

## **APPENDIX. DATA COLLECTION METHODS AND ANALYSES**

This study was conducted in two phases. Phase I consisted of an inventory of secondary data pertaining to teacher development in California. Phase II consisted of two primary data collection activities: a teacher survey and a series of case studies.

### **Inventory**

Phase I was designed to provide an “outside-in” view of the system of teacher development, focused around the key topics of teacher supply and demand, preparation, recruitment, induction, professional development, and compensation. Data collection methods included review of previous studies and reports, analyses of available statewide databases, review of legislation and program documents, and interviews with key actors throughout the state.

The end product of Phase I, the *Inventory of the Status of Teacher Development in California*, published in June 1998, provides a statistical portrait of the system of teacher development, a description of relevant teacher development policies, and a review of evaluations of programs aimed at strengthening the system of teacher development.

The supply and demand chapter of the *Inventory* was updated and reissued as a separate draft report in April 1999. Specific new analyses included in this memo were estimated impacts of two specific preparation and induction policies, the potential size of the retirement “bulge,” and the growth of intern programs.

### **Statewide Teacher Survey**

The purpose of the teacher survey was to capture teachers’ perspectives on their own career development. Based on a stratified random sample of 1,000 K-12 teachers across the state, it was designed to provide a representative portrait of teachers’ views about the extent, nature, and effectiveness of various professional learning opportunities.

#### **Teacher Survey Design**

The survey asked teachers to report on a variety of topics, grouped into the following sections:

- Attitudes about teaching
- Teaching assignment and preparation

- Job search and support for new teachers
- Workplace support and professional development
- Compensation
- Standards
- Teacher background.

The survey instrument included proportionately more items on topics for which we found significant gaps in existing statewide data during our Phase I work. For example, given the dearth of current information on teachers' ongoing support and professional development, we made the professional development and workplace support section significantly more comprehensive than other sections.

To improve the accuracy of survey responses, respondents were given specific instructions about the time periods that each item referred to, and certain types of teachers were skipped out of sections for which they were not appropriate respondents. Table A-1 describes the types of respondents for each section and the time periods the items inquired about.

The survey was developed through an iterative process that incorporated input from the research community, including Judith Warren Little at UC Berkeley and Joan Talbert at Stanford University, and practitioners, many of whom are among the initiative's cosponsors and Task Force members, as well as Bay Area teachers. The draft survey was piloted with 10 teachers to assess completion time and the comprehensibility of each survey item.

### **Sampling Procedures**

The optimum sampling strategy would have been a simple random sample of teachers drawn from the full pool of the approximately 284,000 teachers in the state in 1998-99. Unfortunately, an accurate and up-to-date list of practicing teachers was not available. Given these constraints, we opted for a two-stage sampling approach—first selecting a stratified random sample of schools within California and then selecting teachers within those schools to create a sample representative of the statewide population of teachers within each cell created by the strata discussed below.

**School Sample.** The sampling frame for schools was developed by using the 1996-97 and 1997-98 California Basic Educational Data System (CBEDS) database. Eligible schools were those schools identified in the CBEDS database as elementary, middle, junior, or high (we excluded the less traditional schools, such as alternative high schools or community day schools, to allow for a more focused analysis of the experiences of teachers within the most typical school settings in the state). The 7,074 schools were stratified along two dimensions: the size of their

**Table A-1  
Types of Respondents and Relevant Time Periods, by Survey Topic**

<b>Survey Topic</b>	<b>Types of Respondents</b>	<b>Time Period Referred to in Survey Item*</b>
Attitudes about teaching	All	Current school year
Teaching assignment	All	Current school year
Preparation	All <sup>†</sup>	Period of preparation program
Job search	Teachers with fewer than 5 years of classroom teaching experience as of August 1, 1998	Period of job search
Support for new teachers	Teachers with fewer than 5 years of classroom teaching experience as of August 1, 1998	First 2 years of teaching
Workplace support	All	Current school year
Professional development	Teachers in at least their second year of teaching in 1998-99 <sup>‡</sup>	1997-98 school year <sup>‡</sup>
Compensation	All	Current school year and 1997-98
Standards	All	Current school year
Teacher background	All	Current school year

\* The SRI statewide teacher survey was administered from December 1998 to March 1999. Survey administration is discussed later.

<sup>†</sup> Teachers who held emergency permits or waivers were subsequently removed from the analysis of items dealing with teacher preparation programs.

<sup>‡</sup> Only those teachers who had been formally assigned to provide guidance and assistance to new teachers answered questions about being a mentor for the time period during which they were formally assigned.

districts (four ranges of student enrollment) and grade levels served (elementary, middle, high). Junior high schools were placed in the middle school category. To provide a robust number of schools within each cell of this sampling frame, we selected a total of 120 schools for the survey. We slightly oversampled middle and high schools and schools from smaller districts to ensure that the a final numbers of teachers in those cells would be large enough to perform statistical analyses.

In this first stage of the two-tiered sampling plan, we sent principals of the 120 selected schools a letter explaining the overall initiative, its sponsors, and the purpose of the survey. The letter requested a list of the school's full-time classroom teachers (with an option to send only initials or codes rather than names). Following this mailing, we conducted follow-up calls to all principals to obtain the staff list. When available, faculty rosters of sampled schools were also

collected from the Internet. As an incentive, principals who sent faculty rosters were offered a chance to win a computer for their school. This process resulted in a sample of 109 schools (response rate of 91%). Table A-2 shows the final number of schools included in the stratified sample, the school-level response rate by cell, the percentage of the total school sample represented by each cell, and the corresponding number of schools from the statewide population that falls within each cell.

**Table A-2**  
**Distribution of School Sample by Stratum**

<b>Level</b>	<b>Size of District (number of enrolled students)</b>				<b>ROW TOTAL</b>
	<b>&lt; 1,000</b>	<b>1,000-5,000</b>	<b>5,001-20,000</b>	<b>&gt;20,000</b>	
<b>Elementary</b>					
Schools sampled	9	13	19	21	62
Response rate	75%	93%	86%	95%	89%
Percent of sample	8%	12%	17%	19%	57%
Population	479	844	1,834	1,955	5,112
Percent of pop.	7%	12%	26%	28%	72%
<b>Middle/Jr. High</b>					
Schools sampled	5	5	6	6	22
Response rate	100%	100%	86%	75%	88%
Percent of sample	5%	5%	6%	6%	20%
Population	49	234	414	411	1,108
Percent of pop.	0.7%	3%	6%	6%	16%
<b>High</b>					
Schools sampled	5	5	7	8	25
Response rate	100%	100%	100%	100%	100%
Percent of sample	5%	5%	6%	7%	23%
Population	79	171	292	312	854
Percent of pop.	1%	2%	4%	4%	12%
<b>COLUMN TOTAL</b>					
<i>Schools sampled</i>	19	23	32	35	109
<i>Response rate</i>	86%	96%	89%	92%	91%
<i>Percent of sample</i>	17%	21%	30%	32%	100%
<i>Population</i>	607	1,249	2,540	2,678	7,074
<i>Percent of pop.</i>	9%	18%	36%	38%	100%

**Teacher Sample.** After obtaining rosters of full-time teachers from the sampled schools, we randomly sampled teachers within each of the 12 cells of the two stratification variables. Because schools in small districts typically have fewer teachers, we slightly oversampled teachers from small districts to ensure large enough numbers in these cells. Table A-3 shows the number of teachers sampled from each cell, the percentage of the total teacher sample represented by that cell, and the total number of teachers statewide that fall within that cell. The total number of teachers displayed, 228,621, is the total number of teachers working in 1997-98 in the 7,074 schools used to select the school sample.

**Table A-3  
Distribution of Teacher Sample by Stratum**

Level	Size of District (number of enrolled students)				ROW TOTAL
	< 1,000	1,000-5,000	5,001-20,000	>20,000	
<b>Elementary</b>					
Teachers sampled	55	79	144	161	439
Percent of sample	5%	8%	14%	16%	44%
Population	5,780	18,586	48,403	57,902	130,671
Percent of pop.	3%	8%	21%	25%	57%
<b>Middle/Jr.High</b>					
Teachers sampled	16	54	100	101	271
Percent of sample	2%	5%	10%	10%	27%
Population	594	6,257	15,758	18,653	41,262
Percent of pop.	<1%	3%	7%	8%	18%
<b>High</b>					
Teachers sampled	25	50	105	118	298
Percent of sample	2%	5%	10%	12%	20%
Population	1,107	6,954	21,976	26,651	56,688
Percent of pop.	<1%	3%	10%	12%	25%
<b>COLUMN TOTAL</b>					
Teachers sampled	96	183	349	380	1,008*
Percent of sample	10%	18%	35%	38%	100%
Population	7,481	31,797	86,137	103,206	228,621
Percent of pop.	3%	14%	38%	45%	100%

\* The final number of teachers who received the survey is 950, because we subsequently found out that certain individuals sampled were not full-time teachers, no longer teaching, or no longer employed at the school.

**Survey Administration.** The teacher mail survey was administered from December 1998 through February 1999. In the first mailing, we sent each teacher a packet containing an explanatory letter signed by the Task Force cosponsors, a survey, a postage-paid reply envelope, and \$5 as a token of appreciation. To encourage teachers to respond promptly, we offered teachers who returned their completed surveys a chance to win one of 10 computers. SRI logged returned surveys by unique identification numbers in a response tracking system. Ten days after the initial mailing, we sent reminder postcards to all nonrespondents. After another 2 weeks, we sent nonrespondents a second survey.

To maximize the response rate, a market research firm specializing in phone surveys conducted a telephone survey of nonrespondents after the second survey mailing. Trained telephone interviewers administered the phone survey during a 4-week period in March 1999. Teachers were telephoned regularly until they granted a phone interview, refused to participate, or were determined ineligible. We directed the interviewers to expend particular effort on raising response rates in cells that were relatively low. The phone survey was abbreviated to include the most critical items on teacher development and teacher demographic data to enable analysis of nonresponse bias. Because teachers who responded by telephone did not respond initially by mail, the data retrieved through the phone survey was also used to determine whether there was a nonresponse bias. We compared the survey responses of teachers who responded to initial requests by mail and those who responded only when phoned. In doing so, we found no evidence of differential response patterns between the two groups and therefore made no adjustments to reflect a nonresponse bias.

Seventy-two percent of all teachers in the original sample responded by returning their mail survey or participating in a telephone interview (Table A-4). However, many teachers who were sent surveys were eventually determined to be ineligible, because it was learned that they were no longer teaching, were not teaching at the same school, or were not teaching full-time. Taking into account that many teachers were unavailable or ineligible to respond, the final response rate for the teacher survey was 77%.

SRI statistical programmers reviewed returned questionnaires to resolve any invalid codes and internal inconsistencies before data entry. A reliable data entry firm entered and 100% key verified the questionnaire data. Data files were cleaned and phone and mail survey data were merged before conducting any analyses.

**Table A-4  
Teacher Survey Response Rates by Stratum**

<b>Level</b>	<b>Size of District (number of enrolled students)</b>				<b>ROW TOTAL</b>
	<b>&lt; 1,000</b>	<b>1,000-5,000</b>	<b>5,001-20,000</b>	<b>&gt;20,000</b>	
<b>Elementary</b>					
Respondents	42	57	105	105	309
Response rate	79%	75%	76%	72%	75%
<b>Middle/Jr. High</b>					
Respondents	12	39	82	71	204
Response rate	80%	76%	86%	76%	80%
<b>High</b>					
Respondents	17	34	79	86	216
Response rate	77%	71%	78%	76%	76%
<b>COLUMN TOTAL</b>					
<i>Respondents</i>	71	130	266	262	729
<i>Response rate</i>	79%	74%	80%	75%	77%

**Survey Analysis**

All survey analysis was conducted with the statistical software package SUDAAN. We chose to use that software for its capability in weighting data from the complex multistage sample of teachers. Using weighted data for all analyses, we conducted the following iterative analytical steps:

- We calculated means and frequencies for each item of the survey.
- We developed cross-tabulations for independent variables of interest. Table A-5 presents three key independent variables that were used in cross-tabulations of most survey items.
- Chi-square tests were used to determine statistical differences between the distribution of groups on categorical variables.
- For analyses of Likert scales, F-tests were used to determine the overall significance of an item for independent variables consisting of more than two groups (e.g., percent minority students in respondent’s schools has four groups). Contrast tests on the means then determined the specific groups that explained the significance of the F-tests. For independent variables of two groups, we used independent t-tests on the means of the Likert scales to determine significance (e.g., elementary versus secondary school levels).

**Table A-5**  
**Selected Key Independent Variables**

Independent Variable	Categories
Percent minority students in respondent's school	0% - 30% minority students > 30% - 60% > 60% - 90% > 90% -100%
Percent students in respondent's school receiving free lunch	0% - 25% students receiving free lunch > 25% - 50% > 50% - 75% > 75% -100%
Percent emergency teachers in respondent's school	0% - 10% emergency teachers > 10% - 20% > 20%

One key analysis is the impact of different stages of the teacher development continuum on helping teachers master selected skills outlined in the *California Standards for the Teaching Profession* (CSTP). Items 10, 20, and 29 in the survey are based on the CSTP and ask teachers the degree to which their preparation programs, induction activities, and professional development activities helped them gain the specific CSTP skills. To analyze these items, we collapsed these 13 stem items into 6 groups, organized by topic, or skill, according to the CSTP. Table A-6 shows which stems were used to create average means in each skill area.

### **Case Studies of Local Teacher Development Systems**

To complement the breadth of statewide data gathered through both the *Inventory* and the teacher survey, we conducted in-depth case studies of eight local systems of teacher development. These case studies examined teachers' career decisions and learning opportunities, the effectiveness of these opportunities, and the extent to which the current system of teacher development is integrated and coherent. The cases allowed for exploration and, in some instances, explanation of patterns that appeared in the statewide data.

**Table A-6**  
**Detail on Analysis of Survey Items Based on the CSTP**

CSTP Skill Area	Stem(s) from Items 10, 20, and 29
Engaging all students	b. Help students to connect classroom learning to their life experiences and cultural understandings.
	c. Use strategies that support subject-matter learning and language development for second language learners.
	d. Engage students in problem-solving activities that can be solved in multiple ways.
Creating effective environments	e. Help students accept and respect different experiences, ideas, backgrounds, feelings, and points of view.
	f. Help students to internalize classroom rules, routines, and procedures and to become self-directed learners.
Understanding subject matter	a. Understand subject matter in sufficient depth and communicate that understanding to my students.
	g. Develop and use a repertoire of instructional strategies well suited to teaching a particular subject matter.
	h. Select and use instructional materials and resources that promote students' understanding of subject matter.
	i. Use educational technology (e.g., computers, multimedia) to convey key concepts in the subject-matter area.
Planning Instruction	j. Plan lesson content and instructional strategies that are appropriate to student learning needs.
Assessment	k. Ensure that student learning goals reflect key subject-matter concepts, skills, and applications.
	l. Use assessment tools that are matched to and support my goals for student learning.
Engaging with students' families*	m. Engage in positive dialogue and interactions with families, and respond to their concerns about student progress.

\* Based on item from the “professional development” skill area in CSTP.

**Sample of Local Systems.** Each case captured a local system of teacher development. Here we use the term “system” loosely to capture the constellation of teacher development opportunities available to and used by teachers, as well as the set of local policies and practices that support teachers’ work and influence their decisions. We conceptualized each local system by considering first the teacher who is working in a particular school context—the norms, policies, and practices of which go far to define learning opportunities and to influence decisions. The school context is nested within the district, the resources, policies, and practices of which influence what happens in the school. The district, in turn, is situated within the broader system

of teacher development opportunities and resources provided by the state and federal governments.

We sampled eight local systems of teacher development, selected to reflect a range of access to teacher development resources (“high” and “typical”), different levels of urbanicity, and the many “Californias.” By “high” access to teacher development resources, we mean districts that have a tradition of strong relationships with local colleges and universities or where there are significant external resources to support teacher development. “Typical” access refers to cases in which the district and county provide most of the teacher development support without significant help from external resources. Cases were selected on the basis of nominations from the field and background screening by telephone. Table A-7 illustrates the sampling frame for the case studies.

**Table A-7  
Case Study Sampling Frame**

<b>Access to Teacher Development Resources</b>	<b>Urban</b>	<b>Suburban</b>	<b>Rural</b>
High access	Los Angeles San Diego	Elk Grove Santa Monica	Eureka
Typical access	San Francisco	Selma	El Centro

**School and Teacher Samples.** Within each local system, we sampled four schools: two elementary, one middle, and one high school. We chose schools that matched the demographics of the district overall and, when possible, had higher test scores than other district schools. Typically, all four schools were within a single district and the same feeder pattern. However, in El Centro, we included two smaller districts in the sample, an elementary and a high school district in the same feeder pattern.

Within each school, we sampled four teachers: two “new” teachers (defined as 5 or fewer years of teaching experience) and two “experienced” teachers (more than 5 years of teaching experience). Where possible, at the elementary level, we selected two primary grade teachers and two upper elementary grade teachers; at the middle school level, two English/social studies teachers and two math/science teachers; and at the high school level, two English and two math teachers. Within this mix of teachers, we also included BTSA support providers, BTSA participants, mentor teachers, emergency-permit teachers, newly credentialed teachers, district interns, and teachers highly involved in professional development and those relatively uninvolved.

This strategy provided a sample size of 9 districts, 32 schools, and 128 teachers, as shown in Table A-8.

**Table A-8  
Case Study Sample**

<b>Level</b>	<b>Districts</b>	<b>Schools</b>	<b>Teachers</b>
Elementary	2	16	64
Middle	0	8	32
High	1	8	32
Unified	6	N/A	N/A
<b>Total</b>	<b>9</b>	<b>32</b>	<b>128</b>

**Site Visits.** Site visits to the eight systems were conducted during the 1998-99 school year, and ranged from 5 to 12 person-days on-site in teams of 2 to 3 researchers, depending on the complexity of the local system. In each system, we conducted in-depth interviews of teachers, administrators, and district-level personnel. Table A-9 lists the types of interviewees. We also conducted focus groups with teachers. Interviews and focus groups with newer teachers emphasized teachers’ preparation, recruitment, and induction experiences. Interviews and focus groups with more experienced teachers focused on professional development, compensation, and evaluation issues. Interviews and focus groups were semistructured, framed by interview topic guides that were flexible enough to capture the respondents’ unique stories but had sufficient prompts to provide an acceptable level of data uniformity to permit cross-case comparisons.

**Table A-9  
Case Study Interviewees**

<b>Level</b>	<b>Types of Interviewees</b>
School	<ul style="list-style-type: none"> <li>• Teachers</li> <li>• Principals</li> <li>• Specialists with teacher support roles (e.g., reading specialist)</li> </ul>
District	<ul style="list-style-type: none"> <li>• Superintendent</li> <li>• Curriculum specialists, coaches, staff developers, professional development coordinators, BTSA coordinator</li> <li>• Recruiting and hiring managers</li> <li>• District intern program administrators</li> </ul>
External to district	<ul style="list-style-type: none"> <li>• Teacher educators in partner programs</li> <li>• Teacher educators in local IHEs</li> </ul>

**Case Study Analysis.** Detailed case study debriefing forms guided the preparation of internal case study reports. Each site visiting team was responsible for analyzing the data collected for its own site and synthesizing the data in the case study reports. Two analytic meetings with all site visitors were held to discuss findings within and across cases, and to develop cross-site themes for each major category of teacher development as reviewed in the *Inventory* (i.e., supply and demand, recruitment, preparation, etc.). We analyzed case study data according to various strata by which we sampled (i.e., access to teacher development resources and urbanicity), as well as other variables that emerged as salient, particularly the percent minority students in the school, student poverty, and school level.

**Integrated Analysis.** Teacher survey data analyses were compared with themes emerging from case study data for each of the major categories of the teacher development continuum. Case study data provided rich and textured examples of patterns found in the survey data. Disconfirming survey and case study data were examined as to the causes of the discrepancy.

## **Projecting Supply and Demand**

Using the best available historical data beginning with 1991-92, we projected the demand for total teachers and the number of credentialed teachers employed in the teaching workforce from 1999-2000 through 2007-08. The primary goals of the projections are to provide estimates of the impact of two key state policies—the expansion of BTSA and the expansion of CSU credentials produced—and to inform the question of whether and when the number of credentialed teachers taking jobs in California will meet the demand for them. Although the state has passed numerous other policies, as discussed in Chapter 2, the lack of solid empirical data regarding their implementation precludes our ability to forecast, however crudely, their potential effects. We recognize that, even for the projections that we did undertake, results vary widely, depending on certain assumptions. Key assumptions have substantial impacts on the projections, and thus we have used sensitivity analyses under multiple scenarios to provide the range of potential impacts.

The method of calculating the projected supply and demand followed these general steps:

1. Total demand calculations
2. Status quo calculations (before BTSA and CSU expansion impacts)
3. Incremental impact of BTSA expansion
4. Incremental impact of CSU expansion

5. Calculation of remaining gap, i.e., emergency permit and waiver teachers.

**Total Demand Calculations**

Total demand for credentialed teachers is a function of projected student enrollment, pupil-to-teacher ratio, and attrition and retirement rates. These assumptions are detailed in Table A-10 below.

**Table A-10  
Demand Factors and Assumptions**

<b>Demand Factor</b>	<b>Assumptions</b>
Projected student enrollment	Actual 1998-99 student enrollment from CDE plus annual growth rate of 1% from Department of Finance Projections, 1998 Series <sup>1</sup>
Pupil-to-teacher ratio	Actual 1998-99 statewide pupil-to-teacher ratio of 20.6 calculated by dividing CDE-reported total enrollment by CDE-reported total teachers for 1998-99. Pupil-to-teacher ratio held constant through 2007-08.
Attrition rate	Estimated 6% of total teacher workforce annually <sup>2</sup> held constant through 2007-08.
Retirement rate	Estimated retirement rates using STRS membership data from the fiscal 1998 annual report. <sup>3</sup> A retirement rate <i>index</i> was created based on total STRS membership data and applied to estimated historical average K-12 teacher retirement rate of 2% <sup>4</sup> (see discussion of retirement bulge below).

**Retirement Bulge.** Rather than keeping a flat assumed retirement rate, we factored a retirement bulge into the demand projections to account for the impending retirement of baby boomers. Using data from the STRS fiscal year 1998 annual report,<sup>5</sup> the total number of active members was forecast by applying 10-year (1989-98) historical averages for the annual percentage of members turning inactive and the annual percentage of members joining STRS. The annual number of retiring members from 1999-2000 to 2007-08 was projected by using actual age-based data. Members aged 51 to 59 in 1998-99 were assumed to retire at the STRS members’ average retirement rate of 60 from 1999-2000 through 2007-08. The number of annual retired members was calculated as a percentage of total estimated members for that year. The corresponding annual retirement rates were indexed to the 10-year (1989-98) average STRS members’ retirement rate. The resulting index begins at 125 in 1999-2000 and increases to 263 in 2007-08, which, when applied to the estimated historical average of 2% for K-12 teachers, results in 2.5% retirement rate in 1999-2000, increasing to 5.3% in 2007-08.

## Supply Calculations

The supply of credentialed teachers taking jobs in California includes veteran credentialed teachers deciding to continue teaching, newly credentialed teachers, reentrants, and out-of-state teachers. As we discuss in Chapter 2, “supply” refers to those who hold preliminary or professional clear credentials as specified by California’s Commission on Teacher Credentialing (CTC) requirements *and* who are willing to take jobs for the salary, assignment, location, and working conditions offered. Our supply count does not include those who are teaching with emergency permits, waivers, or internship credentials from the CTC.

The larger supply *pool* of teachers qualified to teach but electing not to do so cannot be estimated with the data available. Table A-11 details the assumptions underlying each component of supply, *before* factoring in BTSA and CSU expansion policies.

**Table A-11  
Supply Components and Assumptions**

Supply Component	Assumptions
Veteran credentialed teachers	Estimated credentialed teachers from previous year less the attrition and retirement rates.
New credentials issued	Latest figures from CTC on First Time and New Type Multiple and Single Subject teaching credentials plus First Time Special Education and First Time and New Type Education Specialist credentials from 1997-98, plus annual growth in credentials recommended by private institutions based on 5-year (1992-93 to 1996-97) average growth rate. (New Type includes those who previously held emergency permits.) <sup>6</sup>
Newly credentialed teachers taking jobs (participation rate)	Range of 50% to 70% of new credentials issued each year, based on California-specific and national sources. <sup>7</sup>
Reentrants	Five years (1992-93 to 1996-97) of historical numbers of reentrants estimated by subtracting the number of new teachers from the number of new hires. <sup>8</sup> Five-year (1992-93 to 1996-97) average of the estimated number of reentrants as a percent of new hires (42%), held constant from 1999-2000 to 2007-08.
Out-of-state new hires	Five-year (1993-94 to 1997-98) average number of out-of-state new credentials of 2,888, held constant from 1999-2000 to 2007-08.

**BTSA Expansion Calculations.** School year 1998-99 was the first year of increased BTSA funding intended to reach newly credentialed teachers in their first or second year of

teaching. As we point out in Chapter 5, districts began BTSA expansion at different stages, depending on the induction support structures that they previous had in place. Thus, for these projections, we assume that districts phase in BTSA over 2 years so that 1999-2000 is the first year that all newly credentialed teachers receive BTSA.

BTSA is intended to improve retention rates of new teachers. Specifically, newly credentialed teachers who take teaching jobs would receive BTSA support in their first 2 years of teaching; consequently, the attrition rate among them would decrease. Under an optimistic (high) scenario, BTSA would improve retention to 80% in the first 5 years, slightly lower than the retention rate of 90% found in the pilot California New Teacher Project. The low scenario uses a retention rate of 60% over the first 5 years, a slight improvement over historical attrition of approximately 50% found in previous studies.<sup>9</sup> Both high and low retention rates are applied to the two participation rates of newly credentialed teachers, 50% and 70% (discussed in Table A-11). Table A-12 details the four scenarios of BTSA expansion.

**Table A-12  
Scenarios of Incremental Impact of BTSA Expansion**

Five-Year Attrition Rate	Participation Rate of Newly Credentialed Teachers	
	50%	70%
60%	Scenario 1	Scenario 3
80%	Scenario 2	Scenario 4

For each scenario, we estimate the *incremental* BTSA impact by subtracting the number of newly credentialed teachers who otherwise would have stayed in teaching (50% over the first 5 years) from the numbers of teachers retained at the improved BTSA retention rates. The projections resulting from the low and high extremes (Scenarios 1 and 4), which bound the range of projected *incremental* BTSA impacts, are included in Chapter 2.

**CSU Expansion Calculations.** Legislation funds CSU expansion up to a total credential production of 15,000 per year (up from approximately 12,000 in 1996-97 and 13,800 in 1997-98). Whereas total credential production includes renewals, first-time and new type credentials recommended by CSU totaled 9,600 in 1997-98. We assume that the number of first-time and new type credentials recommended by CSU will increase to meet the total credential production target of 15,000 (as opposed to an increase in renewals).

The increased slots at CSU may be filled by entirely new teacher candidates, or they may be filled by those who otherwise would have attended an independent teacher preparation

program. Thus, the net increase in the number of newly credentialed teachers in the state may not equal the increase in the number of CSU recommendations. We calculated this “cannibalization” effect at 50% of new CSU positions, 25%, and 0% (i.e., CSU expansion does not result in any cannibalization from the independents). We then assume that the number of newly credentialed teachers from CSU expansion take jobs at the two participation rates (50% and 70%) and receive BTSA support, thereby improving retention rates to 60% or 80% over the first 5 years. Table A-13 details the specific scenarios.

**Table A-13  
Scenarios of Incremental Impact of CSU Expansion**

Cannibalization Effect	Five-Year Attrition Rate	Participation Rate of Newly Credentialed Teachers	
		50%	70%
50% of expanded CSU positions	60%	Scenario 1	Scenario 7
	80%	Scenario 2	Scenario 8
25% of expanded CSU positions	60%	Scenario 3	Scenario 9
	80%	Scenario 4	Scenario 10
0% of expanded CSU positions	60%	Scenario 5	Scenario 11
	80%	Scenario 6	Scenario 12

Scenarios 3 and 10 are included in Chapter 2 to provide low and high estimates of the incremental impact of CSU expansion. We did not include scenarios assuming 0% cannibalization because, given the higher cost of tuition at the independents, we believe it is reasonable to expect that some individuals who want to become teachers regardless of CSU expansion would nonetheless take advantage of the increased number of CSU slots.

**Calculations of Gap between Demand and Supply of Credentialed Teachers Taking Jobs**

The supply of credentialed teachers taking jobs in a given year, before accounting for BTSA and CSU expansion impacts, is equal to the sum of:

- Veteran credentialed teachers continuing to teach
- The number of newly credentialed teachers taking jobs *before* CSU expansion
- The number of reentrants
- The number of out-of state teachers taking jobs.

High projected impacts of BTSA and CSU expansion are combined, as are low projected impacts to provide the high and low range displayed in Exhibit 2-7 in Chapter 2.

The difference between the total number of teachers required in the state and the projected high and low supply of credentialed teachers taking jobs, after accounting for BTSA and CSU expansion, represents the number of teaching positions unfilled by credentialed teachers. Underqualified teachers would have to take those classrooms to maintain the current pupil-to-teacher ratio.

## Endnotes

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- <sup>2</sup> Cohen, D. K., & Das, H. (July 1996). *The Need for Teachers in California* (Working paper series, Policy Analysis for California Education). Berkeley, CA: University of California at Berkeley  
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- <sup>3</sup> California State Teachers' Retirement System (STRS). (1998). *Population information for fiscal year 1997-1998*. Sacramento, CA: Author.
- <sup>4</sup> Cohen & Das (1996) & Fetler (1997, January).
- <sup>5</sup> STRS (1998).
- <sup>6</sup> CTC. (1998). *Credential profile for fiscal year 1996/97*. Sacramento, CA: Author  
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- <sup>8</sup> Fetler (1997, January).
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