MARYLAND HIGHER EDUCATION COMMISSION

A STUDY OF THE CAPACITY OF TEACHER PREPARATION PROGRAMS IN MARYLAND

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EXECUTIVE SUMMARY

Maryland, like most other states, faces a potentially serious shortage of teachers in the coming decade. The State's public school systems will need to hire nearly 9,000 new teachers next year. Nearly half of the public school teachers in Maryland will be eligible to retire within two years. This study examines the capacity of teacher preparation programs at Maryland colleges and universities to increase their production of new teachers.

The study analyzes both the supply and demand aspects of the capacity issue in Maryland. On the supply side, it looks at the intended majors of college-bound high school graduates, the number of students who enroll in teacher preparation programs and how many additional students could be accommodated within current resources, the number of certified teachers being produced, and the anticipated number of teacher candidates expected in the next two years. Figures are presented by subject area and institution. On the demand side, it examines the number of new hires by Maryland school systems and the sources from which they were recruited, the certification areas in which shortages are expected, and the number of new teachers by subject area who are expected to be needed by Maryland schools during the next two years. The statistical information was supplemented with interviews with the heads of selected teacher preparation programs in Maryland. The study concludes with policy questions arising from the results.

These are highlights of the study:

The Supply of Prospective Teachers

- Approximately eight percent of Maryland's college-bound high school seniors have expressed an intention to major in education during the past several years.

- Undergraduate and master's level graduate enrollment in Maryland's teacher preparation programs in 1999 totaled 11,650. Nearly three-quarters were undergraduates and almost two-thirds were full-time undergraduates. Slightly more than one-fourth were graduate students, of whom the vast majority were enrolled part-time.

- Elementary education represented 42 percent of the students in teacher preparation programs, followed by special education (14 percent) and early childhood education (13 percent).

- Public colleges and universities accounted for 83 percent of all undergraduate teacher preparation students, while independent institutions enrolled 62 percent of all masters-level graduate students.

- The teacher preparation programs indicated that they could absorb an additional 4,600 students (3,000 of which would be undergraduates) within their current resources.

- Maryland produced 2,550 new teachers last year, the vast majority of whom came from one of the State's traditional teacher preparation programs.

- Six institutions, led by Towson University and University of Maryland College Park, produced more than two-thirds of the newly eligible teacher candidates in Maryland last year.

- The number of new teachers produced in Maryland is expected to rise to 3,026 or by 19 percent by 2002. Elementary education graduates are anticipated to make up a large percentage of the total growth.

The Demand for Teachers in Maryland

- The number of new teachers hired by Maryland public schools has nearly tripled in the past decade. In 1999-2000, the State's school systems hired 7,329 new teachers.

- The percentage of the new hires who were beginning teachers—recruited from a teacher preparatory program in or outside Maryland—has fallen steadily during the past six years from 64.1 percent to 53.2 percent.

- Maryland recruited just slightly over half of its new teachers from within the State in the past year. In half of the years in the past decade, a majority of the new teachers hired by Maryland public schools came from out-of-state. Several of the representatives of the teacher preparation programs interviewed for this study expressed concern about this trend and thought it should be reversed.

- There has been a sharp decline during the past three years in the percentage of new, beginning Maryland teachers who were recruited from a teacher preparation program in the State or the resident teachers program. Slightly more than one-fourth of the teachers hired in 1999-2000 came from this source—the lowest percentage in the past decade.

- The certification fields in which the largest number of new, beginning teachers graduated from a Maryland-based program were early childhood education, social sciences, art, health and physical education, ESOL, elementary education and science. Those subject areas with the lowest number included career/technology education, music, special education, and computer science.

- The certification subjects identified by the Maryland State Department of Education as constituting "critical shortage areas" for the next academic year are agriculture, art, computer science, ESOL, mathematics, certain science fields, Spanish, and special education. All or nearly all of the superintendents indicated that they anticipated shortages in mathematics, science, special education and technology education during the next five years.

- Maryland public schools estimate that they will need to hire 8,742 new teachers in 2001-2002. However, Maryland schools would be unable to hire at least 614 teachers in "critical shortage areas" where the demand is outstripped by the number of candidates in the entire expected hiring pool both within and outside the State.

- Several of the representatives of the teacher preparation programs (including three of the largest) doubted the desirability of addressing capacity issues by traditional means, specifically by hiring additional faculty and staff except in areas in which demand is rising and the supply is limited. Numerous alternatives were advanced about how teacher preparation programs could boost the number of new teachers.

INTRODUCTION

America's schools may face a critical shortage of qualified teachers in this decade. The U.S. Department of Education has forecasted that between 1.7 million and 2.7 million new public school teachers will be needed nationwide in the next 10 years. This has been prompted by demographics. As a result of the "baby boom echo," the number of elementary school students are projected to swell by 17 percent and high schoolers by 26 percent by 2008. These numbers will be impacted further by the national drives to reduce class size and to expand the education of pre-schoolers.

At the same time, school staffing has become challenging due to a variety of factors. First, teaching has a high attrition rate. According to national statistics, 7 percent of all teachers leave the profession each year and 20 percent of new hires seek other employment within three years. Second, teachers as a group are considerably older than the general population, and a large number will retire in coming years. Third, the teaching pipeline is leaking in the sense that the number of current college graduates who are entering the profession is not sufficient to meet the growing demand. Fourth, the booming economy has provided graduates with job opportunities that offer salaries that teaching cannot match. Finally, cumbersome hiring policies of some school districts may discourage qualified applicants from entering the profession. Urban areas, particularly those with a large proportion of low-income and minority residents, and rural communities are expected to face the greatest difficulty in filling vacant teaching positions.

Maryland is not immune from these trends. The Maryland State Department of Education (MSDE) has predicted that public schools will need to hire nearly 9,000 new teachers in the 2001-2002 academic year—almost double the number required five years earlier. All of the counties in the State and Baltimore City are expected to experience shortages of certified teachers. Nearly half of Maryland's 60,000 public school teachers will be eligible to retire within the next two years. The problem is compounded by the State's efforts to reduce the number of provisionally-certified teachers to five percent and to cut those teaching outside their fields. State and school officials have implemented a number of incentives and strategies to address the looming teacher shortfall. These include alternative certification routes for career-changers to enter the teaching profession, scholarship and loan-forgiveness programs, tax credits to offset tuition costs, signing bonuses, increased mentoring for beginning teachers, reemployment of retired teachers with no loss of pension benefits, a challenge program to local jurisdictions to raise teacher salaries, low-interest homeowner mortgages, and aggressive all-year hiring campaigns by local school districts. In addition, federal funds are available to states to implement programs to recruit qualified teachers.

One response to the anticipated shortfall in teacher supply would be to increase the State's capacity for preparing new teachers. The 22 Maryland colleges and universities that offer teacher preparation programs do not turn out nearly enough prospective

teachers to meet the demand. The number of teachers produced by Maryland's teacher preparation programs in the past year represents just one-quarter of the total that is expected to be needed by the school systems in the State in 2001--and many of these students will take jobs outside the classroom. To explore this issue, the Leadership Council of the Maryland Partnership for Teaching and Learning K-16 encouraged the Maryland Higher Education Commission to conduct a study of the capacity of teacher preparation programs at Maryland colleges and universities to increase their production of new teachers and help to provide the number of teachers needed by the State.

The Commission agreed to undertake this study in cooperation with MSDE, the school superintendents, and the teacher preparation programs at the various colleges and universities. The Commission staff developed a preliminary set of research questions for the study, which was reviewed by an advisory group consisting of deans and department chairs in teacher preparation programs, other campus administrators, institutional researchers, and representatives from MSDE, the University System of Maryland, and the Maryland Independent College and University Association. Major changes were made in the study design as a result of the suggestions of the advisory group.

This report examines both supply and demand aspects of the capacity question. On the supply side, it looks at the percentage of Maryland high school graduates who express an intention to pursue a career in education, the number of students who enroll in each teacher preparatory program in Maryland by subject and institution and how many additional students each program could absorb with quality within its current resources, the number of certified teachers that are being produced in the various academic fields and at each institution, the campuses which the school systems identified as their chief suppliers of teachers, and the anticipated number of teacher candidates in each certification area during the next two years.

On the demand side, it analyzes the number of new hires by Maryland school systems by certification area and the sources from which they were recruited, the fields for which school systems expect to experience the greatest shortages in the number of new teachers during the next five years, and the number of new teachers by subject who are projected to be needed by Maryland public schools during the next two years.

Numerous sources were used for this study, including data obtained from The College Board, MSDE, follow-up surveys of bachelor's degree recipients conducted by the Commission, Maryland's superintendents of schools, and a survey of the teacher preparation programs at Maryland public and independent colleges and universities. The statistical information was supplemented by interviews with the heads of teacher preparation programs at 10 Maryland institutions and by a review of the literature on the critical issues in teacher supply and demand.

The study concludes with policy questions that were raised by the findings.

THE SUPPLY OF PROSPECTIVE TEACHERS IN MARYLAND

Emerging trends in the career patterns of young Americans can often be spotted in the questionnaires they complete when taking the standardized entrance tests sponsored by The College Board and the American College Testing Program. College-bound students are asked to identify their intended major, and the results have reflected accurately both future enrollments in higher education and interest in occupations.

During the past 10 years, the percentage of Maryland high school seniors taking the Scholastic Achievement Test who indicated that they planned to major in education has remained relatively constant between 6.5 percent and 8.1 percent (Table 1). However, the figure has been much closer to the top of this range for the past five years, with 7.8 percent of the students in 1999 and 2000 selecting education as their likely field of study. This figure is notable in that it suggests that a small but increasing percentage of Maryland students are attracted to the education profession even though jobs with considerably higher salaries are readily available in the current strong employment market.

A more immediate gauge of how many teachers will be entering the profession is the current enrollment in teacher preparation programs. To identify the number of students who have enrolled in these programs at Maryland colleges and universities, a questionnaire was sent to the heads of the departments and schools of education at each institution. The survey sought figures about the number of undergraduate and masters-level graduate students who were enrolled in the campus' teacher preparation program in 1999 on the basis the areas of teacher certification used by MSDE. Respondents were asked to include students in the Masters of Arts in Teaching (MAT) program in their graduate figures, but not to report those enrolled for in-service education. This survey was necessary because little of this information is available at the Commission. Most secondary education students in Maryland major in their actual disciplines, and the Commission's data systems do not identify these individuals on this basis. All of the 22 colleges and universities which offer teacher preparation programs in the State responded to the survey. The figures for Peabody Conservatory of Music were combined with those from The Johns Hopkins University. Information also was supplied by one institution, Sojourner-Douglass College, that offers education programs but does not certify teachers. A copy of the questionnaire is in the appendix.

Tables 2 and 3 contain the enrollment figures by certification area and institution respectively. In fall 1999, the number of individuals attending teacher preparatory programs at Maryland campuses as undergraduates or masters-level graduate students totaled 11,650. Nearly three-fourths of these (8,586) were undergraduates, and almost two-thirds (7,688) were full-time undergraduates. Slightly more than one-fourth (3,064) were masters-level graduate students, of whom 2,322 were part-timers.

Elementary education represented the largest number of students enrolled in teacher preparation programs by far (42 percent), followed by special education (14 percent), early childhood education (13 percent), physical education and social studies (5 percent each). Public colleges and universities accounted for 83 percent of all undergraduate teacher preparation students. Towson University had nearly one quarter (23 percent) of these students, followed by University of Maryland College Park (17 percent), Salisbury State University (12 percent), and Frostburg State University (8 percent). Eighteen percent attended one of the State's historically black colleges and universities. In contrast, 62 percent of the master's level graduate students in teacher preparation were found at independent institutions. The Johns Hopkins University, Loyola College and Western Maryland College absorbed the bulk of these enrollments.

To get a sense of the capacity of the teacher preparation programs to expand within existing resources, the institutions were asked to estimate the number of additional students their individual certification areas could absorb with quality within their current faculty and staff situation, facilities capacity and operating budget. Tables 4 and 5 display the responses on the basis of subject and campus. Statewide, the teacher preparation programs indicated that they could take on nearly 4,600 more students within their present circumstances. Nearly 3,000 of these represented undergraduate enrollments. A sizeable majority of these additional students (62 percent) fell into the certification fields of elementary education (776), special education (705), science (701), and early childhood education (642). Eight campuses represented the vast majority of these additional students. Bowie led by far with 1,328, followed by College of Notre Dame (663), Hood College (430), Towson (336), Salisbury (320), University of Maryland Eastern Shore (313), Coppin State College (301), and Western Maryland (300).

As would be expected, the teacher candidates produced in the State closely follow the enrollment patterns at the colleges and universities. As Table 6 shows, the supply of new teachers in Maryland totaled 2,550 in the past year. Nearly all of these (2,473) emerged from approved, traditional teacher preparation programs. Only a handful emerged from alternative mechanisms offered by the campuses, such as the resident teacher certificate program which is aimed at career changers and liberal arts graduates. Of the most recent teacher pool produced in the State, nearly 80 percent had been prepared in five disciplines: elementary education (1,012), early childhood (346), special education (303), social studies (194) and English/language arts (155).

Although 22 colleges and universities have certification programs, Table 7 shows that six institutions were responsible for more than two-thirds of the newly eligible teacher candidates educated in Maryland: Towson (503), UMCP (386), Notre Dame (276), Salisbury (254), Frostburg (165), and Johns Hopkins (159). However, these numbers provide an incomplete picture of the importance of campuses to the school systems in the State. Most school systems are dependent on the resources of institutions proximate to their location, and some campuses which produce fewer teachers than those cited

above have important appeal to school officials in some of the State's largest jurisdictions. This is demonstrated by the figures in Table 8.

Maryland's superintendents were asked to identify the teacher preparation programs which have been, and are likely to remain in the future, the chief suppliers of teachers for their schools. Responses were received from all but one school system (Harford). Towson, which certifies the single largest number of teachers, was the only institution to be mentioned by a majority of the superintendents (13), including those from most of the largest jurisdictions in Maryland. Salisbury had strong regional appeal, cited by all of the school systems on the Eastern Shore. So did Frostburg, which was identified by all of the school systems in Western Maryland as well as by Montgomery County and two Southern Maryland counties. UMCP was mentioned by the jurisdictions in the Washington, DC suburbs, and Bowie was cited by the two largest counties in this region. UMES was important to the schools on the Lower Eastern Shore, and Morgan State University was considered a chief supplier to three of the largest jurisdictions in the State (Baltimore City and County and Prince George's County).

These two sets of figures—the number of teacher candidates produced and the views of the superintendents-- provided the most important ingredients in selecting the 10 teacher preparation programs whose officials were interviewed for this study. Other factors which played a role included geographic, segmental and equal educational opportunity balance. The colleges and universities that were selected supplied 72 percent of Maryland's teacher candidates in 1999-2000: Bowie, Coppin, Frostburg, Johns Hopkins, Loyola, Morgan, Salisbury, Towson, UMCP and UMES.

The number of teacher candidates who earn their certification in Maryland is expected to rise modestly during the next two years (Table 9). The Maryland State Department of Education, which prepares projections of teacher supply annually, predicts that the pool of prospective new teachers will increase by 6 percent (to 2,706) in 2001 and by 19 percent (to 3,026) in 2002. Most of the combined two-year growth is expected to take place in the same fields that are generating the largest enrollments in Maryland's teacher preparation programs: elementary education (2,565 or 45 percent of the anticipated total number of teacher candidates), early childhood education (726 or 13 percent), and special education (609 or 11 percent).

THE DEMAND FOR TEACHERS IN MARYLAND

Maryland's public schools have experienced an intensive and increasing need to recruit teachers during the past decade. The number of new teachers hired by the State's school systems has nearly tripled since 1990-1991 from 2,692 to 7,329 (Table 10). Maryland's public schools have been turning more frequently in recent years to experienced teachers—both within and outside the State—to fill vacancies. The percentage of new hires who were beginning teachers has steadily declined for the past six years from 64.1 percent to 53.2 percent. Maryland also recruits many of its new teachers from outside the State. In 1999-2000, just 51 percent of the new hires were Marylanders--either beginning or experienced teachers. In half of the years in the past decade, a majority of the new teachers in Maryland classrooms were attracted from other states.

Notably, the percentage of new, beginning teachers who have been prepared in Maryland—the vast majority of whom are graduates of a traditional teacher preparation program—has declined sharply in the past three years. Just 22.7 percent of the new teachers hired in 1999-2000 were beginners drawn from a traditional teacher preparation program in Maryland or the resident teachers program (an alternative certification route). This is the lowest percentage in the past decade, down from 31.8 percent in 1997-1998. Indeed, prior to 1998-1999, beginners trained in Maryland accounted for between 30 and 34 percent of the newly hired teachers at Maryland public schools. This phenomenon is not occurring because a large percentage of new Maryland-trained teacher preparation graduates are taking teaching positions outside the State. A follow-up survey of 1997 bachelor's degree recipients from Maryland colleges and universities one year after graduation found that 82 percent of those who took full-time positions as teachers were working in Maryland. Figures from previous surveys were generally comparable.

The percentage of freshly hired teachers who were recruited directly from Maryland campuses varies by subject area (Table 11). In 1999-2000, beginning teachers recruited from a traditional teacher preparation program or the resident teacher program made up a greater than average percentage of the new hires in the certification fields of early childhood education (28.4 percent), social sciences (27.7 percent), art (27.3 percent), health and physical education (26.1 percent), ESOL (25.4 percent), elementary education (24.7 percent), and science (24.4 percent). Lower than average percentages of new hires came from these sources in career/technology education (10.7 percent), music (13.5 percent), special education (16.5 percent), computer science (16.7 percent), English (19.2 percent), mathematics (20.1 percent) and foreign language (20.4 percent).

Several of the certification areas in which Maryland public schools have experienced the greatest shortage of qualified teachers coincided with those in which they have recruited the smallest percentage of their new teachers directly from the campuses.

The Maryland Teacher Staffing Report 2000-2002 identified art, agriculture, computer science, ESOL, Spanish, mathematics, certain science subjects, and special education as "critical shortage areas" for the next academic year. All of these areas, except art and agriculture, also were cited in the previous year's staffing report. There were projected surpluses of teachers in the social sciences, early childhood education, music, elementary education, and English.

Asked by the Commission to name the subject areas in which their schools expect shortages in new teachers during the next five years, all or nearly all of the superintendents selected mathematics, science, special education, and career and technology education (Table 12). Foreign languages, notably Spanish, also was cited by a large number of the school systems.

The following table shows the certification areas in which there is a serious shortage of new teachers and in which the percentage being hired from Maryland's teacher preparation programs is below average. It also shows the fields in which there has been no shortage or a surplus—and in which the proportion of new teachers hired from Maryland campuses has been above average.

	Critical Shortage	**Surplus or No Shortage**
Above Average Hiring	Art, ESOL, Science	Early Childhood, Elementary Education, Health Physical Education, Social Sciences
Below Average Hiring	Agriculture, Career & Technology Education, Computer Science, Foreign Language, Mathematics, Special Education	English

In several certification areas, there will be insufficient supply from any source to meet the demand from Maryland schools. In 2001-2002, Maryland's public school systems estimate that they will need to hire 8,742 new teachers (Table 13). The anticipated staffing pool from which the schools will recruit these students is 10,351, and this figure reflects sources both within and outside Maryland and both beginning and experienced teachers. However, in several of the certification areas which have been described as "critical shortages," more teachers will be needed by Maryland schools than there will be suitable applicants from any source. To fill these vacancies, additional candidates would have to be produced by Maryland's campuses or recruited in some other way. Statewide, Maryland public schools will require 614 teachers beyond the number that is projected to be available in the current pool. These additional teachers will be needed in the following certification areas:

Special Education	174
Severely Handicapped	92
Generic Infant – Grade 3	67
Generic Grades 1-8	17
Visually Impaired	4
Hearing Impaired	3
Science	116
Physical Science	64
Earth/Space Science	45
Physics	7
ESOL	111
Mathematics	69
Spanish	51
Computer Science	45
Art	30
Agriculture	17
Health Occupations	1

At least some of Maryland's teacher preparation programs indicated that they could expand the number of students in almost all of the above certification areas. The following are institutions which had enrollment in the above "critical shortage" certification areas in 1999; those in bold indicated that they could absorb at least some additional students within their current capacity.

Special Education	
Severely Handicapped	UMCP, Johns Hopkins
Generic Infant-Grade 3	**Bowie**, UMCP, Johns Hopkins
Generic Grades 1-8	**Coppin**, UMCP, **UMES, Goucher, Hood**, Loyola, **Notre Dame**, Western Maryland
Visually Impaired	*None*
Hearing Impaired	Western Maryland
Science	
Physical Science	**Towson**, UMBC
Earth/Space Science	**Bowie**, Frostburg, **Towson**, UMBC, UMCP, Johns Hopkins
Physics	Frostburg, **Towson**, UMBC, UMCP, Johns Hopkins, Loyola, **Western Maryland**
ESOL	UMBC, **UMCP, Notre Dame**
Mathematics	**Bowie, Frostburg, Salisbury, Towson, UMBC, UMCP, UMES, Morgan, St. Mary's, Columbia Union**, Hood, Johns Hopkins, Loyola, Mt. St. Mary's, **Notre Dame**, Washington, **Western Maryland**
Spanish	Frostburg, **Salisbury, Towson**, UMBC, **UMCP**, St. Mary's, **Hood**, Loyola, **Notre Dame, Western Maryland**
Computer Science	UMBC
Art	**Frostburg**, Salisbury, Towson, UMBC, UMCP, **UMES, St. Mary's**, Loyola, **Maryland Institute**, Mt. St. Mary's, Washington, **Western Maryland**
Agriculture	**UMES**
Health Occupations	*None*

PERSPECTIVES OF THE TEACHER PREPARATION PROGRAMS

If nothing is done, Maryland will face a shortage of teachers within the next two years in at least the above 15 certification areas. Maryland's schools do not appear to be likely to attract enough of these teachers from any sources to meet classroom demand. For other fields, Maryland may be able to find sufficient teachers—either beginning or experienced—from within the State or outside its borders in order to meet hiring needs. However, this should not be interpreted to mean that all school systems in Maryland are guaranteed to find qualified teachers in these areas. It only suggests that the prospective candidate pool is larger than the demand. Insufficient information is available to make projections beyond two years.

What is clear from the data is that Maryland's public schools are highly dependent on the recruitment of teachers from other states and experienced teachers working elsewhere in Maryland to satisfy staffing requirements. The proportion of new employees that come from one of Maryland's teacher preparation programs has slid sharply in recent years to less than one-fourth. As was noted earlier, this is an issue of production: the vast majority of teachers who graduate from a Maryland institution take jobs in the State.

One of the major purposes of the discussions that were held with selected heads of teacher preparation programs was to learn their views regarding the actions they can take to assist the recruitment efforts of the school systems. Several of the representatives of the teacher preparation programs expressed concern about the number of teachers recruited from outside the State. First, they felt it may not work for long, as other states adopt similar incentives to those that have been implemented in Maryland to attract new teachers. Second, they contended that out-of-state teachers are not as apt to be prepared to deal with Maryland's high school assessment efforts because of lack of familiarity. As one dean put it, "The State needs more Maryland-prepared teachers for Maryland students."

At the same time, several of the representatives of the teacher preparation programs (including three of the largest) expressed skepticism about the prospects of building institutional capacity through traditional means, notably the hiring more faculty and staff, except in areas of rising demand. Several reasons were offered. First, the impact of the additional faculty would not trickle down to the schools for several years and relieve the immediate need for more teachers in certain subjects. Second, excessive expansion of resources could prove to be wasteful in the long run, since the pressure to produce more teachers is likely to abate within the next seven years due to population changes. Said one dean: "It is difficult to hire tenured faculty for short-term purposes." Third, core faculty are costly. Fourth, there is a limited pool of people nationally with the credentials to serve in teacher preparation programs, and not all of them want to be faculty members at the college level. Finally, the use of part-time or

adjunct faculty to train teachers was anathema to some of the campus representatives, who pointed out that it would conflict with the standards desired for the professional development schools or required by accrediting bodies. "We have no desire to bring in adjunct faculty for the purpose of increasing the overall graduates," one dean insisted. Another dean commented that she supported efforts to meet the demand for new teachers but insisted that quality could not be compromised.

The campus representatives advanced several suggestions on how Maryland teacher preparation programs could increase the numbers of teachers quickly and in an effective manner. All would require additional resources for the programs, although much less than would be required to hire full-time core faculty.

1. Provide expanded post baccalaureate or M.A.T. training for provisionally certified teachers. This could be accomplished using a variety of delivery methods.

2. Attract community college transfer students through expanded articulation agreements and 2+2 arrangements, particularly in shortage areas. One dean suggested the creation of a special program that would allow the first two years of teacher training to occur at a community college. Students would then enter a three-year program in which they would divide their time between work in a school system and attendance in a degree program. At the end of the program, they would be eligible for a baccalaureate and certification.

3. Develop "fast track" options for career changers or students who decide late in college that they want to teach. This could involve summer institutes, special programs, resident certification, expanded M.A.T. programs, and the Teach for America program.

4. Hire a corps of Clinical Educators from the ranks of retired or soon-to-be retired teachers to assist in the preparation of new teachers. This proposal would be far less costly than hiring core faculty and would pose no long term commitment for the institution. Yet, these Clinical Educators would potentially be more qualified and motivated than traditional adjuncts or part-timers.

5. Create and expand "institutes for beginning teachers," which offer forums for current graduates and hotlines for new teachers. This approach, which has been used successfully at one institution, could provide the mentoring needed to increase the retention of teachers in the first year when some experience "burn out" and leave the profession.

6. Develop pre-college intervention programs that target promising students who show interest in teaching as a career. One institution participates in a Consortium of Minorities in Teaching Careers, in which high school students who have expressed interest in teaching as a career instruct elementary school students under the supervision of a master teacher. At another campus, the math department

coordinates faculty visits to the high schools for the purpose of recruiting promising students to the teaching profession.

7. Expand continuing education programs offered at off-campus sites, such as Shady Grove, the HEAT Center, Southern Maryland Higher Education Center, and Hagerstown, to provide greater access to teacher preparation curricula to students in all parts of the State.

8. Provide tuition support for teacher education students and guarantee all graduates a job after their earn their certification and degree.

9. Initiate a well-funded public relations campaign in the State designed to change the image of the teaching profession and put a "fresh and up-to-date" face on it. As one campus representative put it, "Once you get into education, there are perks—knowing that you were responsible for moving a kid from a state of intellectual nothingness."

POLICY QUESTIONS

The squeeze which Maryland school districts face in finding sufficient teachers for their classrooms compels policy makers to consider alternative strategies, options and actions for dealing with the situation. These decisions need to be made expeditiously to have an impact on short-term hiring. Judgments also must be made regarding the recruitment of teachers over the long term which will respond to areas of continued shortage. The key issue is what can be done by the State in general and Maryland higher education institutions in specific to produce additional candidates, in what areas, in what ways, and with what resources. These are policy questions emerging from this study.

To what extent can Maryland's participation in regional teacher quality and supply efforts help the State resolve its short-term need for new teachers?

In half of the years in the past decade, Maryland has imported most of its teachers from other states. These have either been experienced teachers working in schools or the graduates of education programs at out-of-state colleges and universities. In 1999-2000, just a bare majority of the new teachers hired by Maryland school districts came from within the State. Further, the proportion of new teachers drawn from one of Maryland's teacher preparation programs has slid sharply in recent years to less than one-fourth. This represents the lowest percentage of teachers recruited from Maryland campuses in the past decade.

It has become clear that teacher supply and quality is a regional issue. Maryland is currently working with Delaware, the District of Columbia, New Jersey and

Pennsylvania on the Mid-Atlantic Regional Teachers' Project to address concerns related to teachers as they are shared by these states. Current efforts include work on the construction of a database on issues of teacher quality, retention and attrition; the possibility of establishing an "electronic hiring hall" to match the needs of states and districts with applicants; and other efforts to reduce or remove obstacles to more efficient and effective regional efforts to recruit, hire and retain high-quality teachers.

What should Maryland higher education institutions do to address the immediate need for additional teachers?

Expanding faculty and staff has been the traditional way in which academic departments have responded to demands that they increase the number of students they enroll and the number of graduates they produce. While this approach is a reasonable response in the case of programs for which there is a great shortage of teachers and an anticipated long-term demand, it has shortcomings which were acknowledged by the representatives of the teacher preparation programs. The addition of new faculty would not lead immediately to more classroom teachers, it could result in overstaffing and wasted resources when demographic conditions change, it is expensive, there is no guarantee that enough qualified academicians could be found, and it could lead to the selection of part-time or adjunct faculty with marginal credentials and commitment.

Alternative strategies to the hiring of new faculty, all of which were suggested by the teacher preparation programs themselves, include expanded post baccalaureate or M.A.T. training for provisionally certified teachers, greater collaboration with community colleges through articulation agreements, "fast track" options for late deciders and career changers, the use of retired teachers to assist in the preparation of new teachers, formalized mentoring through institutes for beginning teachers, pre-college intervention programs to identify promising teachers as early as high school, tuition support for teacher education candidates, and the creation of a public relations campaign to polish the image of the teaching profession. It should be noted that the implementation of these strategies would require additional resources.

Should the State play a more active role in encouraging colleges and universities to develop additional programs which respond to the anticipated critical shortage areas, to extend existing programs to regional centers and other off-campus sites, and to reduce enrollments in program areas where a shortage is not projected?

Even if they fully tapped the available pool of candidates for teaching positions both in and outside the State, school districts would lack hundreds of teachers in several fields that have been identified by MSDE as "critical shortage areas." For the past two years, these have included computer science, ESOL, Spanish, mathematics, certain science subjects, and special education. Agriculture and art were cited in the latest report as well. All or nearly all of the superintendents indicated that mathematics, science, special education, and technology education would remain high shortage/high demand subject areas during the next five years. Maryland's teacher preparation

programs currently have students enrolled in nearly all of the critical shortage areas, and at least some of them indicated that they could increase their enrollment within their current circumstances. Nonetheless, if additional resources are needed in terms of faculty and staff, priority might be given to existing programs which are already producing qualified teacher candidates in these areas. In developing new programs, campuses might be strongly encouraged to focus their attention on those certification areas in which there is a sizable gap between the current supply and the demand.

TABLES

Table 1 Trends in the Percentage of Maryland College Bound Seniors Whose Intended College Major Was Education.

Year	%
1990	6.5%
1991	7.0%
1992	7.5%
1993	7.3%
1994	7.3%
1995	7.2%
1996	7.4%
1997	7.5%
1998	8.1%
1999	7.8%
2000	7.8%

Source: The College Board

Table 2. Enrollment in Teacher Preparatory Programs at Maryland Colleges and Universities by Subject Area (1999)

	Undergraduates			Master's Level Graduate Students			Combined Figures		
	Full Time	Part Time	Total	Full Time	Part Time	Total	Full Time	Part Time	Total
Art (N-12)	146	19	165	42	9	51	188	28	216
Career/ Technology Education	28	6	34	0	24	24	28	30	58
Agriculture	3	1	4	0	1	1	3	2	5
Business Education	16	4	20	0	23	23	16	27	43
Family and Consumer Services	0	0	0	0	0	0	0	0	0
Marketing Education	0	0	0	0	0	0	0	0	0
Technology Education	9	1	10	0	0	0	9	1	10
Trades and Industry	0	0	0	0	0	0	0	0	0
Health Occupations	0	0	0	0	0	0	0	0	0
Computer Science	4	0	0	0	0	0	4	0	0
Early Childhood Education	1,194	190	1,384	33	71	104	1,227	261	1,488
Elementary Education	3,613	382	3,995	233	639	871	3,846	1,020	4,866
English/ Language Arts	264	13	277	18	135	153	282	148	430
English	244	12	256	18	135	153	262	147	409
Speech	8	1	9	0	0	0	8	1	9
ESOL (N 12)	0	0	0	66	35	101	66	35	101
Foreign Language	133	4	129	5	15	20	138	19	157
French	31	1	32	1	1	2	32	2	34
German	7	0	0	0	0	0	7	0	7
Latin	3	0	3	0	0	0	3	0	3
Russian	0	0	0	0	0	0	0	0	0
Spanish	92	3	97	4	14	18	96	17	113
Health	173	14	187	3	0	3	176	14	190
Mathematics	177	22	199	9	97	106	186	119	305

Table 2 (cont). Enrollment in Teacher Preparatory Program at Maryland Colleges and Universities by Subject Area (1999)

	Undergraduates			Master's Level Graduate Students			Combined Figures		
	Full Time	Part Time	Total	Full Time	Part Time	Total	Full Time	Part Time	Total
Music (N-12)	268	22	290	1	18	19	269	40	309
Physical Education (N-12)	537	40	577	0	10	10	537	50	587
Science	139	17	156	20	74	94	159	91	250
Biology	101	13	114	15	41	56	116	54	170
Chemistry	22	2	24	1	9	10	23	11	34
Earth/Space Science	7	1	8	2	1	3	9	2	11
Physical Science	3	1	4	0	0	0	3	1	4
Physics	6	0	6	2	8	10	8	8	16
Social Sciences	420	54	474	32	98	120	452	152	604
Geography	0	0	0	0	0	0	0	0	0
History	222	35	257	2	0	2	224	35	259
Social Studies	198	19	217	30	98	118	228	117	345
Special Education	450	90	540	255	779	1,034	705	869	1,574
Generic (Infant-Grade 3)	29	9	38	47	122	169	76	131	207
Generic (Grade 1-8)	272	28	300	58	61	119	330	89	419
Generic (Grades 6- Adult)	42	0	42	45	169	214	87	169	256
Hearing Impaired	0	0	0	100	260	360	100	260	360
Severely Handicapped	11	0	11	0	42	42	11	42	53
Visually Impaired	0	0	0	0	0	0	0	0	0
Other Teaching Areas	142	25	167	25	319	344	167	369	536
Theater	14	2	16	0	47	47	14	49	63
Dance	35	0	35	1	47	48	36	47	83
Other	93	23	116	24	225	249	117	273	365
Total Enrollment	7,688	898	8,586	742	2,322	3,064	8,430	3,220	11,650

Note: Special education totals include undergraduate and master's level graduate figures for Coppin and part-time graduate figures for UMES, which were not broken into specific areas. Science totals include part-time graduate figures for Salisbury and Morgan which were not broken into specific areas.

Source: Maryland Higher Education Commission Survey of Departments and Schools of Education

Table 3. Enrollment in Teacher Preparatory Programs at Maryland Colleges and Universities by Institution (1999)

	Undergraduate			Master-Level-Graduate			Combined Figures		
	Full Time	Part Time	Total	Full Time	Part Time	Total	Full Time	Part Time	Total
Public Institutions									
Bowie	306	112	418	16	97	113	322	209	531
Coppin	306	134	440	10	237	247	316	371	687
Frostburg	671	2	673	15	0	15	686	2	688
Salisbury	951	75	1,026	25	97	122	976	172	1,148
Towson	1,752	193	1,945	52	41	93	1,804	234	2,038
UMBC	419	75	494	134	158	292	553	233	786
UMCP	1,334	91	1,425	172	0	172	1,506	91	1,597
UMES	232	14	246	8	57	65	240	71	311
Morgan	411	45	456	17	20	37	428	65	493
St. Mary's	32	5	37	0	0	0	32	5	37
All Publics	6,414	746	7,160	449	707	1,156	6,863	1,453	8,316
Independent Institutions									
Columbia Union	58	0	58	0	0	0	58	0	58
Goucher	0	0	0	40	68	108	0	108	108
Hood	100	31	131	7	16	23	107	47	154
Johns Hopkins	27	1	28	54	607	661	81	608	689
Loyola	285	0	285	0	415	415	285	415	700
Maryland Institute	0	0	0	19	2	21	0	21	21
Mount St. Mary's	184	29	213	15	76	91	199	105	304
Notre Dame	152	48	200	58	18	76	210	66	276
Sojouner-Douglass	118	32	150	0	0	0	118	32	150
Villa Julie	117	11	128	0	0	0	117	11	128
Washington	31	0	31	0	0	0	31	0	31
Western Maryland	202	0	202	100	413	513	302	413	715
All Independents	1,274	152	1,426	293	1,615	1,908	1,567	1,767	3,334
All Campuses	**7,688**	**898**	**8,586**	**742**	**2,322**	**3,064**	**8,430**	**3,220**	**11,650**

Note: Johns Hopkins figures include Peabody

Source: Maryland Higher Education Commission Survey of Departments and Schools of Education

Table 4. Number of Additional Students Which Teacher Preparatory Programs at Maryland Campuses Could Absorb with Quality within Existing Resources (By Subject Area).

	Undergraduate			Masters-Level Graduate			Combined Figures		
	Full Time	Part Time	Total	Full Time	Part Time	Total	Full Time	Part Time	Total
Art (N-12)	84	10	94	13	23	36	97	33	130
Career/Technology Education	96	9	105	8	3	11	104	12	116
Agriculture	9	4	13	4	3	7	13	7	20
Business Education	75	0	75	4	0	4	79	0	79
Family & Consumer Sciences	0	0	0	0	0	0	0	0	0
Marketing Education	0	0	0	0	0	0	0	0	0
Technology Education	12	5	17	0	0	0	12	5	17
Trades and Industry	0	0	0	0	0	0	0	0	0
Health Occupations	0	0	0	0	0	0	0	0	0
Computer Science	0	0	0	0	0	0	0	0	0
Early Childhood	211	207	418	137	87	224	348	294	642
Elementary Education	319	167	486	144	146	290	463	313	776
English/Language Arts	131	64	195	21	30	51	153	94	247
English	106	44	150	21	30	51	127	74	201
Speech	0	0	0	0	0	0	0	0	0
ESOL (N-12)	0	0	0	39	50	89	39	50	89
Foreign Language	140	74	214	21	61	82	161	135	296
French	46	35	81	8	23	31	54	58	112
German	8	3	11	3	13	16	11	16	27
Latin	0	0	0	0	0	0	0	0	0
Russian	0	0	0	0	0	0	0	0	0
Spanish	60	33	93	10	25	35	70	58	128
Health	32	30	62	0	0	0	32	30	62
Mathematics	120	55	175	31	57	88	151	112	263
Music (N-12)	82	35	117	6	10	16	88	45	133
Physical Education(N-12)	23	0	23	0	10	10	23	10	33

Table 4(cont). Number of Additional Students Which Teacher Preparatory Programs at Maryland Campuses Could Absorb with Quality Within Existing Resources (By Subject Area)

	Undergraduate			Masters-Level Graduate			Combined Figures		
	Full Time	Part Time	Total	Full Time	Part Time	Total	Full Time	Part Time	Total
Science	222	174	396	146	159	305	368	333	701
Biology	83	61	144	46	59	105	129	120	249
Chemistry	55	50	105	25	35	60	80	85	165
Earth/Space Science	10	20	30	25	20	45	35	40	75
Physical Science	10	20	30	25	20	45	35	40	75
Physics	30	20	50	25	25	50	55	45	100
Social Sciences	157	109	266	20	34	54	177	143	320
Geography	9	0	9	0	0	0	9	0	9
History	64	54	118	2	2	4	66	56	122
Social Studies	77	55	132	18	32	50	95	87	182
Special Education	236	153	389	160	156	316	396	309	705
Generic Infant- Grade 3	92	61	153	61	76	137	153	137	290
Generic Grades 1-8	104	82	186	57	45	102	161	127	288
Generic Grades 6-Adult	30	10	40	32	35	67	62	45	107
Hearing Impaired	0	0	0	0	0	0	0	0	0
Severely Handicapped	0	0	0	0	0	0	0	0	0
Visually Impaired	0	0	0	0	0	0	0	0	0
Other Teaching Areas*	37	1	38	1	67	68	38	68	106
Theater	5	0	5	0	0	0	5	0	5
Dance	6	1	7	1	1	2	7	2	9
Total Enrollment	1,872	1,088	2,960	726	893	1,619	2,598	1,981	4,579

Note: The Totals for the following subjects contain figures that were not broken down into specific certification areas:
Foreign language (full-time undergraduates at Frostburg, UMBC, and UMCP and full -time and part-time undergraduates at St. Mary's),
Science (full-time undergraduates at Frostburg, UMBC, UMCP, Morgan and St. Mary's and full-time and part-time undergraduates at St. Mary's),
English/ language arts (full-time and part-time undergraduates at Coppin),
Special education (full-time undergraduate and graduate students at Morgan),
Social Studies (full-time undergraduates at UMCP),
Other (full-time and part-time graduate students at Coppin).

Source: Maryland Higher Education Commission Survey of Departments and Schools of Education

Table 5. Number of Additional Students Which Teacher Preparatory Programs at Maryland Campuses Could Absorb with Quality Within Existing Resources (By Institution)

	Undergraduate			Masters-Level Graduate			Combined Figures		
	Full Time	Part Time	Total	Full Time	Part Time	Total	Full Time	Part Time	Total
Public Institutions									
Bowie	383	390	773	302	253	555	685	643	1,328
Coppin	123	164	287	0	14	14	123	178	301
Frostburg	147	0	147	5	3	8	152	3	155
Salisbury	155	145	300	10	10	20	165	155	320
Towson	138	74	212	62	62	124	200	136	336
UMBC	47	0	47	5	0	5	52	0	52
UMCP	91	0	91	27	0	27	118	0	118
UMES	176	44	220	28	65	93	204	109	313
Morgan	55	0	55	0	0	0	5	0	55
St. Mary's	18	7	25	0	0	0	18	7	25
All Publics	1,333	824	2,157	439	407	846	1,772	1,231	3,003
Independent Institutions									
Columbia Union	58	0	58	0	0	0	58	0	58
Goucher	0	0	0	15	27	42	15	27	42
Hood	90	60	150	135	145	280	225	205	430
Johns Hopkins	10	0	10	6	10	16	16	10	26
Loyola	0	0	0	0	0	0	0	0	0
Maryland Institute	0	0	0	0	0	0	0	0	0
Mount St. Mary's	0	0	0	0	0	0	0	0	0
Notre Dame	176	197	373	131	159	290	307	356	663
Sojouner-Douglass	0	0	0	0	0	0	0	0	0
Villa Julie	50	7	57	0	0	0	50	7	57
Washington	0	0	0	0	0	0	0	0	0
Western Maryland	155	0	155	0	145	145	155	145	300
All Independents	539	264	803	287	486	773	826	750	1,576
All Campuses	**1,872**	**1,088**	**2,960**	**726**	**893**	**1,619**	**2,598**	**1,981**	**4,579**

Note: Johns Hopkins figures include Peabody

SOURCE: Maryland Higher Education Commission Survey of Departments and Schools of Education

Table 6

Supply of Maryland- Prepared Candidates by Certification Area 1999-2000

Certification Area	Total New Teacher Supply	Approved Teacher Education Programs	Credit Count	Resident Teacher Program*
Art	**73**	**66**	**6**	**1**
N-6	11	11	0	0
7-12	10	9	0	1
N-12	52	46	6	0
Career/Technology Education	**16**	**8**	**8**	**0**
Agriculture	2	2	0	0
Business Education	5	5	0	0
Family & Consumer Sciences	0	0	0	0
Marketing Education	0	0	0	0
Technology Education	3	1	2	0
Trades and Industry	6	0	6	0
Health Occupations	0	0	0	0
Computer Science	0	0	0	0
Early Childhood	**346**	**343**	**3**	**0**
Elementary Education	**1,012**	**1,005**	**1**	**6**
English/Language Arts	**155**	**149**	**3**	**3**
English	155	149	3	3
Speech	0	0	0	0
ESOL	**26**	**26**	**0**	**0**
K-6	0	0	0	0
7-12	0	0	0	0
N-12	26	26	0	0
Foreign Language	**49**	**47**	**0**	**2**
French	18	18	0	0
German	0	0	0	0
Latin	0	0	0	0
Russian	0	0	0	0
Spanish	31	29	0	2
Health	**41**	**41**	**0**	**0**
Mathematics	**65**	**63**	**0**	**2**

Table 6 (continued)

Supply of Maryland - Prepared Candidates by Certification Area 1999-2000

Certification Area	Total New Teacher Supply	Approved Teacher Education Programs	Credit Count	Resident Teacher Program*
Music	57	57	0	0
N-6	1	1	0	0
7-12	11	11	0	0
N-12	45	45	0	0
Physical Education	107	97	10	0
N-6	21	21	0	0
7-12	0	0	0	0
N-12	86	76	10	0
Science	102	98	3	1
Biology	77	73	3	1
Chemistry	13	13	0	0
Earth/Space Science	4	4	0	0
Physical Science	4	4	0	0
Physics	4	4	0	0
Social Sciences	194	190	2	2
Geography	1	1	0	0
History	31	30	0	1
Social Studies	162	159	2	1
Special Education	303	279	24	0
Generic Infant- Grade 3	30	27	3	0
Generic Grades 1-8	182	165	17	0
Generic Grades 6-Adult	70	66	4	0
Hearing Impaired	11	11	0	0
Severely Handicapped	10	10	0	0
Visually Impaired	0	0	0	0
Other Teaching Areas	4	4	0	0
Theater	0	0	0	0
Dance	4	4	0	0
Total	2,550	2,473	60	17

*Resident teachers are teachers who are hired under Maryland's alternative certification program and Teach for America Program.

Note: Includes graduates summer 1999, fall, 1999, and spring, 2000.

SOURCE: Maryland Teacher Staffing Report, 2000-2002, Maryland State Department of Education (2000)

Table 7
Newly Eligible Maryland Teacher Candidates by Institution: 1999-2000

Institution	Total	Approved Teacher Ed Programs	Credit Count	Resident Teacher Program*
Bowie State University	73	73	0	0
College Of Notre Dame	276	245	14	17
Columbia Union College	13	13	0	0
Coppin State College	61	61	0	0
Frostburg State University	165	164	1	0
Goucher College	41	41	0	0
Hood College	44	44	0	0
Johns Hopkins University	159	159	0	0
Loyola College	99	99	0	0
Maryland Institute, College of Art	10	10	0	0
Morgan State University	56	56	0	0
Mt. St. Mary's College	43	43	0	0
Peabody Conservatory of Music	7	7	0	0
St. Mary's College	40	38	2	0
Salisbury State University	254	245	9	0
Towson University	503	476	27	0
University of Maryland, Baltimore County	101	101	0	0
University of Maryland, College Park	386	386	0	0
University of Maryland Eastern Shore	82	74	8	0
Villa Julie College	10	10	0	0
Washington College	20	20	0	0
Western Maryland College	107	107	0	0
Total Newly Eligible Teachers	**2,550**	**2,472**	**61**	**17**

*Resident Teachers are teachers who are hired under Maryland's alternative certification program and Teach for America Program.
Two resident teacher programs in the state are not administratered by institutions of higher education and therefore those numbers are not included in this table.

SOURCE: Maryland Teacher Staffing Report, 2000-2002, Maryland State Department of Education (2000)

Table 8. Maryland Teacher Preparation Progams Cited by Public School Systems as their Chief Suppliers of Teachers (By Maryland Jurisdiction)

	Bowie	Frostburg	Salisbury	Towson	UMCP	UMES	Morgan	Hood	John Hopkins	Loyola	Notre Dame
Allegany		x									
Anne Arundel				x	x						
Baltimore City				x			x		x	x	x
Baltimore County				x			x			x	x
Calvert	x	x									
Caroline			x	x		x					
Carroll				x							
Cecil		x	x	x			x				
Charles	x	x	x	x	x						
Dorchester			x	x		x					
Frederick		x		x	x			x			
Garrett		x									
Howard				x	x				x	x	
Kent			x								
Montgomery	x	x		x	x			x	x		
Prince George's	x				x		x				
Queen Anne's			x	x		x					
Somerset			x			x					
St. Mary's					x						x
Talbot		x	x	x		x					
Washington		x						x			
Wicomico			x			x					
Worcester			x								
State Total	4	9	10	13	7	6	4	3	3	3	3

Note: Institutions mentioned by fewer than three school systems are not included. No response was received from Harford

Source: Maryland Public School Systems

Table 9
Anticipated Teacher Candidates by Certification Area
Preparation Completed in Maryland: 2000-2001 and 2001-2002

Certification Area	2000-2001				2001-2002			
	Total New Teacher Supply	Approved Teacher Ed Program	Credit Count Program	Resident Teacher Program*	Total New Teacher Supply	Approved Teacher Ed Program	Credit Count Program	Resident Teacher Program*
Art	66	64	0	2	62	61	0	1
N-6	13	13	0	0	9	9	0	0
7-12	13	11	0	2	13	12	0	1
N-12	52	52	0	0	52	52	0	0
Career/Technology Education	15	13	0	2	14	14	0	0
Agriculture	6	6	0	0	7	7	0	0
Business Education	6	6	0	0	4	4	0	0
Family & Consumer Sciences	0	0	0	0	0	0	0	0
Marketing Education	1	0	0	1	0	0	0	0
Technology Education	2	1	0	1	3	3	0	0
Trades and Industry	0	0	0	0	0	0	0	0
Health Occupations	0	0	0	0	0	0	0	0
Computer Science	2	2	0	0	3	3	0	0
Early Childhood	328	310	18	0	398	378	20	0
Elementary Education	1,228	1,171	22	35	1,337	1,280	25	32
English/Language Arts	198	172	4	22	236	209	6	21
English	196	170	4	22	233	206	6	21
Speech	2	2	0	0	3	3	0	0
ESOL	8	8	0	0	12	12	0	0
K-6	0	0	0	0	0	0	0	0
7-12	15	15	0	0	18	18	0	0
N-12	8	8	0	0	12	12	0	0
Foreign Language	34	27	0	7	34	30.5	0	3
French	7	7	0	0	11	11	0	0
German	0	0	0	0	2	2	0	0
Latin	0	0	0	0	0	0	0	0
Russian	0	0	0	0	0	0	0	0
Spanish	41	34	0	7	35	32	0	3
Health	41	41	0	0	47	47	0	0
Mathematics	93	85	4	4	110	97	8	5
Music	44	42	2	0	47	46	1	0
N-6	0	0	0	0	0	0	0	0
7-12	14	14	0	0	11	10	1	0
N-12	50	48	2	0	42	42	0	0

Table 9 cont.
Anticipated Teacher Candidates by Certification Area
Preparation Completed in Maryland: 2000-2001 and 2001-2002

Certification Area	2000-2001 Total New Teacher Supply	2000-2001 Approved Teacher Ed Program	2000-2001 Credit Count Program	2000-2001 Resident Teacher Program*	2001-2002 Total New Teacher Supply	2001-2002 Approved Teacher Ed Program	2001-2002 Credit Count Program	2001-2002 Resident Teacher Program*
Physical Education	50	50	0	0	50	50	0	0
N-6	17	17	0	0	15	15	0	0
7-12	0	0	0	0	0	0	0	0
N-12	64	64	0	0	66	66	0	0
Science	113	95	4	14	145	118	8	19
Biology	122	108	4	10	111	89	8	14
Chemistry	25	21	0	4	22	20	0	2
Earth/Space Science	5	5	0	0	9	8	0	1
Physical Science	8	8	0	0	16	16	0	0
Physics	4	4	0	0	11	9	0	2
Social Sciences	187	159	10	18	201	168	18	15
Geography	8	0	0	8	0	0	0	0
History	35	21	4	10	43	31	8	4
Social Studies	197	191	6	0	212	191	10	11
Special Education	287	263	24	0	322	293	29	0
Generic Infant- Grade 3	24	24	0	0	26	26	0	0
Generic Grades 1-8	173	153	20	0	193	168	25	0
Generic Grades 6-Adult	76	72	4	0	86	82	4	0
Hearing Impaired	8	8	0	0	10	10	0	0
Severly Handicapped	11	11	0	0	12	12	0	0
Visually Impaired	0	0	0	0	0	0	0	0
Other Teaching Areas	12	4	0	8	8	4	0	4
Total	**2,706**	**2,506**	**88**	**112**	**3,026**	**2,811**	**115**	**100**

*Resident teachers are teachers who are hired under Maryland's alternative certification program and Teach for America Program

SOURCE: Maryland Teacher Staffing Report, 2000-2002, Maryland State Department of Education (2000)

Table 10

Ten-Year Trends in New Hires by Maryland Public Schools
1990-1991 to 1999-2000

	Beginning			Experienced	
Year	Total	Maryland Prepared	Non Maryland Prepared	Taught in Maryland	Taught outside Maryland
1990-1991	2,692	822	735	492	643
1991-1992	2,806	852	832	543	579
1992-1993	3,120	1,005	1,016	444	655
1993-1994	2,955	1,014	829	525	587
1994-1995	3,774	1,187	1,234	752	601
1995-1996	3,623	1,123	1,127	533	840
1996-1997	4,588	1,455	1,363	1,112	658
1997-1998	5,595	1,780	1,537	1,362	916
1998-1999	6,033	1,543	1,871	1,426	1,193
1999-2000	7,329	1,665	2,233	2,072	1,359

SOURCE: Maryland Teacher Staffing Report, 2000-2002, Maryland State Department of Education (2000)

Table 11. Number of New Teachers Hired by Maryland Public Schools in 1999 Who were Recruited Directly from Maryland Colleges and Universities or were Resident Teachers (By Selected Subject Areas).

	Maryland Campuses	Resident Teachers	Total New Hires (All Sources)	% of New Teachers Hired from Maryland Campuses or Resident Teachers
Art	40	2	154	27.3%
Career/Technology	26	3	270	10.7%
Agriculture	0	0	9	0.0%
Business Education	14	2	103	15.5%
Family & Consumer Sciences	4	0	57	7.0%
Technology Education	2	1	61	4.9%
Trades and Industry	4	0	36	11.1%
Health Occupations	2	0	4	50.0%
Computer Science	1	0	6	16.7%
Early Childhood	195	1	691	28.4%
Elementary Education	681	20	2.841	24.7%
English	85	15	522	19.2%
ESOL (N12)	15	0	59	25.4%
Foreign Language	32	7	191	20.4%
French	9	1	67	14.9%
German	0	0	2	0.0%
Latin	0	0	7	0.0%
Spanish	23	6	115	25.2%
Health/Physical Education	77	1	299	26.1%
Mathematics	66	3	344	20.1%

Table 11(cont). Number of New Teachers Hired by Maryland Public Schools in 1999 Who were Recruited Directly from Maryland Colleges and Universities or were Resident Teachers (By Selected Subject Areas).

	Maryland Campuses	Resident Teachers	Total New Hires (All Sources)	% of New Teachers Hired from Maryland Campuses or Resident Teachers
Music	31	0	230	13.5%
Science	88	10	402	24.4%
Biology	72	6	275	28.4%
Chemistry	12	4	74	21.6%
Earth/Space Science	3	0	22	13.6%
Physical Science	0	0	4	0.0%
Physics	1	0	27	3.7%
Social Sciences	108	11	430	27.7%
History	15	8	75	30.7%
Social Studies	93	3	355	27.0%
Special Education	126	0	765	16.5%
Generic Infant- Grade 3	10	0	64	15.6%
Generic Grades 1-8	89	0	532	16.7%
Generic Grades 6-Adult	27	0	150	18.0%
Hearing Impaired	0	0	15	0.0%
Severely Handicapped	0	0	1	0.0%
Visually Impaired	0	0	3	0.0%
Other Teaching Areas*	14	7	125	16.8%
Total New Teachers	1,585	80	7,329	22.7%

Note: Resident Teachers are teachers hired under Maryland's Alternative Certification Program and Teach for American Program
*Includes theater/drama, dance, speech/ communication, sociology, geography, psychology, marketing education, economics, general science, political science, K-12, and journalism.

Source: Maryland Teacher Staffing Report 2000-2002, Maryland State Department of Education (2000)

Table 12. Subject Areas in which the Public School Systems Expect Shortages in New Teachers During the Next Five Years (By Maryland Jurisdiction)

	Computer Science	Early Childhood	Family & Consumer Sciences	Foreign Languages	Mathematics	Media Specialist	Music	Reading	Science	Special Education	Speech Pathology	Technology Education
Allegany					x				x	x		
Anne Arundel					x	x		x	x	x	x	
Baltimore City					x			x	x	x		
Baltimore County			x	x	x	x	x	x	x	x		x
Calvert			x	x						x	x	x
Caroline				x	x				x	x	x	
Carroll			x	x	x				x	x	x	x
Cecil					x	x			x	x	x	x
Charles			x		x				x	x		x
Dorchester		x			x				x	x		x
Frederick			x	x	x	x			x	x	x	x
Garrett					x	x				x		x
Howard	x				x			x	x	x		x
Kent			x	x	x				x	x	x	x
Montgomery	x	x	x	x	x		x	x	x	x		x
Prince George's		x		x	x	x	x	x	x	x	x	x
Queen Anne's	x				x				x			
Somerset		x			x				x			x
St. Mary's			x		x				x	x		x
Talbot				x	x				x	x		x
Washington					x				x	x		x
Wicomico				x	x	x			x	x	x	x
Worcester				x	x				x	x		x
State Total	3	4	8	11	22	7	3	6	21	21	9	18

Note: Subject Areas mentioned by fewer than three school systems are not included. No response was received from Harford

Source: Maryland Public Schools

Table 13. Staffing Projections at Maryland Public Schools (By Selected Subject Areas)

	Projected Pool of Candidates for Teaching Positions		Projected Hiring Needs of Public Schools	
	2000/2001	2001/2002	2000/2001	2001/2002
Art (N-12)	183	217	225	247
Career/Technology Education	321	381	234	256
Agriculture	11	13	39	30
Business Education	122	145	67	62
Family & Consumer Sciences	68	81	34	51
Technology Education	72	86	65	71
Trades and Industry	43	51	25	35
Health Occupations	5	6	4	7
Computer Science	7	8	41	53
Early Childhood	821	976	605	813
Elementary Education	3,376	4,012	2,848	2,856
English/Language Arts	620	737	549.5	548
ESOL (N-12)	70	83	144	194
Foreign Language	225	267	245.5	278
French	80	95	65.5	57
Latin	8	10	7.5	8
Spanish	137	162	172.5	213
Health/Physical Education	355	422	285.5	326

Table 13 cont. Staffing Projections at Maryland Public Schools (By Selected Subject Areas)

	Projected Pool of Candidates for Teaching Positions		Projected Hiring Needs of Public Schools	
	2000/2001	2001/2002	2000/2001	2001/2002
Mathematics	409	486	528.5	555
Music	273	325	212.5	271
Science	478	568	561	581
Biology	327	388	322	319
Chemistry	88	105	63	71
Earth/Space Science	26	31	65	76
Physical Science	5	6	69	70
Physics	32	38	42	45
Social Sciences	511	607	356	402
History	89	106	37	51
Social Studies	422	501	319	351
Special Education	908	1,079	1,233.50	1,253
Generic Infant- Grade 3	76	90	148.5	157
Generic Grades 1-8	632	751	785	768
Generic Grades 6-Adult	178	212	184	204
Hearing Impaired	18	21	25	24
Severely Handicapped	0	0	85	92
Visually Impaired	4	4	6	8
Other Teaching Areas*	152	181	90	109
Total Staffing Projections	8,710	10,351	8,159	8,742

* Theater/ drama, journalism, speech/ communication, sociology, geography, psychology, marketing education and economics

Source: Maryland Teacher Staffing Report 2000-2002. Maryland State Department of Education (2000)

APPENDIX

SURVEY OF DEPARTMENTS/SCHOOLS OF EDUCATION

Study to Determine the Capacity of Teacher Preparation Programs

Contact:

Institution:
Address:

Telephone Number:
Email address:

Best time to reach you (if we have questions about any of your responses):
Days: Time:

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1. In **fall 1999**, how many full- and part-time undergraduates and full-and part-time masters-level graduate students were enrolled in your institution's teacher preparatory program in the subject areas listed below? For masters-level graduate students, please include students enrolled in the Masters of Arts in Teaching (M.A.T) program. Do not include masters-level graduate students enrolled for in-service education.

	Undergraduate Students		Masters-Level Graduate Students	
	Full-Time	**Part-Time**	**Full-Time**	**Part-Time**
Art (N - 12)				
Career/technology Education				
Agriculture				
Business Education				
Family & Consumer Services				
Marketing Education				
Technology Education				
Trades and Industry				
Health Occupations				
Computer Science				
Early Childhood Education				
Elementary Education				
English/language arts				
English				
Speech				

Question 1 (Continued)

	Undergraduate Students		Masters-Level Graduate Students	
	Full-Time	Part-Time	Full-Time	Part-Time
ESOL (N-12)				
Foreign Language				
French				
German				
Latin				
Russian				
Spanish				
Health				
Mathematics				
Music (N-12)				
Physical Education (N-12)				
Science				
Biology				
Chemistry				
Earth/Space Science				
Physical Science				
Physics				
Social Sciences				
Geography				
History				
Social Studies				
Special Education				
Generic (Infant - Grade 3)				
Generic (Grades 1-8)				
Generic (Grades 6-Adult)				
Hearing Impaired				
Severely Handicapped				
Visually Handicapped				
Other Teaching Areas				
Theater				
Dance				

2. During **fall 1999/spring 2000** (as applicable), how many undergraduate students were enrolled in the professional semester (those taking their approved course of study in the professional program) in the subject areas listed below?

Art (N - 12)	_____
Career/technology Education	_____
Agriculture	_____
Business Education	_____
Family & Consumer Services	_____
Marketing Education	_____
Technology Education	_____
Trades and Industry	_____
Health Occupations	_____
Computer Science	_____
Early Childhood Education	_____
Elementary Education	_____
English/language arts	_____
English	_____
Speech	_____
ESOL (N-12)	_____
Foreign Language	_____
French	_____
German	_____
Latin	_____
Russian	_____
Spanish	_____
Health	_____
Mathematics	_____
Music (N-12)	_____
Physical Education (N-12)	_____
Science	_____
Biology	_____
Chemistry	_____
Earth/Space Science	_____
Physical Science	_____
Physics	_____
Social Sciences	_____
Geography	_____
History	_____
Social Studies	_____
Special Education	_____
Generic (Infant - Grade 3)	_____
Generic (Grades 1-8)	_____
Generic (Grades 6 - Adult)	_____
Hearing Impaired	_____
Severely Handicapped	_____
Visually Impaired	_____
Other Teaching Areas	_____
Theater	_____
Dance	_____

3. How many additional students could your teacher preparatory program absorb **with quality** within your **current** faculty and staff situation, facilities capacity and operating budget in the subject areas listed below? For masters-level graduate students, please include M.A.T. students.

	Undergraduate Students		Masters-Level Graduate Students	
	Full-Time	**Part-Time**	**Full-Time**	**Part-Time**
Art (N - 12)				
Career/technology Education				
Agriculture				
Business Education				
Family & Consumer Services				
Marketing Education				
Technology Education				
Trades and Industry				
Health Occupations				
Computer Science				
Early Childhood Education				
Elementary Education				
English/language arts				
English				
Speech				
ESOL (N-12)				
Foreign Language				
French				
German				
Latin				
Russian				
Spanish				
Health				
Mathematics				
Music (N-12)				
Physical Education (N-12)				
Science				
Biology				
Chemistry				
Earth/Space Science				
Physical Science				
Physics				

Question 3 (Continued)

	Undergraduate Students		Masters-Level Graduate Students	
	Full-Time	**Part-Time**	**Full-Time**	**Part-Time**
Social Sciences				
Geography				
History				
Social Studies				
Special Education				
Generic (Infant - Grade 3)				
Generic (Grades 1-8)				
Generic (Grades 6-Adult)				
Hearing Impaired				
Severely Handicapped				
Visually Impaired				
Other Teaching Areas				
Theater				
Dance				

4. Will the number of additional students your program is able to absorb with quality be affected by the redesign of teacher preparatory programs and requirements such as state certification, graduate and in-service training, and other accreditation like NCATE? Please explain.