 2014, the State Board directed DEE to update its method of calculating teaching shortage areas to ensure that, wherever possible, actual rather than survey data support the basis for such calculations. DEE worked in partnership with the Maryland Assessment Research Center (MARC) to develop a revised formula. Data used for this report are provided by DCAA which annually collects data from LSS, as well as from colleges and universities, MAAPP providers, and both LSS and IHEs reporting directly to DEE.

The calculation of shortage areas of certification for the state is based on a regression analysis of hiring vs. production data using as many years of available data as possible. The resulting number and percentage of supply versus demand for each certification area is then related to the current LSS's projections of need. Five years of comparable data were available for this report.

In addition, DEE surveys the human resources directors in each of the LSSs in late August to provide a view of school staffing for the opening of school. The survey requests remaining vacancies, and continuing recruitment difficulties. These surveys from each LSS provide the most current available information at the point of the opening of schools each fall. These data, however, are not gathered uniformly across the state with specific vacancies in specific areas of shortage. The surveys provide snapshots of existing vacancies, but are not considered as part of the calculated data. This is not to minimize the importance of the surveys, but in fact, function in quite the opposite manner. In addition to providing further support for the identification of easily-recognized areas of teacher shortage, they also capture shortages of individuals with the abilities and skills, as well as credentials, to teach carpentry, the Allied Health programs, or nanotechnology, for example, that the previous data documents do not collect. This will be discussed more fully in the section **Certification Areas by Extent of Staffing Need**.

Formula Process for Determining Shortage Areas

1. Add hiring data by certification area for as many years as available. Add IHE production data by certification area for as many years as data are available for hiring. The sum of the hiring data becomes the numerator; the sum of the production data becomes the denominator. Divide the fraction/ratio by number of years available.

2. Subtract the resulting denominator from the projected current need. Extract the % of shortage.

Equation

Percentage of Shortage = Current year need – supply quotient of the

sum of available years of hiring data   # of years of hiring data

_____   \   _____ \ current year need

sum of equal # of available years of supply data   # of years of supply data

Rubric for Determining Critical Shortage Content Areas
2016-2018

Objective: To determine the State's critical shortage areas using the following rubric.

The rubric provides a score for each content area. The percentages are derived from a five-year regression model that utilizes production data from Maryland colleges and universities, as well as both actual hiring numbers and projection estimates from all Maryland local school systems by certification area. Hiring data include in-state, out-of-state, and those prepared through Maryland Approved Alternative Preparation Programs. This regression model was developed in partnership with the Maryland Assessment Research Center located at the University of Maryland, College Park. Detailed calculation sheets and rubric determinations are available in the Division of Educator Effectiveness, Maryland State Department of Education.

Content Area: ____ _____

	Statewide Critical Shortage	Statewide Shortage	Statewide Balance	Statewide Oversupply	Total
Criteria	**4 points**	**3 points**	**2 points**	**1 point**	
1. State projection formula	70 % – 100% shortage:	30% - 70% shortage:	0% to 30% shortage:	Supply is greater than 100% that of projected need.	
2. Projected Need	Need is 10 or more in number:	Need is 10 or fewer in number:	Need is 10 or fewer in number:	No need is reported.	

For all content areas, use the following scale:
          _____ 7-8 points, statewide critical shortage area
          _____ 5-6 points, statewide shortage area, but not critical
          _____ 3-4 points, content area is in state balance.
          _____ 0-2 points, content is an area of oversupply

DECISION:_____

Certification Areas by Extent of Staffing Need

The critical shortage areas identified are valid for a one-year period, 2017-2018. Although the report is produced biennially, critical shortage areas will be calculated and reported for 2018-2019 in September 2017. The results for 2017-2018 are displayed below. They have been categorized into *Shortage, Critical Shortage, Balanced and Surplus*.

DEE added the *Shortage* category with this report to reflect growing needs across the state which may be fewer than ten in number, in areas not represented through traditional supply and demand data collection, and to highlight those areas of shortage which do not quite rise to the level of critical. Many LSSs report acute difficulties in recruiting for Professional Technical Education areas of instruction, such as culinary arts, nursing, cosmetology, TV production, carpentry, Homeland Security, engineering, masonry, and auto mechanics. In addition, there are expressed needs for part-time instructors in specialized sub-content areas such as nanotechnology and other high-level mathematics and science subjects and in such areas as American Sign Language. 60% of LSSs report growing need for Speech/Language Pathologists, a field which does not require certification, but licensure. Pupil Personnel Workers appear to be in short supply for many LSS, as well, and nearly all LSS report difficulty in recruiting minority candidates for their classrooms.

Elementary education is reflected for the first time in many years as an area of slight shortage, and biology returned to the critical shortage list, joining all other areas of secondary science.

It is always important to understand that, in a report that garners its data from statewide supply and demand sources and uses that data to provide a statewide snapshot, some LSS will report an oversupply of teachers in certain areas while others have continued difficulty recruiting in the same area. In addition, it should be noted that, although IHEs produced 2,759 program completers eligible for Maryland certification, there are no data on how many actually sought that certification, nor how many who did seek certification also sought employment in Maryland. There are also no data on those who became certified, and subsequently hired, through transcript analysis. Subtracting the 447 teachers hired as Resident Teachers from the total 1,049 Maryland-prepared inexperienced new teachers, data suggest that, at best, only 602 of the total 2,759 prepared in Maryland IHEs were actually hired in Maryland public schools in the period between October 2013 and October 2014, reflected in this report as 2014-2015.

Extent of Staffing Need September 2016

Category	Shortage	Critical Shortage	Balanced	Surplus
Certification Area				
The Arts				
Art (PreK-12)		X		
Dance (Pre-K-12)		X		
Music (PreK-12)	X			
Theatre (PreK-12)	X			
Career/Technology Education (7-12)				
Agriculture			X	
Business Education	X			
Family and Consumer Sciences		X		
Technology Education		X		
Computer Science (7-12)		X		
Early Childhood (PreK-3)	X			
Elementary Education (1-6)	X			
English		X		
ESOL (PreK-12)		X		
Foreign Language (7-12)				
Arabic	X			
Chinese				X
French		X		
German	X			
Italian	X			
Latin	X			
Japanese	X			
Russian	X			
Spanish		X		
Health/Physical Education (PreK-12)			X	
Mathematics		X		
Science (7-12)				
Biology		X		
Chemistry		X		
Earth/Space Science		X		
Physical Science		X		
Physics		X		
Social Studies (7-12)				X
Special Education				
Generic: Infant/primary (Birth-grade 3)		X		
Generic: Elementary/Middle (1-8)		X		
Generic: Secondary/Adult (6-adult)		X		
Hearing Impaired		X		
Severely and Profoundly Disabled			X	
Visually Impaired		X		

Revised 9/1/2016

GEOGRAPHIC AREAS OF PROJECTED SHORTAGE

Maryland legislation enacted in 1986 (Annotated Code of Maryland, Education Article §18-703) required the State Board to annually identify geographic areas of teacher shortages. The intent of the legislation was to assist LSSs affected by geographical conditions that make the recruitment and retention of qualified teachers difficult. However, when the scholarship incentive to teach in a declared area of geographic shortage was repealed, MSDE made the decision to continue to collect this information for some federal loan forgiveness programs that use geographic shortage areas.

Procedures

To determine the areas of geographic shortage, the procedures outlined below were followed. The State Board must have identified content areas as critical shortages for *at least three years.* Those areas identified as critical shortage areas for at least three years for this report are *computer science, technology education, ESOL, mathematics, chemistry, earth space science, physical science, physics, and most areas of special education.* Each local school superintendent was surveyed to determine if he/she was able to satisfy the need for teachers in any of the above identified critical shortage areas and was asked to respond to two questions:

1. Did your local school system experience a critical shortage of teachers in any of the following state identified critical shortage areas: *computer science, technology education, ESOL, mathematics, chemistry, earth space science, physical science, physics, as well as all areas of special education?*

2. If yes, do you wish to have your local school system declared an area of geographic shortage?

Each local school system superintendent must agree to have his or her system designated as an area of geographic shortage, based on the above information.

Findings: All LSSs have requested designation as areas of geographic shortage.

1. Allegany County
2. Anne Arundel County
3. Baltimore City
4. Baltimore County
5. Calvert County
6. Caroline County
7. Carroll County
8. Cecil County
9. Charles County
10. Dorchester County
11. Frederick County
12. Garrett County
13. Harford County
14. Howard County
15. Kent County
16. Montgomery County
17. Prince George's County
18. Queen Anne's County
19. St. Mary's County
20. Somerset County
21. Talbot County
22. Washington County
23. Wicomico County
24. Worcester County

NON-CLASSROOM PROFESSIONALS

At the request of the State Board, MSDE has collected information for several years from LSSs and IHEs on the supply and demand for select non-classroom professional positions. These positions are: guidance counselor, library/media specialist, principal, reading specialist, and school psychologist.

Staffing Projections for Non-Classroom Professionals

Staffing Projections of Local School Systems for Non-Classroom Professionals presents projected needs identified by local school systems for the 2016-2017 and 2017-2018 school years for six non-classroom professional positions.

Although speech/language pathologists are no longer certified by MSDE (they are licensed by the state), House Bill 1235 designated speech language pathology as an area of critical shortage, and thus they have been added to the MSDE shortage list. By declaring this area one of declared shortage, possible participants become eligible for the Retire/Rehire Program.

**Staffing Projections of Local School Systems for
Non-Classroom Professionals
Maryland Public Schools 2016-2017, 2017-2018**

Non-Classroom Professionals	2016-2017	2017-2018
Guidance Counselor	131	135
Library/Media Specialist	70	93
Reading Specialist	35	35
School Psychologist	53	49
Principal	107	119
Speech/Language Pathologist	109	115

Source: LSS May 2016

Supply of Non-Classroom Professionals

Supply of Non-Classroom Professionals from Maryland Institutions of Higher Education presents one year of actual completers from 2014-2015 in six areas of non-classroom professionals. It should be noted that MSDE has access to graduates of Maryland institutions only, but many in-state professionals may go to nearby Washington D.C., Virginia, or Delaware for their graduate degrees, given the proximity of many IHEs there. Additionally, many online options are now available. Therefore, the number of graduates reported here may be smaller than the personnel actually available to school systems.

**Supply of Non-Classroom Professionals from
Maryland IHEs
2014 - 2017**

Non-Classroom Professionals	Completers 2014-2015	Projected Completers 2015-2016	Projected Completers 2016-2017
School Counselor	154	143	156
Library/Media Specialist	63	53	26
Reading Specialist	154	121	132
School Psychologist	19	9	5
Principal	420	370	388
Speech/Language Pathologist	95	51	53

Source: Institutions of Higher Education, May 2016

MSDE also collects the number of graduates of non-classroom professional positions by IHE. *Newly Eligible Non-Classroom Professional Graduates by Institution and Program,* can be found on the dashboard. No screen shot is available.

Non-Classroom Professionals by Extent of Staffing Need

      Non-Classroom Professionals by Extent of Staffing Need is calculated based on projected two-year need from LSSs, one year actual IHE production data, and two years of projected production data. It should be noted that, while this determination of need is based less on actual data and more on survey and projection data, last-minute vacancies collected in late August 2016 seem to confirm the findings.

      Within the limitations of this study of projected shortages and apparent imbalances in supply and demand, MSDE uses three categories of projections: *Critical Shortage, Balanced, and Surplus*. To summarize, this year the non-classroom professionals that are declared as critical shortage areas in Maryland are library media specialist, school psychologist, and speech/language pathologist.

Certification Area	Critical Shortage	Balanced	Surplus
School Counselor			X
Library/Media Specialist	X		
Principal			X
Reading Specialist			X
School Psychologist	X		
Speech/Language Pathologist	X		

      Several of the above positions may be considered career pathways for teachers and are all essential to having successful schools for Maryland's PreK-12 population.

RECOMMENDATIONS TO THE MARYLAND STATE

BOARD OF EDUCATION

MSDE is recommending to the State Board the certification and geographic areas of critical shortage, consistent with Education Article §18-708, *Workforce Shortage Areas (rev. 2014),* found in the Annotated Code of Maryland. A declared shortage recommendation on gender and diversity in teaching is made, and inclusion of certain non-classroom professional positions as critical shortage areas is presented. The recommendations for 2017-2018 are below.

Recommendation 1: The Maryland State Board of Education declares the following content areas as critical shortage areas:

- Career and technology areas (7-12)
    - Technology education
    - Family and Consumer Sciences
- Computer science (7-12)
- Business Education (7-12)
- English (7-12)
- English for Speakers of Other Languages (ESOL) (PreK-12)
- Mathematics (7-12)
- Middle School Education (4-9)
    - English/Language Arts
    - Mathematics
    - Science
    - Social Studies
- Science areas (7-12)
    - Biology
    - Chemistry
    - Earth/Space Science
    - Physical Science
    - Physics
- Special education areas
    - Generic: Infant/primary (birth-grade 3)
    - Generic: Elementary/middle school (grades 1-8)
    - Generic: Secondary/adult (grades 6 – adult)
    - Hearing Impaired

- o Visually impaired
- World language areas (PreK-12)
  - o French
  - o Spanish
- The Arts:
  - o Art (PreK-12)
  - o Dance (PreK-12)

The above areas of certification for 2017-2018 will be reported to the USDE as Maryland's teaching areas of critical shortage in November 2016, with the State Board adoption of this report. Identified areas for 2016-2017 can be found in the Teacher Staffing Report 2014-2016.

Recommendation 2: The Maryland State Board of Education declares the following twenty- four (24) Maryland jurisdictions as geographic areas of projected shortage of certified teachers:

1. Allegany County	13. Harford County
2. Anne Arundel County	14. Howard County
3. Baltimore City	15. Kent County
4. Baltimore County	16. Montgomery County
5. Calvert County	17. Prince George's County
6. Caroline County	18. Queen Anne's County
7. Carroll County	19. St. Mary's County
8. Cecil County	20. Somerset County
9. Charles County	21. Talbot County
10. Dorchester County	22. Washington County
11. Frederick County	23. Wicomico County
12. Garrett County	24. Worcester County

Recommendation 3: The Maryland State Board of Education declares a shortage of teachers who are males, and a shortage of teachers who are members of minority groups.

Recommendation 4: The Maryland State Board of Education declares a shortage of the non-classroom professional positions of library/media specialist, school psychologist, and speech/language pathologists.