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ABSTRACT

This report addresses one central issue: the nature and extent of the teacher shortage in Arizona. Its purpose is to inform policymakers and help prevent poor policy decisions and wasted resources. The report presents new research along with policy and program recommendations intended to serve as points of departure for understanding and discussing teacher supply and demand in Arizona. Among the research findings are the following: (1) Arizona did not have an overall shortage of teachers when this report was written, but a delicate balance existed between demand and supply; (2) despite an overall surplus, teacher shortages were already occurring in specific regions and subject-matter areas, and these shortfalls were expected to worsen; (3) managing attrition and encouraging the return of inactive certified teachers will be crucial to ensure a sufficient teacher pool; and (4) policy changes are needed to increase and monitor Arizona's supply of teachers, especially in specific areas. The report provides policy and program recommendations in four areas: production and recruitment; compensation; classroom environment; and data tracking. Appended are: Potential Components Not Used in This Study; Measures Used and Their Alternatives; Data Sources; 2009-2010 Enrollment and Teacher Projections table; Arizona Inactive Certified Teacher Survey Methodology; and Current Activity of Inactive Certified Teachers and 5 data-related tables. (Contains 35 references, 11 tables, and 8 figures.) (WFA)

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IS THERE A TEACHER SHORTAGE?

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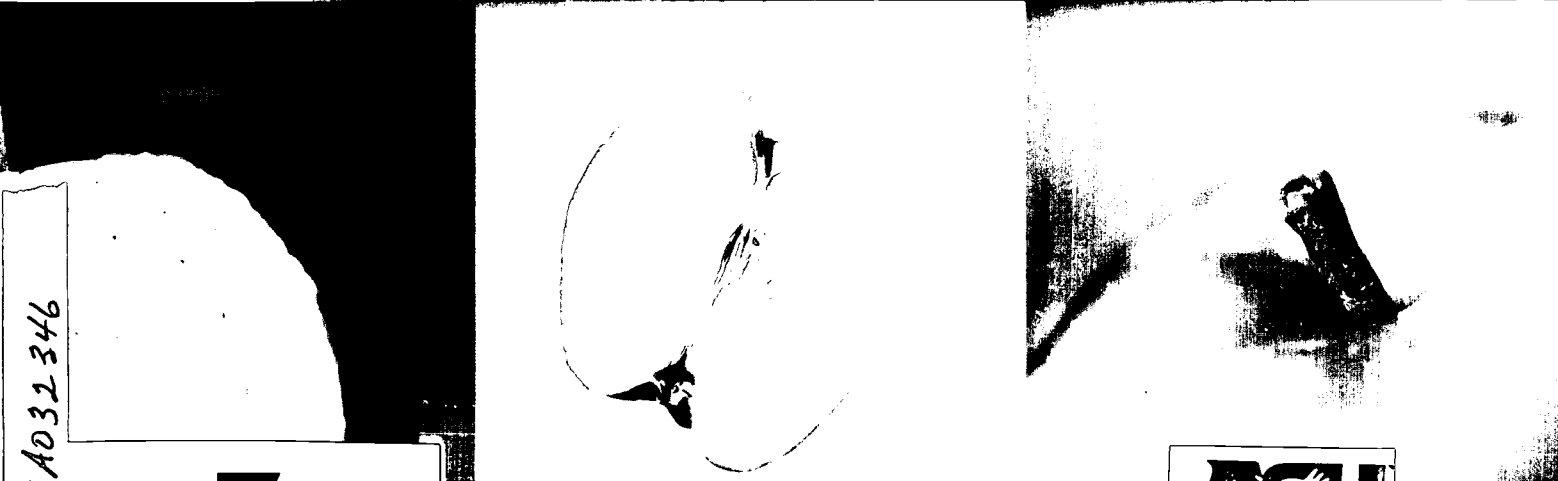

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IS THERE A TEACHER SHORTAGE?

Demand and Supply in Arizona

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EXECUTIVE SUMMARY

Is There a Teacher Shortage? K-12 Demand and Supply in Arizona

Arizona has had little reliable data or thoughtful analysis on teacher demand and supply in the state. Yet, conventional wisdom in Arizona is that the state has a dire teacher shortage. Consequently, this report addresses the question, "What is the nature and extent of the teacher shortage in Arizona?"

This is an important question. Arizona policymakers must understand the issue because misconceptions will lead to poor policy decisions and wasted resources. Thus, this report presents new research and policy recommendations that can serve as a point of departure for understanding and discussing teacher demand and supply in Arizona. Among the findings:

> ***Arizona does not presently have an overall shortage of teachers, but a delicate balance exists between demand and supply.***

Teacher attrition and a fast-growing population of new students will create substantial demand in Arizona for K-12 teachers over the next eight years. This has led to widespread assumptions that the state faces a significant teacher shortage. This study, however, indicates that Arizona actually may have a small overall surplus of teachers each year between now and 2010. A total of the number of new teachers being produced by Arizona teacher education institutions, the number of certified teachers coming from other states, and the number of inactive certified teachers in Arizona expected to return to the classroom appears to be slightly greater than the overall predicted statewide need. However, each of the major components of the demand-supply equation for the teaching workforce could be affected — positively or adversely — by factors such as policy changes, the economy, and the political environment.

> ***Despite an overall surplus, teacher shortages already occur in specific regions and subject-matter areas, and these shortfalls may worsen in the near term.***

Most of the data presented in this report address demand and supply for the state as a whole. When demand and supply are disaggregated, however, a somewhat different picture emerges — demand outstrips the number of teachers available in certain locations and subject-matter areas.

Demand for teachers is projected to exceed available supply in Arizona's western regions (especially Yuma), some exurban Phoenix areas (locales beyond the suburbs that exhibit rural qualities but appear to be in the path of urban growth) and, to a lesser extent, in urban Phoenix school districts. Changing demographics also will complicate the search for teachers in many locations. Population projections indicate that Arizona's school-age children will be increasingly Hispanic — a trend that may require more teachers with special language training than are available for hire. And, although media attention has focused on the need for math and science teachers, it appears that the greatest hiring challenge for schools is finding enough certified special education teachers. Even in locations where there are enough overall teachers to go around, teachers are not applying in adequate numbers for positions generally perceived to be difficult, either because of their location or because of student characteristics.

> ***Managing attrition and encouraging the return of inactive certified teachers will be crucial to ensure a sufficient teacher pool.***

Inactive certified teachers who return to the classroom are the smallest component of supply, but they are crucial to alleviate shortfalls. Inactive certified teachers, however, have not been carefully tracked or surveyed in Arizona until now. A new statewide survey of Arizona inactive certified teachers provides some insight into what might prevent their departure (attrition) and what it would take to increase the rate at which they enter or reenter the classroom. While many teachers leave the profession for personal reasons such as raising a family or retirement, others leave because of unsatisfactory aspects of the classroom environment or school system. Even so, as much as one-third of this pool may seriously consider teaching again, especially if pay were increased or class size reduced. Thus, certain policy changes could motivate inactive teachers to return in greater numbers.

Policy changes are needed to increase and monitor Arizona's supply of teachers, especially in specific areas.

This report shows that Arizona's teacher supply is in a delicate balance with the demand for new teachers. From 2006 to 2010, there will be on average only about 1.2 applicants per new teaching position each year — with shortfalls likely in specific locations (especially fast-growing rural school districts) and in certain subject-matter areas (such as special education and LEP programs). To make sure that Arizona has enough teachers in the future — especially in view of the state's reliance on in-migrants and returning inactive certified teachers — teacher production, recruitment and retention efforts must be increased.

Policies and program recommendations are provided in four areas: production and recruitment, compensation, changes in the classroom environment, and data tracking.

Production and Recruitment

- Increase production of teacher graduates at Arizona training institutions.
- Strengthen state-level efforts at out-of-state recruiting.
- Remove and/or streamline certification requirements.
- Create incentives to motivate inactive certified teachers to return to the classroom.
- Target recruitment in critical areas.

Compensation

- Offer tuition reimbursement or similar programs.
- Consider offering differentiated or "combat" pay.
- Fund non-student days.

Classroom Environment

- Reduce paperwork burden.
- Improve discipline and safety.

Data Tracking

- Establish a dynamic database and an annual report on teacher demand and supply.
- Improve data collection and distribution of information on student needs.

Quantifying the demand and supply of teachers in Arizona is a complicated task. Not only are there many factors influencing the labor market for teachers, but the data on this matter are difficult to find and use. Nevertheless, using the best available data at this time, researchers found that there is no overall K-12 teacher shortage in Arizona. However, there is still cause for concern and a need for action in Arizona. The labor market is tight and will continue to be so in the future. Additionally, shortages were revealed in specific areas. While this study focused on the quantity of Arizona's teachers, ensuring that Arizona has enough **quality** teachers is by far the more important issue.

ABOUT THIS STUDY

Is There a Teacher Shortage? K-12 Demand and Supply in Arizona

Little reliable data and very few analyses on teacher demand and supply in Arizona have been available prior to this study. Yet many people have declared that a dire shortage of teachers is imminent. Consequently, Morrison Institute developed a research design to answer the question, "What is the nature and extent of the teacher shortage in Arizona?"

Arizona policymakers need good information on this issue because misconceptions about where, and in what subjects, a teacher shortage may occur could lead to poor policy decisions and wasted resources.

The key components that drive teacher demand are:

- New positions created due to student growth
- Current positions vacated due to attrition from:
  - Retirement
  - Leaving the profession before retirement
  - Leaving the state ("out-migration")

The key components that comprise the teacher supply are:

- New trainees from Arizona colleges (the "pipeline" of students receiving bachelor degrees in education, as well as those attending postbaccalaureate teacher preparation programs)
- Certified teachers who move in from other states ("in-migration")
- Arizona certified teachers who have not been teaching ("inactive certified teachers") but who decide to return to the profession

Charter schools were included in calculations of demand and supply for this study (both certified and noncertified). Emergency certified teachers were not. (For further discussion on components and measures of teacher demand and supply see Appendix A.)

The time period examined for this study is 2002 to 2010. In the process of gathering data for the analysis of teacher demand and supply, researchers obtained all currently available statistical information and also conducted surveys and interviews. A detailed list of data sources is provided in Appendix B.

Researchers also used input from a variety of expert sources. A panel was convened of Arizona Department of Education (ADE) staff, school district personnel, educators, state agency data managers, and higher education representatives to comment on the aggregate data and provide insight into the findings. Researchers also consulted economists, national education experts, school district superintendents, and the Arizona Education Association.

This report is divided into four sections. The first discusses overall teacher demand and supply in Arizona. The second addresses specific areas of need for teachers. The third reports on a survey of inactive certified teachers and discusses the potential for not only reducing their attrition but also recruiting them back into the active teacher workforce. The fourth section provides recommendations for increasing the overall supply of teachers in Arizona.

Teacher Data Lacks Standardization

A variety of data sources from different institutions were used to conduct this analysis. Researchers found, however, that there is little standardization among these sources in methodologies or definitions. Thus, it was not always possible to make comparisons of teacher data across different sources.

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DELICATE BALANCE: STATEWIDE DEMAND AND SUPPLY

Arizona does not presently have an overall shortage of teachers, but a delicate balance exists between demand and supply.

Teacher attrition and a fast-growing population of new students will create substantial demand in Arizona for K-12 teachers over the next eight years. This has led to widespread assumptions that the state faces a significant teacher shortage. This study, however, reveals that Arizona actually may have a small overall teacher surplus each year between 2002 and 2010. A total of the number of new teachers being produced by Arizona teacher education institutions, the number of certified teachers coming from other states, and the number of inactive certified teachers in Arizona expected to return to the classroom appears to be slightly greater than the overall predicted statewide need.

This section examines the major components of the demand-supply equation for the teaching workforce. Each of these components could be affected — positively or adversely — by policy changes, the economy, or the political environment.

Components of K-12 Teacher Demand

Calculations based on student growth projections indicate that Arizona will need about 6,880 new teachers each year to accommodate anticipated demand through 2005. Of these, approximately 1,420 annually will be needed to accommodate student population growth, while 5,460 annually will be needed to replace teacher attrition. For the period 2006 to 2010, demand will be slightly lower — about 5,980 new teachers each year. Of these, approximately 1,420 teachers annually will be needed to accommodate student population growth, and another 4,560 to meet attrition.

Student Population Growth

Arizona's annual growth rate for school enrollment over the last four years has varied between about 3 percent and 6.5 percent (ADE, 2002d). ADE reports that about 51,740 teachers (those identified by ADE as regular public or charter school teaching staff, as opposed to classified staff, nurses, psychologists, and others) served about 921,870 students in the 2001-2002 school year — providing about 1 teacher for 17.8 students. By the 2009-2010 school year, about 1,123,690 students will likely be enrolled in Arizona public schools, including charters, according to the Center for Business Research at Arizona State University. Using the 1:17.8 ratio of teachers to students, these students will require 63,130 teachers — an estimated total increase of about 11,390 teachers over the next eight years, or about 1,420 teachers per year, to maintain the current teacher-student ratio. (See Table 1. More detailed enrollment calculations projected by the Center for Business Research are shown in Appendix C.)

TABLE 1 **Projected Growth of Arizona K-12 Students and Teachers, 2001-2002 to 2009-2010**

	Number in 2001-2002	Projected Number 2009-2010	Total Change	Average Change per Year
Public School Students	921,870[1]	1,123,690[3]	201,820	25,230
Public School Teachers	51,740[2]	63,130[4]	11,390	**1,420**

Source: Morrison Institute for Public Policy, 2002.

Data: (1) Arizona Department of Education, 2002d; (2) Arizona Department of Education, 2002c and 2002f; Arizona State Board for Charter Schools, 2002. (3) Center for Business Research, 2001a; (4) Number of teachers needed if the 1:17.8 teacher/student ratio is maintained.

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Demand for New Teachers

- Student population growth
- Attrition due to:
  - Retirement
  - Leaving the profession before retirement
  - Leaving the state

Supply of New Teachers

- New trainees graduating from Arizona colleges
- Teachers certified in other states who move to Arizona (in-migrants)
- Return of inactive certified teachers to the classroom

Attrition

Three types of attrition affect the demand for teachers — retirement, leaving the profession before retirement, and leaving the state.

Retirement

Almost all of Arizona's K-12 teachers are participants in the Arizona State Retirement System (ASRS). While ASRS was unable to project the number of teachers likely to retire by 2010, the agency does track the average age of Arizona's retired teachers and the average age of the current Arizona teaching workforce. These data were then used to estimate retirement ages for Arizona teachers. The age at which teachers retire, however, can be sensitive to changes in the economy. Therefore, "minimum" and "maximum" retirement ages were used to account for future variations. The number of yearly retirees used for demand calculations in this report was derived from an average of the two.

According to ASRS, the average age of all living retired Arizona teachers is 64 (ASRS 2001). Using 64 as a maximum average retirement age, about 10 percent of all teachers (those age 55 and over in the year 2000) would leave the classroom by the 2009-10 school year. This is an average of about 470 per year and would represent the lowest annual number of teachers likely to retire in Arizona (see Table 2a).

On the other hand, ASRS officials have rough-estimated that the average age of new retirees during 2001 was about 55. This is probably a low estimate because the demographics of the Arizona teacher workforce indicate that most current teachers would not be eligible for full benefits if they retired at 55. Using 55, therefore, as a minimum average retirement age, Arizona could expect about 3,030 retirees per year through 2005, and 1,220 per year between 2006 and 2010 (see Table 2b). These would represent the highest likely numbers of teacher retirees annually.

Averaging the yearly number of retirees based on retirement at age 64 and retirement at age 55 produces an estimated 1,750 retirees per year through 2005 and about 850 per year between 2006 and 2010.

TABLE 2a **Retirement Projections for Arizona's Teachers, 2000-2010: Retirement Age 64**

Age	Percent Teachers in 2000[1]	Number of Teachers in 2000[2]	Time Range for Cohort to Reach Age 64	Estimated Number of Teachers Turning 64 Each Year
55 and over	10%	4,700	2001-2010	470

TABLE 2b **Retirement Projections for Arizona's Teachers, 2000-2010: Retirement Age 55**

Age	Percent Teachers in 2000[1]	Number of Teachers in 2000[2]	Time Range for Cohort to Reach Age 55	Estimated Number of Teachers Turning 55 Each Year
50 and up	30.9%	15,130	2001-2005	3,030
45 - 49	12.5%[3]	6,110	2006-2010	1,220

Source: Morrison Institute for Public Policy, 2002.

Data: (1) U.S. Department of Education, 2002; (2) Arizona Department of Education, 2002c; (3) U.S. Department of Education data was for ages 40-49; U.S. Census Bureau (2000) provided the proportion of teachers in that cohort aged 45-49.

Teacher-Student Ratio Policies Affect Demand

Changes in class-size policies can dramatically alter teacher demand, essentially creating shortages or surpluses almost overnight. Currently, Arizona's average teacher-student ratio is 1:17.8 statewide. Actual teacher-student ratios, however, vary considerably among individual districts, within districts themselves, and between elementary and secondary schools. Small changes in class size can have a large statewide effect on the number of teachers needed. For example, a slight reduction in the average Arizona teacher-student ratio to 1:17 would increase the need for teachers by about 380 annually. Conversely, a slight increase in the teacher-student ratio to 1:19 would reduce the need for new teachers by about 500 annually.

Leaving the Profession Before Retirement

Arizona-specific data are not available on teacher attrition, but it is well known that attrition rates vary with age. Based on national attrition rates, approximately 1,990 Arizona teachers under age 45 can be expected to leave the profession annually. Population growth was accounted for by averaging yearly attrition for 2000 and 2010. Tables 3a and 3b show the estimated percentage and number for each age range.

TABLE 3a **Arizona Teachers (under age 45) Leaving the Profession Each Year, 2000**

Age	Number of Arizona Teachers in 2000[1]	National Yearly Attrition Rate 1994-1995[2]	Estimated Number of Arizona Teachers Leaving the Profession Each Year
22-24	2,480	3.8%	90
25-29	4,320	10.0%	430
30-39	14,000	6.7%	940
40-44	6,920	3.9%[3]	270
TOTAL			**1,730**

TABLE 3b **Arizona Teachers (under age 45) Leaving the Profession Each Year, 2010**

Age	Estimated Number of Arizona Teachers in 2010[4]	National Yearly Attrition Rate 1994-1995[2]	Estimated Number of Arizona Teachers Leaving the Profession Each Year
22-24	3,200	3.8%	120
25-29	5,570	10.0%	560
30-39	18,050	6.7%	1,210
40-44	8,920	3.9%[3]	350
TOTAL			**2,240**

Source: Morrison Institute for Public Policy, 2002.

Data: (1) Arizona Department of Education, 2002c; U.S. Department of Education, 2002; and U.S. Census Bureau, 2000 (see note below); (2) U.S. Department of Education, 1997; (3) Attrition rate for 40-49 age group; (4) Center for Business Research, 2001a.

Note: Attrition data for the 1999-00 *Schools and Staffing Survey* have not yet been released. Previous years surveys (1988-89, 1991-92,1994-95) show the trend increased slightly in most age groups. Aggregate age proportions are from the 1999-00 survey, but age ranges released for attrition rates did not match those released for the age of teachers. Thus, Arizona data from the 2000 U.S. Census was applied to ADE teacher counts to determine the proportions of teachers in each age subcategory. Attrition for teachers age 45 and over was dealt with in the retirement section above. In those calculations all teachers aged 45 or over in 2000 were subtracted from the teaching pool by 2010 regardless of the reason or exact age at which they left. Thus, including them in calculations for leaving the profession would count them twice. Charter school teachers were included in 2010 teacher estimates. For 2000 they were added using the proportion of charter school teachers compared to regular public school teachers in 2001-02.

Leaving the State

ASU's Center for Business Research estimates that 3 percent of Arizona residents leave the state each year (Center for Business Research, 2001b). Assuming that teachers leave at the same rate as the general population, and accounting for population growth, about 1,720 teachers can be expected to move to other states each year.

District Hopping

Teachers who move from one school district to another within Arizona are "district hopping." While they increase the hiring needs of local districts each year, they do not add to overall statewide needs. Therefore, district hopping teachers are not considered in calculations of teacher demand.

TABLE 4 **SUMMING UP Estimated Yearly Demand for Teachers**

Factor	2002-2005	2006-2010
Student Growth	1,420	1,420
Attrition Total	5,460	4,560
Retirement	1,750	850
Leaving Profession	1,990	1,990
Leaving Arizona	1,720	1,720
Total Demand	**6,880**	**5,980**

Source: Morrison Institute for Public Policy, 2002.

Components of K-12 Teacher Supply

Arizona can expect about 7,130 new K-12 teachers to be available to enter the workforce each year through 2005 and 6,930 from 2006 to 2010. One component of these — 2,670 — will be newly certified trainees (graduates and post-baccalaureate recipients) from the state's colleges that are accredited by ADE's Certification Division. The remainder will be either in-migrants relocating from out of state or inactive certified teachers returning to the profession.

Arizona's College Pipeline

As of Spring 2002, Arizona had 12 accredited colleges that created a "pipeline" of potential K-12 teachers. Together, these colleges annually generate about 2,970 people who are eligible to take the Arizona teacher exam and receive a state teaching certificate (see Figure 1). Of these, about 1,630 are eligible in elementary education, 1,080 in secondary education, and 260 in special education.

Of the total 2,970 trainees, approximately 10 percent (about 300 students each year) do not go into teaching, according to a survey of each pipeline institution (Morrison Institute, 2002). Consequently, Arizona can expect a newly certified supply of about 2,670 teachers each year from Arizona's college pipeline.

The same survey also revealed that some Arizona pipeline institutions are concerned they may have to reduce enrollment due to budget cuts, while other pipeline institutions said they planned to increase enrollment over the next 10 years. Should both occur, the number of new teachers produced each year would remain relatively steady. By Fall 2002, however, additional Arizona community colleges unveiled new teacher training opportunities consisting of postbaccalaureate programs in education. To the extent that these programs tap into a new pool of teacher education students, they would increase the supply of new teachers. The supply may be further increased because teachers can also be trained at colleges that are not accredited by ADE, though these teachers must file additional documentation to receive their certificate.

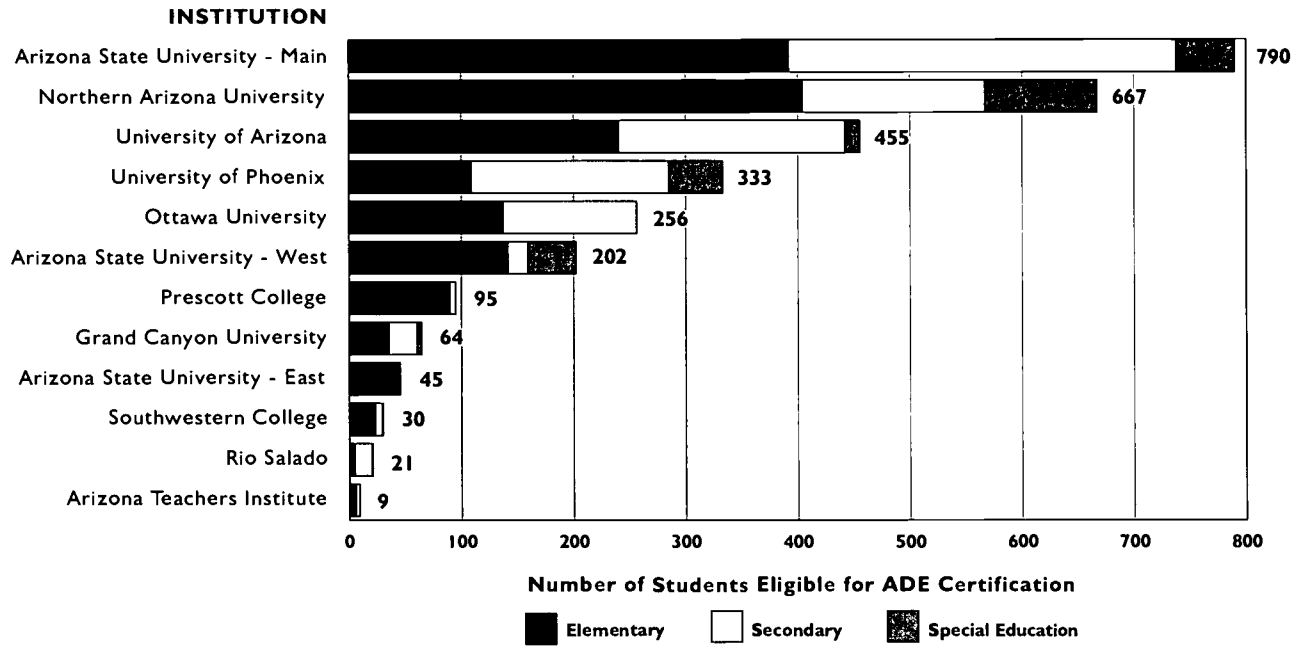
In-migrants

Every year, teachers from other states move to Arizona, at least partially offsetting the number of Arizona teachers who leave. In-migrating teachers certified in other states do not automatically qualify for a standard or provisional Arizona teaching certificate, but they may apply for a reciprocal provisional certificate, allowing them to teach for up to two years while they complete the requirements for an Arizona certificate. The number of these reciprocal certificates is tracked by ADE.

Some in-migrating teachers, however, take a different route to certification. They obtain an Arizona emergency certificate, which allows them to teach while they complete state certification requirements. But ADE data do not differentiate emergency certificates issued to in-migrants from those issued to current Arizona residents. Therefore, it is not possible to get an accurate count of all in-migrating teachers based on existing ADE data.

As an alternative means of calculating in-migration, this study estimated the number of in-migrating teachers based on

FIGURE 1 **Arizona Accredited Pipeline Institutions Produced About 2,970 Potential Teachers in 2001-2002**



Source: Morrison Institute for Public Policy, 2002.

Arizona's overall adult in-migration. Although cyclical, the state's adult in-migration generally occurs at a rate of about 5 percent of the total population (Center for Business Research, 2001b). Assuming teachers migrate to Arizona at the same rate as the general adult population, and accounting for population growth, an estimated 2,880 teachers move to Arizona each year.

Supply Due to In-migration

	2002	2010
Current Teaching Population	51,740	63,130
Rate of In-migration	5%	5%
Total Teacher In-migration	2,590	3,160

Returning Arizona Inactive Certified Teachers

A final component of the overall teacher supply equation is the pool of inactive certified teachers — people who are certified to teach but for one reason or another are not currently employed in the classroom. These might be individuals who have taken a few years off to raise a family, or recent college graduates who have decided to travel for a period of time before embarking on a teaching career. Every year a portion of these inactive certified teachers decide to join — or rejoin — the teacher pool, and they are not otherwise accounted for by the pipeline institutions or in-migration. Accurate Arizona data on this component do not exist, so national data were used to estimate these values for the state.

The previous section on the demand for teachers showed that Arizona will need to hire about 6,880 new teachers each year through 2005, and 5,980 new teachers each year from 2006 to 2010. National data show that 23 percent of new hires typically are reentrants into the teaching profession (U.S. Department of Education, 1998). In Arizona, therefore, returning inactive teachers would represent about 1,580 new hires through 2005 and 1,380 from 2006 to 2010. An examination of ADE data suggests that there is an adequate number of inactive certified teachers in Arizona to accommodate this number of returnees each year.

Finding the Balance

The current figures for annual teacher demand and supply show no overall shortage of teachers in Arizona; however, the surplus is very small (see Table 5). With an estimated annual demand of 6,880 through 2005 and 5,980 from 2006 to 2010, and an annual estimated supply of 7,130 through 2005 and 6,930 from 2006 to 2010, the difference — 250 teachers through 2005 and 950 from 2006 to 2010 — is narrow. Furthermore, this estimated surplus could be affected by both the accuracy of the assumptions in the calculations and other factors that include:

- The condition of Arizona's overall labor market. Absent substantial changes in demand and supply, the teacher applicant pool by 2010 yields about 1.2 new applicants for each open position. This surely creates difficulties for some school districts hoping to fill positions with high quality individuals. The "law of demand and supply" would normally suggest that the labor market should adjust to long-term demand through the dynamics of the free market, for example through higher salaries. Teacher salaries, however, are subject to price controls, including state per pupil funding, therefore the labor market for teachers cannot be expected to adapt freely.
- The actual number of Arizona-grown teachers who decide to enter Arizona classrooms. Pipeline colleges do not carefully track their graduates' employment. When surveyed, most could estimate the number of graduates that had taken a classroom job, but they could not distinguish at all between those who worked in Arizona and those who moved out of state.
- The actual number of in-migrating teachers who enter the classroom. Not all in-migrating teachers actually enter the classroom. No reliable data, however, capture the number who do.
- The actual number of teachers who leave the profession or move out of state each year. Few K-12 school districts conduct exit interviews or track where their teachers go when they leave. Without these procedures it is difficult to determine an accurate attrition rate for Arizona.
- The Teacher-Student Ratio (see page 8).

TABLE 5 FINDING THE BALANCE Between Demand and Supply

Estimates of	2002-2005	2006-2010
Yearly Demand for Teachers		
Student Growth	1,420	1,420
Attrition	5,460	4,560
Total Demand	**6,880**	**5,980**
Yearly Supply of Teachers		
Arizona Trainees	2,670	2,670
In-migrants	2,880	2,880
Returning Inactive Certified Teachers	1,580	1,380
Total Supply	**7,130**	**6,930**
Surplus Each Year	**250**	**950**

Source: Morrison Institute for Public Policy, 2002.

OUT OF BALANCE: GEOGRAPHY, DEMOGRAPHY, SUBJECT MATTER

Despite an overall surplus, teacher shortages already occur in specific regions and subject-matter areas, and these shortfalls may worsen in the near term.

The data presented thus far in this report address demand and supply for the state as a whole. But a somewhat different picture emerges when teacher demand and supply are disaggregated.

Demand for teachers is projected to exceed available supply in Arizona's rural western regions (especially Yuma), some exurban Phoenix areas (locales beyond the suburbs that exhibit rural qualities but appear to be in the path of urban growth) and, to a lesser extent, in urban Phoenix school districts. At the same time, changing demographics will complicate the need for teachers in many locations. Population projections indicate that Arizona's school-age children will be increasingly Hispanic — a trend that may require more teachers with special language training than are available for hire. And, although media attention has focused on the need for math and science teachers, it appears that the greatest hiring challenge for schools is finding enough certified special education teachers. Even in regions where there are enough overall teachers to go around, the data show that teachers are not applying for positions generally perceived to be difficult, either because of their location or because of characteristics of the student population.

Urban and Rural Disparity

Student growth is currently producing a great need for new teachers in Maricopa, Pima, Yuma, Mohave, Pinal, and Yavapai counties (Center for Business Research, 2001a), as shown in Figure 2. Some other counties, however, are projected to experience population declines, and could have a surplus of teachers in the future.

One indicator of how much demand for teachers may be exceeding supply is the number of teachers in a county holding emergency certificates compared to the total number of teachers employed. On a short-term basis, school districts can hire teachers with emergency certificates when they cannot find enough teachers with appropriate standard certificates.

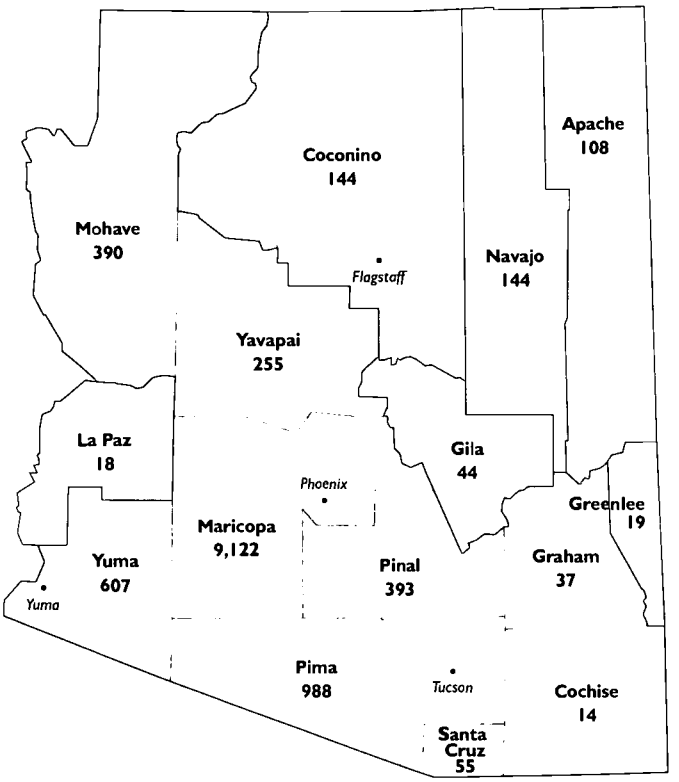
Relatively large percentages of emergency certificates have been issued in some fast-growing rural counties of the state (see Figure 3). These include Yuma, Mohave, and La Paz counties along the California border, Santa Cruz County along the Mexico border, and Pinal County, which is located in central Arizona between the state's two largest metropolitan areas. Some very slow-growing counties, however, also have relatively high proportions of emergency certificates, particularly Apache and Navajo counties in northeast Arizona.

Looking at individual school districts with more than 50 teachers, the highest percentages of emergency certificates are found in Native American school districts, fast-growing rural school districts, and exurban Phoenix school districts (see Table 6).

School districts in urban Phoenix also appear to have staffing problems. Certification data show that Murphy School District has 25 percent emergency certificates issued compared to teaching staff, Osborn has 15 percent, and Roosevelt, Creighton, and Isaac all have 11 percent or more. The actual number of emergency certificates issued in these districts is Roosevelt 77, Creighton 58, Isaac 50, Murphy 39, and Osborn 36. One

FIGURE 2 **Some Counties Will Need Teachers, But Others Will Not**

Difference Between Teachers Needed in Arizona Counties 2009-2010[1] and Teachers Employed in 2001-2002[2]



Source: Morrison Institute for Public Policy, 2002.

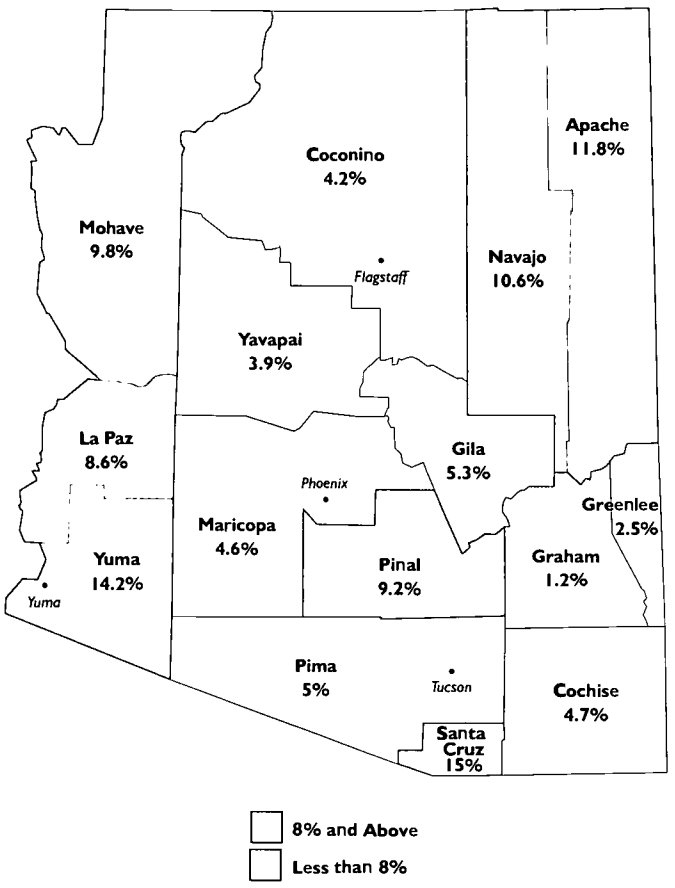
(1) Data from Center for Business Research, 2001a. (2) Data from Arizona Department of Education, 2002c and 2002f; Arizona State Board for Charter Schools, 2002.

reason given by these school districts for the tight labor market in their locales is the perception that they are located in areas of high poverty.

Interviews with representative school districts throughout the state reveal distinct differences between the outlooks of suburban and rural districts when it comes to staffing. Suburban districts tend to have more confidence that they will fill their openings with qualified Arizona teachers. Rural districts, meanwhile, tend to mention they recruit teachers from out of state to fill their ranks. In addition, they often feel that their Arizona applicants tend to be less qualified than applicants to suburban districts. Some rural districts, particularly Native American school districts, also cite their rural location and isolation as a negative factor in attracting teachers.

FIGURE 3 High Percentages of Emergency Certificates Indicate Unmet Demand for Teachers

Emergency Certificates Issued[1] as a Percent of Total Teachers, 2001[2]



Source: Morrison Institute for Public Policy, 2002.

(1) Data from Arizona Department of Education, 2001b. (2) Data from Arizona Department of Education, 2002c.

Note: Emergency certificates do not apply to charter schools. They are not included in these teacher counts.

Emergency Certification Does Not Always Mean "Underqualified"

When a school district finds a shortage of certified teachers to fill all of its classrooms, the district can request that ADE's Division of Certification issue emergency certificates for uncertified teachers. This allows applicants without standard teaching certificates to be hired temporarily. Thus, emergency certificates are often used as proxies for identifying underqualified teachers. Not all emergency certificates, however, are issued for truly underqualified people. On some occasions, schools may want to hire new college of education graduates before they have completed all regulatory requirements — they may simply be awaiting the teacher exam, fingerprint clearance, or completion of some additional coursework. Other applicants could be "nontraditional" such as Teach For America teachers or professionals from another field making a career change. An analysis of 2001 emergency certificates revealed that about 25 percent of emergency certificate holders completed all requirements necessary to receive provisional certificates the following year.

TABLE 6 Location of Districts with a High Rate of Emergency Certificates Issued, 2001[1]

District	Percent	Number of Emergency Certificates	County	Location
Piñon	38%	31	Navajo	North Rural
Ganado	20%	24	Apache	North Rural
Red Mesa	15%	9	Apache	North Rural
Gadsden	36%	48	Yuma	West Rural
Somerton	19%	18	Yuma	West Rural
Bullhead City	16%	34	Mohave	West Rural
Laveen	21%	20	Maricopa	Exurban Phoenix
Higley	18%	10	Maricopa	Exurban Phoenix
Dysart	18%	48	Maricopa	Exurban Phoenix
Murphy	25%	39	Maricopa	Urban Phoenix
Osborn	15%	36	Maricopa	Urban Phoenix
Nogales	17%	47	Santa Cruz	South Rural

Source: Morrison Institute for Public Policy, 2002.

Data: Arizona Department of Education, 2001b and 2002c.
(1) Districts with more than 50 teachers and 15 percent of emergency certificates issued compared to number of teachers.

Note: Emergency certificates do not apply to charter schools. They are not included in these teacher counts.

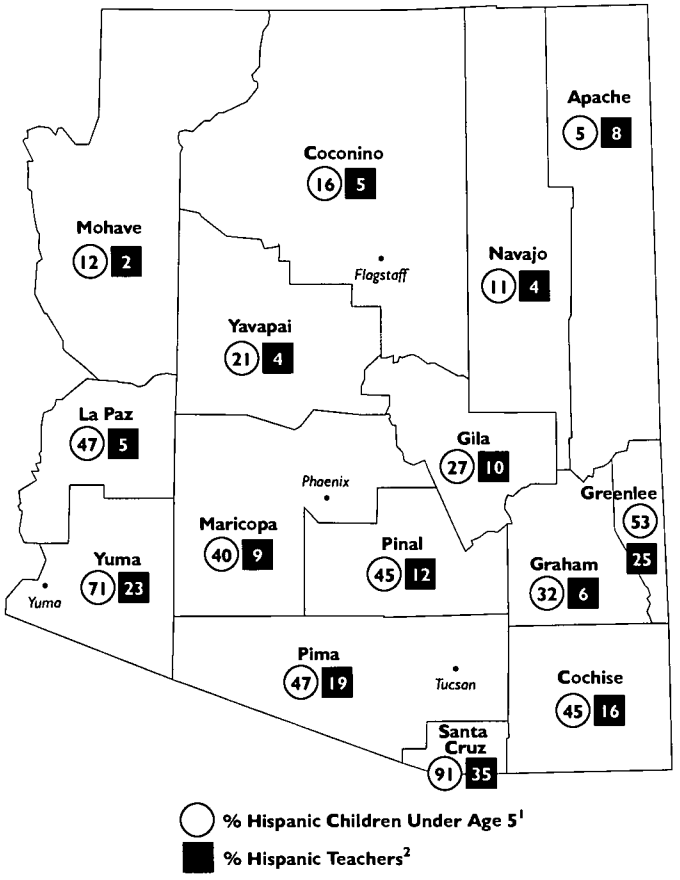
Demographic Shift

Increase in Hispanic Students

Census data show that Hispanic children are by far the fastest-growing major segment of Arizona's school-age children. By the 2009-2010 school year, they are projected to become the majority of the state's K-3 students. In contrast, however, most of Arizona's current teachers are not Hispanic (see Figure 4).

Already, more than half of all children under age five in Yuma, Greenlee, and Santa Cruz counties are Hispanic, as are almost half in Pima, Pinal, La Paz, and Cochise counties. In Maricopa County, the Hispanic K-3 population is expected to grow to 40 percent within the next few years.

FIGURE 4 **Percentages of Children Under 5 Who Are Hispanic Are Higher than Percentages of Teachers Who Are Hispanic**



Source: Morrison Institute for Public Policy, 2002.

(1) Data from Center for Business Research, 2001a. (2) Data from Arizona Department of Education, 2002e.

Note: Data for charter schools were not available. They are not included in these teacher counts.

These changing demographics in Arizona's student population raise two main concerns. First is the implied need for more teachers trained to teach students with Limited English Proficiency (LEP). ADE reports that about 160,000 (22%) of students in Arizona primarily speak Spanish at home. Of those, about 136,000 (85%) are enrolled in an LEP program (Arizona Department of Education, 2000), and that number is likely to increase. Nevertheless, ADE reports that fully 43 percent (about 3,600) of current teachers with LEP students do not hold the required LEP endorsements.

This situation is not likely to be resolved in the near term. ADE's Certification Division reports that only 620 provisional endorsements for English as a Second Language (ESL) and Bilingual Education (BLE) — indications of LEP qualification — were issued in 2001. At that rate, it would require nearly six years to meet the current shortfall of LEP qualified teachers before even beginning to address new demands expected from attrition and growth of the Hispanic population (see Table 7). Moreover, the state must also comply with the *Flores vs. Arizona* (1992) ruling that found, among other things, that the state does not have enough qualified teachers to serve its non-English speaking students. Consequently, the court required Arizona to allocate additional funds in 2001 to ensure these students can overcome language barriers. Compliance with this order, however, has been complicated by passage of a recent statewide ballot initiative, Proposition 203, which now mandates that subjects be taught exclusively in English, and further requires English language immersion classes for non-English speakers.

A second concern is the mismatch between teacher and student ethnicity. Research suggests that students achieve higher test scores when their teacher is someone of the same racial or ethnic background (Dee, 2000), or someone at least familiar with students' cultural and linguistic characteristics or needs (Brown, 1994). While this finding does not mean schools must have complete parity between percentages of Hispanic teachers and percentages of Hispanic students, the situation facing Arizona is clearly far out of proportion and also unlikely to be remedied in the near term.

TABLE 7 Playing Catch-up with LEP Needs

Number of LEP Students[1]	Number of Trained LEP Teachers Needed to Meet Current Demand[1]	Number of ESL and BLE Certificates Issued (2001)[2]	Number of Years Needed to Meet Current Shortfall Only[3]
136,000	3,600	620	6

Source: Morrison Institute for Public Policy, 2002.

Data: (1) Arizona Department of Education, 2000; (2) Arizona Department of Education, 2001b. (3) Does not include new demand due to growth or attrition.

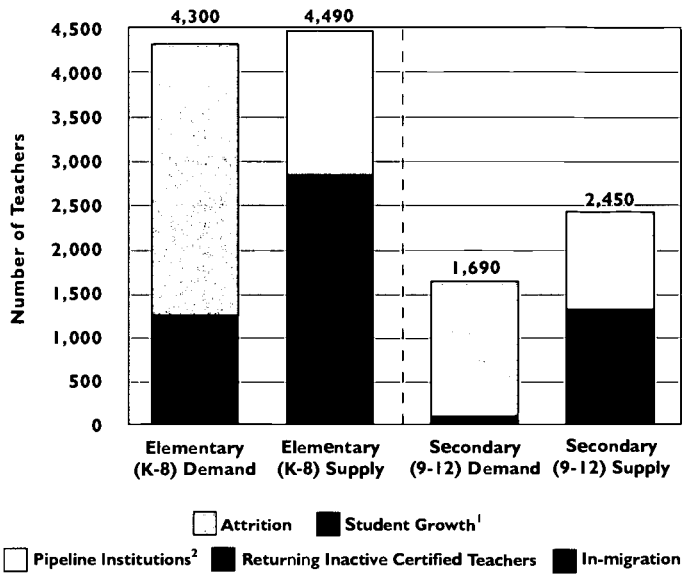
Increases in Elementary Students

Population growth projections forecast a demographic shift toward younger students. Therefore, the majority of new teachers will be needed at the elementary level, while secondary teachers will be in less demand (see Figure 5). The labor pool for elementary school positions will have a much smaller surplus than the pool for secondary schools — approximately 190 extra elementary teachers (about 1 candidate per position) versus 760 extra high school teachers (1.5 candidates per position) by 2010.

At the elementary level, it is expected that about 4,300 new elementary teachers will be needed each year — about 1,280 to accommodate growth of the student population and about 3,020 to meet attrition. Meanwhile, about 4,490 elementary teachers will be available — approximately 1,590 will come from Arizona pipeline institutions (Morrison Institute, 2002), 1,910 from in-migration, and 990 from the return of inactive certified teachers.

At the secondary level by 2010, approximately 1,690 new hires will be needed each year — about 150 due to growth of the student population, with another 1,540 needed to meet attrition. At the same time, the supply of secondary school teachers will be an estimated 2,450 — about 1,090 will come from pipeline institutions, 970 from in-migration, and 390 from returning inactive certified teachers.

FIGURE 5 Yearly Demand and Supply of Elementary and Secondary School Teachers by 2010



Source: Morrison Institute for Public Policy, 2002.

(1) Center for Business Research, 2001a. (2) Morrison Institute for Public Policy, 2002.

Note: Charter school proportions were calculated based on estimates by the Arizona State Board for Charter Schools.

Shortfalls in Specific Subjects

Subject-matter specialties, particularly special education, appear to be the most difficult teaching slots to staff. A recent survey of Arizona school districts (ASU-East, 2001) shows that special education ranked number one in the percent of teachers with emergency certificates (see Table 8). Follow up interviews in 2002 by Morrison Institute researchers corroborated this finding. School districts reported that special education demand was higher than others due to its high student growth rate, high teacher attrition rate from "burnout," and a relatively small number of qualified applicants for positions.

A shortfall of certified special education teachers is anticipated through 2010. Currently, special education comprises almost 11 percent of the student population (including charter schools). Projections for special education indicate the need for about 910 new teachers per year until 2010. An estimated 200 annually will accommodate new growth, while about 710 annually will replace those lost to attrition from the profession or into general education (Smith & Tyler, 2001). Meanwhile, Arizona's pipeline institutions currently produce only about 260 new special education teacher trainees per year — meeting, at best, 29 percent of demand. In-migration should produce about 350 new teachers, while returning inactive certified teachers can be expected to supply about 170, leaving an estimated shortfall of 130 certified special education teachers.

Several other areas also show high proportions of emergency certified teachers, according to the 2001 ASU-East survey. Among these are music, ESL/BLE, science, math, art, and English. Interviews conducted with school districts in 2002 supported the finding that ESL/BLE ranked as one of the top staffing problems. On the other hand, these districts also indicated that the staffing situation for math and science was improving and not as difficult as for other subject areas.

Some care should be taken in interpreting these data because of the intricacies of subject-matter certification and endorsement. Music teachers, for example, may be over represented on emergency certification because they are required to be certified for each level they teach — which means that someone trained for elementary orchestra, but assigned to teach high school orchestra, would have to obtain an emergency certificate while completing coursework for the new certification. Junior high math and science teachers, meanwhile, may be under represented because they are not required to have the same type of subject-matter endorsement as teachers at the high school level. Thus, none would need an emergency certificate for these particular subjects.

TABLE 8 **Percent of Teaching Positions Filled by Someone with an Emergency Certification, 2000-2001**

Class	Elementary	Secondary
Special Education	10%	9%
Music	5%	7%
ESL	1%	6%
BLE	4%	
Science		6%
Math		5%
Art	3%	5%
English		5%
Vocational	4%	
Social Studies		3%
P.E.	2%	2%

Source: Morrison Institute for Public Policy, 2002.

Data: Arizona State University-East, 2001. The sample represents 84 school districts and almost 13,000 teachers (about 7,600 elementary and 5,100 secondary).

The first section of this report established that, while the demand and supply of teachers is a complicated and imprecise issue, there appears to be a balance in the overall number of teachers and classrooms in Arizona. The second section, however, revealed hidden shortfalls in a number of geographic and subject-matter areas — and that some of these shortfalls are likely to worsen in the near term. In addition, this section has presented forecasts that elementary schools will face a much tighter labor market than high schools.

TIPPING THE BALANCE: INACTIVE CERTIFIED TEACHERS IN ARIZONA

Managing attrition and encouraging the return of inactive certified teachers will be crucial to ensure a sufficient teacher pool.

Inactive certified teachers who return to the classroom represent the smallest component of teacher supply, but they may prove critical to alleviating shortfalls. A new statewide survey of Arizona inactive certified teachers provides some insight (Morrison Institute, 2002). While many teachers leave the profession for personal reasons such as raising a family or retirement, others leave because of unsatisfactory aspects of the classroom environment or school system. Even so, as much as one-third of this pool may "seriously consider" teaching again, especially if pay were increased or class size reduced.

Until now, inactive certified teachers have not been carefully tracked or surveyed in Arizona. In the spring of 2002, O'Neil Associates, Inc., under the direction of Morrison Institute, conducted a random sample survey of Arizona inactive certified teachers to determine why they left the profession or never entered it, and also to test the efficacy of proposals to recruit these teachers back into the classroom. Responses by the 804 interviewees are within ±3.5 percent of figures likely obtained (with a 95 percent level of confidence) had every inactive certified teacher in Arizona been interviewed. (Appendices D and E provide details on survey methodology and results.)

Potential Labor Pool

By field-testing ADE's Teacher Certification Division database, this study estimates that Arizona has 11,000 inactive certified teachers. Of 804 respondents from this universe, 35 percent indicated they would "seriously" consider becoming employed or reemployed as a public school teacher. Thus, as many as 3,850 people could be seriously interested in returning to the teaching profession. Not all, however, will actually make it into the classroom, and not all will return in a given year.

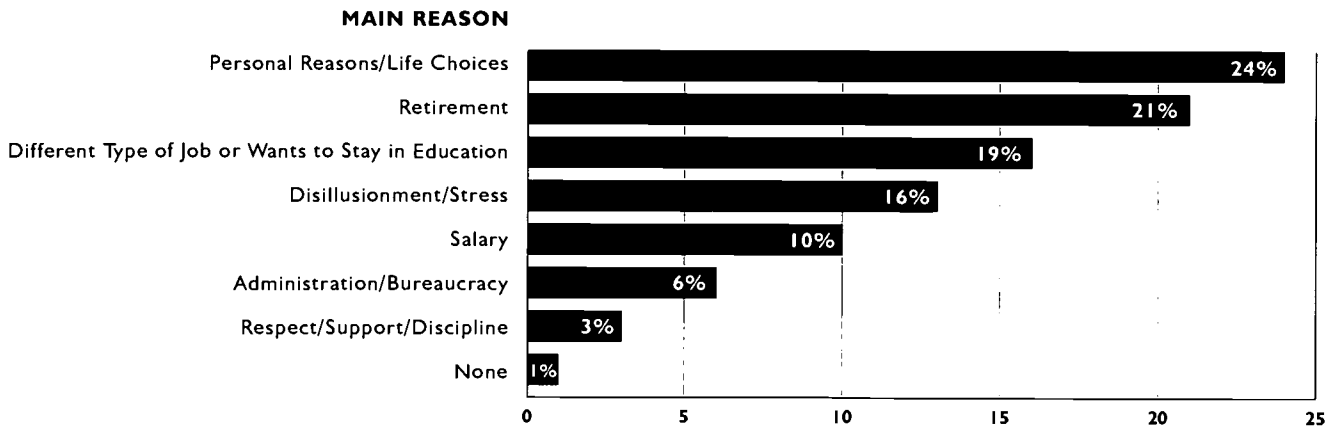
Why Teachers Leave (or Never Enter) the Profession

Survey respondents were asked to supply their main reason for leaving or not entering the profession. Close to half said they left the profession either for personal reasons, such as raising a family (24%), or for retirement (21%). These individuals may not be strongly influenced by changes in school district policies. Nevertheless, a portion of these teachers are likely to return when their children start school or if retirement "doesn't work out."A significant number of other respondents, however, left for reasons that may be preventable — reasons such as disillusionment and stress (16%), low salary (10%), frustration with administration and bureaucracy (6%), and lack of respect or support (3%) (see Figure 6). Stress, administrative burden, and lack of respect and support are considered components of overall "classroom environment." Thus, about one quarter of Arizona's inactive certified teachers might not have left the profession had their work environment been more acceptable.

A closer look at these data shows:

- Of the 24 percent of teachers who said they left the profession for personal reasons, most were pregnant or taking care of their children.
- Of the 21 percent who retired, almost half were under the age of 60.
- Only 10 percent of teachers said that low pay was the main reason they left teaching or never started.
- Almost 20 percent of respondents are not lost to the profession. They either took a different job such as administration or they wanted to stay in the profession (e.g. applying for teaching positions or taking classes to further their education career.)

FIGURE 6 **Main Reasons for Leaving or Not Entering the Teaching Profession (N=804)**



Source: Morrison Institute for Public Policy/O'Neil Associates, Inc., 2002.

Inactive Certified Teachers Who Might Teach (Again)

Two survey questions provided data on what policies or factors might motivate inactive certified teachers to either start or return to teaching. Survey respondents were given a list of potential policies and other ideas and asked to indicate how likely each proposal would be to motivate them to teach. In a follow-up open-ended question, respondents were also asked to name one key factor that would most likely lead them to return to the profession.

Policy Proposals

Survey respondents gave favorable responses to several proposals (see Figure 7). Over 70 percent of respondents said increased pay would "very likely" make them reconsider teaching. This appears contradictory to the previously mentioned finding that only a small percentage of these inactive teachers said low pay was their main reason for leaving the profession, which indicates that compensation is a complicated issue.

The next most favored proposals concerned classroom environment — reducing class size (66%), reducing paperwork (56%), and making schools safer (54%). A recently released national *Schools and Staffing Survey* corroborates the paperwork issue. Arizona ranked second highest for the percentage of teachers who said that routine duties and paperwork interfere with their teaching — 78 percent in Arizona compared to 71 percent nationally (U.S. Department of Education, 2002).

The next most popular proposal on the survey of inactive certified teachers was providing tuition reimbursement (53%). Teachers make more money as they gain formal education, yet such courses can be costly.

Respondents' One Key Factor

In response to the open-ended question regarding the one key factor that would motivate inactive certified teachers to return to the profession, the most frequent answer was increased pay (29%), followed by personal/life choices (15%), and factors related to public support and respect (12%). Other open-ended responses included reduced class size (8%), improved classroom environment (8%), and increased administrative support (6%). On the other hand, 10 percent said that nothing would bring them back (see Table 9).

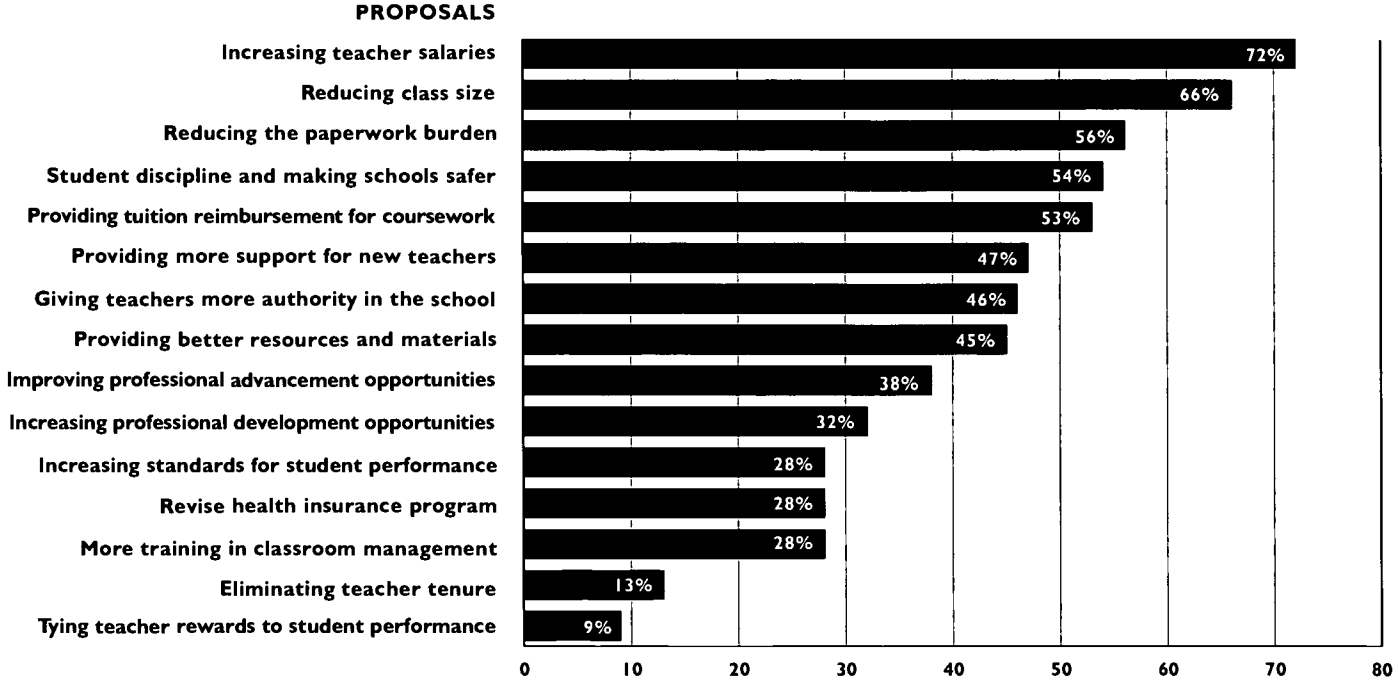
TABLE 9 **The One Factor that Would Make Inactive Teachers Enter or Re-enter the Profession**

Pay	29%
Personal/Life Choices	15%
Public Support/Respect	12%
Nothing	10%

Source: Morrison Institute for Public Policy, 2002.

Data: O'Neil Associates, Inc., 2002.

FIGURE 7 **Proposals that Would "Very Likely" Make Teachers Consider Teaching (Again)** N=804



Source: O'Neil Associates, Inc., 2002.

Importantly, a substantial number of teachers said they might be interested in teaching where they are most needed — in challenging situations. When respondents were asked if they would consider working in a difficult school with hard-to-educate students if they were paid more for this duty, almost 40 percent said "yes," while about 45 percent said "no."

Hispanic Inactive Certified Teachers

Due to rapid growth in the percentage of Hispanic students expected to attend Arizona schools in coming years, districts will be looking for additional LEP trained and Hispanic teachers. Analysis of inactive certified teachers surveyed who identified themselves as Hispanic gives an indication of what led to their departure and what might help retain more in the future. Disillusionment and stress (23%) was the leading reason for leaving, followed by taking a different job or wanting to stay in the profession (21%), and personal or life choices (17%). (Detailed survey results are listed in Appendix E.)

The leading incentives that Hispanic inactive certified teachers said would attract them back were salary (75%), reduced class size (72%), better resources (72%), and decreased paperwork (69%). These response rates were higher than for non-Hispanic respondents. In addition, 68 percent of Hispanic respondents said they would be interested in returning to tougher schools for higher pay, compared to only 39 percent of non-Hispanic respondents. The number of Hispanic respondents to this survey was low (see Appendix D) because Hispanics are underrepresented in the teaching pool. However, since the actual number of inactive certified teachers who are Hispanic is unknown, these responses may be reliable.

Relatively Inexperienced Inactive Certified Teachers

One-third of new teachers leave the profession within their first three years of teaching (Ingersoll, 2001). As seen in Table 10, these teachers give different reasons for leaving the teaching profession than teachers with a little more experience. Inactive teachers with fewer than three years of experience most often cited salary (28%), personal or life choices (24%), and taking a different job or wanting to stay in the profession (21%) as their top reasons for leaving, while teachers with three-to-five years of experience cited personal or life choices most often (35%), with fewer citing salary (17%) or a different job or wanting to stay in the profession (15%). The two groups generally agreed on the top three proposals most likely to bring them back: increased salary, smaller class size, and tuition reimbursement.

Inactive Certified Teachers in Rural Locations

Rural school districts face special challenges in attracting teachers. Among these are generally lower salaries and fewer amenities in many locations. To take a closer look at responses of inactive rural teachers, survey respondents were categorized by the county they lived in as either urban (Maricopa County and Pima County) or rural (all other counties.) Data from this analysis show that inactive teachers who currently live in rural areas left teaching primarily to retire (24%). (This does not necessarily mean that they taught in rural areas, but simply that they live there now.) Other top reasons for leaving include taking a different job or wanting to stay in the profession (21%), personal or life choices (18%), and disillusionment and stress (17%) as shown in Table 10. The top incentives that could entice them back into the teaching workforce include increased pay (73%), reduced class size (70%), decreased paperwork (59%), and improved discipline and safety (59%).

TABLE 10 **Inactive Certified Teacher Subgroups Top Reasons for Leaving and Policies that Could Bring Them Back**

	Less Than 3 Years Experience	3-5 Years Experience	Rural Residents	Special Education and ESL/BLE Endorsements
Reasons for Leaving	Salary (28%)	Personal/Life Choices (35%)	Retirement (24%)	Personal/Life Choices (23%)
	Personal/Life Choices (24%)	Salary (17%)	Different Job/Want to Stay in Profession (21%)	Different Job/Want to Stay in Profession (21%)
	Different Job/Want to Stay in Profession (21%)	Different Job/Want to Stay in Profession (15%)	Personal/Life Choices (18%)	Disillusionment/Stress (20%)
			Disillusionment/Stress (17%)	Retirement (18%)
Policies to Bring Back	Increased Salary (69%)	Increased Salary (73%)	Increased Salary (73%)	Increased Salary (76%)
	Reduced Class Size (66%)	Reduced Class Size (71%)	Reduced Class Size (70%)	Reduced Class Size (66%)
	Tuition Reimbursement (60%)	Tuition Reimbursement (52%)	Decreased Paperwork (59%)	Decreased Paperwork (64%)
			Improved Discipline and Safety (59%)	

Source: Morrison Institute for Public Policy, 2002.

Data: O'Neil Associates, Inc., 2002.

Inactive Certified Subject-Matter Area Teachers

A number of subject-matter areas, particularly special education and LEP programs, appear to have a shortage of certified teachers. Analysis of survey responses from inactive certified teachers with certifications and endorsements in these fields reveals that they generally left teaching for the same reasons as other teachers — personal or life choices (23%), taking a different job or wanting to stay in the profession (21%), disillusionment and stress (20%), or retirement (18%) (see Table 10, page 19).

The recruitment incentives of most interest to them also mirrored those for the whole sample — increased salaries (76%) and reduced class size (66%). However, decreased paperwork (64%) was somewhat higher for specialty teachers than for all respondents (56%) — not surprising, since these teaching specialties typically require extra paperwork.

Arizona's Labor Market and Teachers

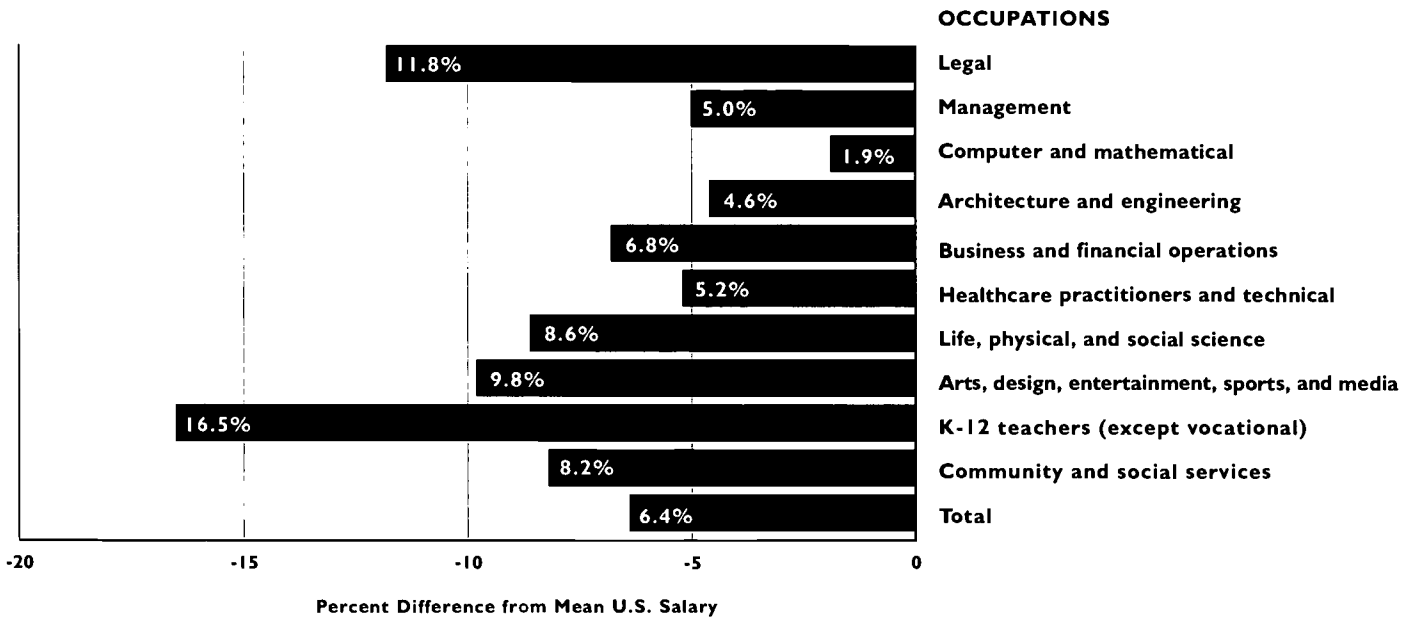
Given the constant public discussion of teacher pay, a few facts about Arizona's job market are worth noting.

First, Arizona teacher salaries are below the national average. In 2001-02, Arizona's average teacher salary was $39,973 — ranking 26th in the nation — while the national average was $44,499 (National Education Association, 2002). This is an upward trend from 2000-01 when Arizona was ranked 33rd among all states. The improvement may be due in part to salary increases from a recent state ballot initiative, Proposition 301.

In the past Arizona teacher's salaries have not compared well to the U.S. average (see Figure 8). In fact, the state has not compared well to the U.S. average in any field except perhaps computer and mathematical occupations. Teachers' salaries, however, have been the least competitive.

So, when inactive teachers say that higher salaries would bring them back, they may have in mind either of two measures: salaries on par with the nation as a whole, or salaries on par with similar occupations. Historically, Arizona has done poorly in both respects. The pay issue, however, is complex — while relatively few survey respondents reported it as their main reason for leaving, a vast majority said an increase in pay would highly influence their decision to return to the classroom. It is unclear how recent raises from Proposition 301 may afffect these results and further research is needed.

FIGURE 8 **Arizona Salaries Lagged Behind the U.S. in 2000**



Note: The federal government has strict disclosure regulations to prevent data on a particular company from being released or otherwise ascertained. The regulations result in considerable data being withheld for all but the most populous areas (Arizona and Maricopa County).

Source: Morrison Institute for Public Policy/Center for Business Research.

POLICY ISSUES: INCREASING THE SUPPLY OF TEACHERS

Policy changes are needed to increase and monitor Arizona's supply of teachers, especially in specific areas.

Arizona's teacher supply is in delicate balance with the demand for new teachers. Overall, only about 1.2 applicants per new teaching position will be available each year by 2010 — with shortfalls likely in specific locations and in certain subject-matter areas. Therefore, policymakers should take steps now to ensure an adequate supply in the future. This study provides a basis for policy action in the following areas: production and recruitment, compensation, changes in the classroom environment, and data tracking.

Production and Recruitment

With only about 1.2 applicants per vacant position, some school districts simply will not have much choice in whom they hire. A larger applicant pool would give them greater opportunity to hire quality teachers. While this study only addressed the quantity, not the quality, of teachers, simply hiring enough "warm bodies" does not adequately serve the needs of Arizona students or taxpayers.

One way to enlarge the teacher pool is to increase the production and recruitment of teachers. Policy options to accomplish this include:

- Increase production of teacher graduates at Arizona training institutions. Arizona's teacher training institutions need to ratchet up their production of teacher graduates, especially in selected areas. The findings from this study suggest that all pipeline institutions should plan to increase their capacity, either now or in the very near future. Such teacher training institutes should also pursue nontraditional options for entry into the profession.
- Strengthen *state-level* efforts at out-of-state recruiting. Currently each school district tends to rely on its own resources to recruit teachers both within Arizona and out-of-state. Although the state provides assistance in the form of a website where districts can post jobs and candidates can search and apply for them (www.arizonaeducationjobs.com), ADE should intensify recruitment by advertising in out-of-state recruiting fairs and taking other actions aimed at attracting as many quality out-of-state candidates as possible.
- Remove and/or streamline certification requirements. Allowing districts to hire professionals and subject-matter experts without Arizona certification would clearly increase the supply of teachers. Arizona already allows this option for its charter schools and should consider extending the same option to all public schools. Certificate flexibility could also reduce the paperwork requirements of securing emergency certification and enlarge the pool of teaching candidates. While there is much debate about this topic, it remains an option. Driving this option may be changes to the Federal Elementary and Secondary Education Act ("No Child Left Behind"), which requires high quality teachers in all classrooms in the next five years. Thus, the process that teachers go through to be certified in Arizona needs to be critically examined and streamlined.
- Create incentives to motivate inactive certified teachers to return to the classroom. Many teachers who become inactive might simply need to "recharge their batteries." They would be more likely to reenter the profession if they were able to take time off as part of a leave or sabbatical program that guarantees their job and pay scale upon return, rather than if they were to resign and then reapply for employment at what would likely be lower pay. Similarly, teachers who leave the profession to raise a family may find it easier to return to work if their position, or one similar to it, has been held for them.
- Target production and recruitment in critical areas. The need for special education teachers and the imbalance between Hispanic students and LEP-trained teachers poses a particular challenge to Arizona's future. The good news is that survey research shows special education and LEP-trained teachers may be willing to return to teaching at a higher rate than other inactive certified teachers. But simply recruiting these teachers back into the profession will not be sufficient to meet anticipated demand. School districts might bolster the workforce in critical areas if they were to "sponsor" college students who choose these specialties, and then promise a job when they graduate. The state also could provide scholarships and tuition reimbursement programs to college students preparing for a teaching career in a high need area.

Compensation

Pay is certainly an important factor in recruiting teacher candidates into schools and retaining them. Occupational data show that teaching is one of the most poorly paid professions in the state. Policy options that could affect this situation include:

- Offer tuition reimbursement or similar programs. Whether sponsored by school districts or the state, tuition reimbursement and loan deferment benefits are less expensive than pay increases but can, over the long run, increase a teacher's earning potential. Teachers reportedly find this appealing.

- Consider differentiated or "combat" pay. According to survey responses, inactive teachers in subject-matter areas where teachers are in short supply (such as special education and LEP programs) would return to harder classrooms if they were given more pay. Targeting higher pay to specific teacher qualifications, school demographics, or subject areas needs to be examined as a way to enhance the supply of teachers. At the same time, the disparity between salaries in rural and suburban locations also needs to be examined. Many rural locations report that a standardized pay scale across the state could help alleviate "district hopping" of teachers as they gain experience.
- Fund non-student days. In Arizona, teachers typically are paid to work two days before the school year starts and one day after it ends. This does not allow adequate time to address the demands of the job. Some additional paid "preparation days" could improve the quality of life for teachers and help retain them in the profession.

Classroom Environment

Increasing pay and reducing class size are relatively expensive recruitment and retention strategies. Some less costly measures for improving the classroom environment also could be effective at recruiting inactive teachers and retaining current teachers. These measures include:

- Reduce paperwork burden. ADE and school districts should examine teachers' concerns about excessive paperwork and consider streamlining data collection. Both this study's survey responses and national information indicate an unusually high paperwork burden is felt by the state's teachers.
- Improve discipline and safety. The pressure to please parents (or keep from getting sued) means that teachers may find it difficult to discipline children. Teachers want attention paid to this subject. Policies that emphasize the teacher's authority — such as establishing written contracts in which parents, students, and teachers all agree on expectations for acceptable student behavior — can set the tone for an improved classroom environment.

Data Tracking

Collecting and reporting data on each of the components of teacher demand and supply is vital to managing teacher workforce issues in Arizona. But this process should be designed to create less paperwork demand on schools and districts. Key to the effectiveness of this process is that each entity provide data to a central location through an easy-to-use interface. Among the data to be assembled:

- Establish a dynamic database and institute annual reporting on teacher demand and supply. The current availability of data on teacher demand and supply in the state is seriously inadequate, and much of the data itself is flawed or incomplete. In part, this is because such data collection has not been pursued comprehensively, but only as necessary to satisfy funding or financial requirements — particularly for the federal government. Arizona, however, needs solid data on the demographics of teachers and their training history. Furthermore, this data must be comparable across different school districts with different hiring practices. In short, ADE data systems should be redesigned with information technology upgrades that make it simpler for districts to access and feed a modern, centralized "data warehouse." The department should then use this storehouse of data to produce an annual report on the status of teacher demand and supply.

Among the types of data that should go into this new teacher demand and supply warehouse are the following:

  - Sources of teachers — whether they are new trainees from pipeline institutions, in-migrants from out-of-state, or returning inactive teachers. This information could be extracted from job applications.
  - Teacher attrition — why a teacher is leaving and where the person is going (to another district, to another state, out of the profession, or into retirement).
  - Certification information — the number of certificates tied to classroom teachers, the number for in-state residents versus in-migrants, and the number of discrete individuals represented (many teachers have multiple certifications). This data can be gathered by ADE's Certification Division through a process of coding information on certificate requests; then it can be linked to employee records. Demographic information could also be collected through a revamped certification process.
  - Pipeline institution data — current enrollment of education majors, current enrollment in specialty areas such as special education and LEP, and expected graduation dates for education majors. This information would allow for a more targeted recruitment effort, especially in areas where there is greatest need.
- Improve data collection and distribution for student population trends and special needs. Two factors largely drive the demand for new teachers: rapid growth of student enrollment, and increased demand for special services (e.g., special education, LEP). School district information on these drivers, however, is not generally passed to Arizona pipeline institutions — the main supplier of teachers. Such information would help pipeline institutions produce the types of teachers most in demand, and it would also help new teacher trainees target their best opportunities for employment — currently in fast-growing rural areas, or in special education and LEP positions.

Summary

Quantifying the demand and supply of teachers in Arizona is a complex task. Not only is the labor market for teachers influenced by many disparate factors, but the data sources are incomplete, non-standardized, and difficult to access. Using original research and the best available data at this time, Morrison Institute concluded that there is no overall teacher shortage in Arizona. Nevertheless, several critical — and in some cases worsening — shortfalls are occurring in specific regions of the state and in some subject-matter areas. These will require policy action.

Even without an overall teacher shortage, Arizona's education labor market in education remains especially tight, particularly at the elementary school level. This situation will likely persist in the near future. If the labor market becomes too tight, it will have profound implications not only for the quantity of teachers available for Arizona classrooms, but also for the quality of those teachers. While this study has focused only on issues of quantity, ensuring that Arizona has enough quality teachers is a far more important consideration.

TABLE 11 **Policy Issues — Summary of Recommendations**

	Responsibility			
Recommendation	**Pipeline Institutions**	**School District**	**ADE**	**Legislature**
Recruitment				
Increase production of teacher graduates	•			•
Strengthen out-of-state recruiting		•	•	
Remove/streamline certification requirements			•	•
Create incentives to motivate return to classroom		•		•
Target recruitment in critical areas	•	•	•	
Compensation				
Offer tuition reimbursement		•		•
Consider offering differentiated or "combat" pay		•		•
Fund non-student days		•		
Classroom Environment				
Reduce paperwork burden		•	•	•
Improve discipline and safety		•		
Data Tracking				
Establish database & report on teacher demand & supply	•	•	•	•
Improve data collection/distribution of info on students	•	•	•	

Source: Morrison Institute for Public Policy, 2002.

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APPENDIX A

Potential Components Not Used in This Study

There are several components of demand and supply which were considered for this study, but were not quantifiable or were addressed through other means. However, understanding the demand and supply of teachers requires an awareness of these potential components.

Demand

- Loss of students to enrollment shrinkage from private schools, dropouts, etc.

  Student enrollment projections were derived from the anticipated school-aged population, with no distinction for whether or not these children were in regular public schools or charter schools. However, 4.28% was subtracted to account for private school students and 2% for home-schooled students — the proportion of students served in these venues for 1999 and 2001, respectively. If the proportion of students in private schools increases, these schools will need teachers to accommodate. So, while the need for teachers at public schools may decrease, these teachers still will be needed in Arizona. An increase in the proportion of home-schooled children will reduce the need for teachers in Arizona overall. Accounting for dropouts is more problematic, as there is little agreement on the actual drop out rate.

Supply

- Professionals from other disciplines

  This study defined supply of teachers as those certified by ADE since all schools, except charters, must only hire certified teachers. In order for professionals from other disciplines to be considered part of supply they would have to be certified. Thus, they would be counted in the supply from the pipeline institutions if they used that method to receive the credentials to become certified. Or, they may be teaching under an emergency certificate. In that case they would be counted as "underqualified" and the expectation is that they are working towards getting their certification.

Both Demand and Supply

- Side effects of other state, local, and federal policies and programs and changes to them

  There are many policies that can effect supply and demand, including class size, hiring incentives, budget issues, etc. Changes in these policies can affect the flow of new teachers into teaching, the flow of in-migrants into the state, and the attrition out of teaching. Quantifying these possibilities requires many assumptions that would create bias in the calculations.

Measures Used and Their Alternatives

Finding the best data to measure teacher demand and supply required much trial and error. However, in the future there may be better alternatives available — some of which are listed below.

Demand

- New positions created due to student growth
  - Measure used: Population projections based on 2000 U.S. Census, minus home school and private school students. Calculations could have left in private school students to determine how many teachers are needed in the entire state. However, there is no data on the supply of private school teachers, or the current number of private school teachers. This would have left the equation incomplete. ADE student enrollment data and teacher counts provided historical and current data for each school district and charter schools.
  - Alternatives: Local population projections based on new housing and other local data. Few districts are able to project more than a year out at this time; private school data.
- Current positions vacated due to attrition from...
  - Retirement
    - Measure used: Age of teachers, assuming retirement at age 64 (average age of retired teachers); age of teachers, assuming retirement at age 55.
    - Alternatives: Retirement projections from ASRS — currently unavailable; retirement projections from school districts based on age of staff — currently unavailable.
  - Leaving the profession before retirement
    - Measure used: National attrition data from NCES' *Schools and Staffing Survey*.
    - Alternatives: Local attrition data based on ADE employment database or local district records and/or exit interviews. Data is currently flawed or unavailable.
  - Leaving the state (out-migration)
    - Measure used: Population projections from 2000 U.S. Census.
    - Alternatives: Exit interviews from school district — currently unavailable.

Supply

- New trainees from college pipeline
  - Measure used: Current enrollment data from pipeline institutions.

- Alternatives: Enrollment projections from pipeline institutions — currently unavailable. Also, ADE's certification database does not capture this information.

- In-migration of certified teachers
  - Measure used: 2000 U.S. Census data.
  - Alternatives: Although the best potential method, ADE's certification database does not explicitly capture this information. A second alternative is teachers as a proportion of the workforce applied to in-migrants. This calculation reveals a small surplus would remain after 2005 though before then there would be a very slight deficit. K-12 teachers are 2.8 percent of the Arizona workforce (Center for Business Research, 2002). Applied to 60,700 employed in-migrants — 56 percent of 108,000 in-migrants — about 1,700 teachers entered the state in 2002 (Economic Information Systems, 2000). This does not account for population growth.
- Inactive certified teachers returning to the profession
  - Measure used: NCES data.
  - Alternative: Tracking through ADE's certification database and school district employee reports as well as recruitment information from school districts. Currently, this data is unavailable.

APPENDIX B

Data Sources

Data sources for this analysis included the following:

- Teacher counts and student counts from ADE's Research and Policy Division and School Finance Office and the Arizona State Board for Charter Schools.
- Population data and projections from the U.S. Census Bureau and the Center for Business Research at ASU.
- Salary and occupational projections from the Arizona Department of Economic Security (DES).
- District staffing information from a survey conducted by ASU-East College of Education in Spring 2001.
- Two new surveys fielded by Morrison institute — one of pipeline institutions in Arizona and one of inactive certified teachers (conducted by O'Neil Associates, Inc.).
- Interviews of a sample of school district personnel to determine staffing needs. The sample of 19 school districts was selected to represent each region of the state and to ensure inclusion of those in urban, suburban, exurban, rural, and Native American communities. About 225,000 students (25% of total students) and 16,000 teachers (33% of total teachers) were represented.
- Teacher certification rates from ADE's Certification Division database.

Although all teaching certificates issued in Arizona are supposed to be recorded in the Certification Division database, it was ultimately used only in an analysis of English as a Second Language, Bilingual Education, special education, and emergency certificates and as the source of respondents for a survey of inactive certified teachers. Data regarding other types of certificates were not recorded consistently or at the level of detail necessary to contribute to this study because the current purpose of the database is primarily to record the names and contact information of people who are issued certificates.

APPENDIX C

TABLE C-1 2009-2010 Enrollment and Teacher Projections

	Projected Student Enrollment	Projected Student Enrollment Minus Home School and Private	Total Teachers Needed		Projected Student Enrollment	Projected Student Enrollment Minus Home School and Private	Total Teachers Needed
Arizona				**Maricopa County**			
Elementary (5-13)	846,026	792,896	44,544	Elementary (5-13)	546,623	512,295	28,781
Secondary (14-17)	352,963	330,797	18,584	Secondary (14-17)	216,685	203,077	11,409
Total School Age	1,198,989	1,123,692	63,129	Total School Age	763,307	715,372	40,189
Apache County				**Mohave County**			
Elementary (5-13)	10,294	9,647	542	Elementary (5-13)	21,743	20,378	1,145
Secondary (14-17)	5,011	4,696	264	Secondary (14-17)	11,180	10,478	589
Total School Age	15,305	14,344	806	Total School Age	32,923	30,855	1,733
Cochise County				**Navajo County**			
Elementary (5-13)	16,287	15,264	858	Elementary (5-13)	16,507	15,470	869
Secondary (14-17)	7,596	7,119	400	Secondary (14-17)	7,861	7,367	414
Total School Age	23,884	22,384	1,258	Total School Age	24,367	22,837	1,283
Coconino County				**Pima County**			
Elementary (5-13)	16,596	15,554	874	Elementary (5-13)	117,341	109,972	6,178
Secondary (14-17)	7,304	6,845	385	Secondary (14-17)	50,675	47,493	2,668
Total School Age	23,900	22,399	1,258	Total School Age	168,017	157,465	8,846
Gila County				**Pinal County**			
Elementary (5-13)	6,745	6,322	355	Elementary (5-13)	26,702	25,025	1,406
Secondary (14-17)	3,214	3,012	169	Secondary (14-17)	11,582	10,855	610
Total School Age	9,959	9,334	524	Total School Age	38,284	35,880	2,016
Graham County				**Santa Cruz County**			
Elementary (5-13)	5,416	5,076	285	Elementary (5-13)	7,565	7,090	398
Secondary (14-17)	2,532	2,373	133	Secondary (14-17)	3,629	3,401	191
Total School Age	7,948	7,449	418	Total School Age	11,195	10,492	589
Greenlee County				**Yavapai County**			
Elementary (5-13)	1,271	1,191	67	Elementary (5-13)	22,286	20,887	1,173
Secondary (14-17)	642	602	34	Secondary (14-17)	10,574	9,910	557
Total School Age	1,914	1,793	101	Total School Age	32,861	30,797	1,730
La Paz County				**Yuma County**			
Elementary (5-13)	1,999	1,873	105	Elementary (5-13)	28,650	26,851	1,508
Secondary (14-17)	1,036	971	55	Secondary (14-17)	13,441	12,597	708
Total School Age	3,034	2,844	160	Total School Age	42,092	39,448	2,216

Source: Morrison Institute for Public Policy, 2002.

Data: Projected enrollment set equal to the population projection generated by the Center for Business Research at Arizona State University. Teachers needed defined as one teacher per 17.8 students. Private school enrollment was calculated as 4.28% of the student population based on NCES data (Digest of Education Statistics, 2001 Table 63). The number of home-schooled children in the state was provided by Arizona Families for Home Education.

Totals may not add due to rounding.

APPENDIX D

Arizona Inactive Certified Teacher Survey Methodology

Morrison Institute contracted with O'Neil Associates, Inc. to conduct a statewide survey of persons certified to teach in Arizona who are not currently teaching in the classroom. The focus of the study was to ascertain motivations for leaving the teaching profession, to identify inactive teachers' primary areas of dissatisfaction, to test proposals to recruit teachers, and to measure teachers' general attitudes toward their trained profession.

The Arizona Department of Education supplied several databases which they believed contained the names of individuals certified to teach in Arizona, but who were not currently teaching. An initial field test was conducted both to ascertain what percent of the listed phone numbers were still valid, and to test the survey questions. Between March 18, 2002 and April 12, 2002, the actual survey was conducted.

In total, 1,487 individuals were contacted for initial screening, to verify that they were certified to teach and that they were not currently teaching. Of these, 804 individuals met these criteria and completed the full interview. Using them as the statewide sample, there is a 95% chance that the findings from this study are within plus or minus 3.5% of the findings we would have obtained if every inactive certified teacher in Arizona had been interviewed. The other 683 individuals contacted were still actively teaching in the classroom, and thus not included in the sample.

This study broke the sample down into several subgroups. The sample size (N) of these groups is shown on Table D-1.

TABLE D-1 **Sample Size for Selected Subgroups in Survey of Inactive Certified Teachers**

Group	N
Full Sample	804
Hispanic	53
Less than 3 yrs experience	110
3 to 5 yrs experience	93
6 to 10 yrs experience	123
11 to 20 yrs experience	117
Over 20 yrs experience	214
Maricopa County	524
Pima County	132
Rural (Other Counties)	144
Specialty Subject Matter	178
Retired, under age 60	88
Retired, age 60+	109
Employed outside of education field	148

APPENDIX E

Current Activity of Inactive Certified Teachers

Of the statewide sample of certified teachers, who are not currently teaching fulltime:

25% are retired, including

- 11% who retired early (they are younger than 60 years old)
- 14% who are retired, but are age 60 years or older

24% are still working within the education profession, but not as a classroom teacher (e.g., school or district administrator, university)

19% are working outside the education profession, including

- 11% working within a private company
- 4% who are self-employed
- 2% working within a governmental entity
- 1% within another occupation or working without pay

15% are not working because they are caring for family

11% are working as a substitute teacher

3% are unemployed

2% not working because they are a student

1% not working because they are disabled

TABLE E-1 **Survey Results: Retirees, Private Sector, and Hispanic (% indicating)**

	All Respondents	Early Retirees	Employed Outside of Education	Hispanic	Non-Hispanic
Main Reasons for Leaving					
Personal/Life Choices	24	15	12	17	24
Retired	21	53	6	13	21
Different Job/Want to Stay in Profession	19	1	15	21	19
Disillusioned/Stressed	16	16	24	23	15
Salary	10	3	28	10	11
Administration/Bureaucracy	6	9	8	13	6
Lack of Respect	3	2	7	2	4
No Concerns	1	0	0	0	1
Main Areas of Dissatisfaction					
Administrative/Political	31	37	29	33	31
No Real Concerns	22	14	18	12	23
Job Difficulty/Discipline	20	28	19	16	20
Low Salary	18	14	22	33	17
Lack of Respect/Support	7	6	9	2	7
Other/Don't Know	2	1	3	4	2
Key Factor for Possible Recruitment Back to Teaching Profession					
Increased Salaries	29	17	38	44	28
Improved Classroom Environment	16	16	18	20	16
Modifications to Personal or Life Choices	15	13	5	6	16
More Administrative Support/Less Paperwork	12	15	10	4	13
Other Factors	12	18	14	13	12
Nothing	9	18	10	6	10
Don't Know	4	0	1	4	4
Enhanced Student Standards	2	2	3	4	2

Source: Morrison Institute for Public Policy, 2002.

TABLE E-2 Survey Results: Specialization and Location (% indicating)

	Selected Specialized Group[1]	Maricopa County	Pima County	Balance of State
Main Reasons for Leaving				
Personal/Life Choices	23	26	22	18
Retired	18	20	20	24
Different Job/Want to Stay in Profession	21	19	17	21
Disillusioned/Stressed	20	14	19	17
Salary	9	11	9	9
Administration/Bureaucracy	8	5	8	8
Lack of Respect	2	4	4	2
No Concerns	0	0	1	1
Main Areas of Dissatisfaction				
Administrative/Political	38	29	38	33
No Real Concern	16	23	18	21
Job Difficulty/Discipline	14	18	20	22
Low Salary	23	21	16	13
Lack of Respect/Support	6	7	5	9
Other/Don't Know	3	1	4	2
Key Factor for Possible Recruitment Back to Teaching Profession				
Increased Salaries	32	20	27	28
Improved Classroom Environment	18	15	22	17
Modifications to Personal or Life Choices	11	17	11	13
More Administrative Support/Less Paperwork	14	13	12	11
Other Factors	15	12	12	13
Nothing	9	10	9	9
Don't Know	1	3	4	6
Enhanced Student Standards	1	2	3	2

Source: Morrison Institute for Public Policy, 2002.

(1) Special education, ESL, and BLE endorsements were combined in this survey analysis in order to create a sample large enough to be statistically viable.

TABLE E-3 Survey Results: Experience (% indicating)

	Less Than 3 Years	3 to 5 Years	6 to 10 Years	11 to 20 Years	Over 20 Years
Main Reasons for Leaving					
Personal/Life Choices	24	35	46	21	9
Retired	2	0	4	20	59
Different Job/Want to Stay in Profession	21	15	22	19	7
Disillusioned/Stressed	16	13	13	24	12
Salary	28	17	6	9	3
Administration/Bureaucracy	3	12	6	5	7
Lack of Respect	6	8	3	3	1
No Concerns	0	0	0	0	1
Main Areas of Dissatisfaction					
Administrative/Political	27	33	23	29	45
No Real Concerns	20	15	22	21	15
Job Difficulty/Discipline	23	24	24	18	16
Low Salary	21	17	25	20	16
Lack of Respect/Support	8	8	5	9	6
Other/Don't Know	1	3	1	5	1
Key Factor for Possible Recruitment Back to Teaching Profession					
Increased Salaries	33	25	41	34	21
Improved Classroom Environment	21	22	12	16	16
Modifications to Personal or Life Choices	9	21	15	19	13
More Administrative Support/Less Paperwork	14	11	13	8	15
Other Factors	11	8	9	10	15
Nothing	4	4	4	12	17
Don't Know	6	3	2	1	3
Enhanced Student Standards	3	7	3	0	0

Source: Morrison Institute for Public Policy, 2002.

TABLE E-4 Feelings About Becoming a Teacher Again (% indicating)

	Seriously Consider	Would Consider Teaching and Other Options as Well	Could Never Imagine Being a Teacher Again
All Respondents	35	44	21
Early Retires (age <60)	25	38	38
Retired, age 60+	37	27	36
Employed Outside of Education	19	54	26
Hispanic	51	36	13
Non-Hispanic	34	44	22
Maricopa County	35	45	20
Pima County	30	43	27
Other Counties	43	39	18

Source: Morrison Institute for Public Policy, 2002.

TABLE E-5 Proposals "Very Likely" to Cause Inactive Teachers to Re-Enter the Teaching Profession (% indicating)

	All Respondents	Early Retirees	Employed Outside of Education	Hispanic	Selected Specialized Group[1]	Maricopa County	Pima County	Balance of State
Increased salaries	72	59	69	75	76	73	66	73
Reduced class size	66	52	61	72	66	64	69	70
Decreased paperwork	56	57	46	69	64	57	52	59
Improved discipline/safety	54	51	50	67	53	52	58	59
Tuition reimbursement	53	35	48	62	55	54	50	55
More support for new teachers	47	28	42	55	49	45	50	54
More teacher authority	46	42	43	48	40	44	46	51
Better resources	45	30	46	72	46	43	51	48
Opportunities for advancement	38	19	36	48	39	38	40	38
More professional development	32	19	31	30	39	30	35	36
Increased student standards	28	26	25	43	20	28	24	33
Revised health insurance	28	33	18	39	33	26	31	34
Better classroom management training	28	18	21	40	26	28	28	27
Eliminating tenure	13	11	17	11	13	12	11	19
Tying teacher rewards to student performance	9	6	15	10	5	10	6	6

Source: Morrison Institute for Public Policy, 2002.

(1) Combined responses from respondents with special education, ESL, and BLE endorsements.

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