

# DATA BULLETIN

## DESIGNATION OF TEACHER SHORTAGE AREAS FOR THE 2011-12 SCHOOL YEAR (Fall Hiring Report)

Results from the 2010 Fall Hiring Survey revealed an increase in the number of available positions that Local Education Agencies (LEAs) sought to staff for the 2010-11 school year, which reversed four years of decline. Despite this, the effects of the continued economic difficulties remained visible as the number of available positions was still well below the number that was available five years ago. With fewer available positions, the median number of applicants per available position has continued to increase over the last five years. Compared with 2009, LEAs staffed a higher percentage of their available positions for the 2010-11 school year. Eight of the ten shortage areas identified by the 2010 Fall Hiring Survey had also been recognized as shortage areas by the 2009 Survey. The new shortage areas included Teachers of English to Speakers of Other Languages (TESOL), as well as Science, 7-12, which had traditionally been a shortage area with the exception of last year.

The Fall Hiring Survey is an annual collection of information primarily concerning certified educational positions, designed to track employment trends and identify teacher shortage areas. Results from the 2010 Fall Hiring Survey were used to determine the shortage areas for the 2011-12 school year. Teachers and administrators in shortage areas may qualify for federal student loan deferral or forgiveness and may also be eligible for mortgage assistance through the Connecticut Housing Finance Authority (CHFA). School districts may utilize the shortage area designations to rehire retired teachers and administrators who are not subject to earnings limits. Fall Hiring Survey participants in 2010 included the 166 public school districts, 18 charter schools, six regional educational service centers (RESC's), the three

### *Teacher Shortage Areas for the 2011-12 School Year (based upon 2010 Fall Hiring Survey results):*

- Bilingual Education, PK-12
- Comprehensive Special Education, K-12
- English, 7-12
- Intermediate Administrator
- Mathematics, 7-12
- Remedial Reading and Language Arts, 1-12
- Science, 7-12
- Speech and Language Pathologist
- Teachers of English to Speakers of Other Languages (TESOL)
- World Languages, 7-12

endowed and incorporated academies, the Connecticut Technical High School System, the Connecticut Departments of Corrections, Children and Families, and Developmental Services, and 52 state-approved, non-public special education programs.

### **Public School Employment Trends, School Years 2006-07 to 2010-11**

In the 2010-11 school year, there were fewer total certified positions (-1.3 percent) and available positions (-33.4 percent) that LEAs sought to fill than five years ago (Table 1). However, results from the 2010 Fall Hiring Survey also suggest an improvement in public school hiring as the number of available positions increased in comparison with the previous school year. The number of available positions that remained vacant on October 1 and those vacancies that were due to the lack of qualified applicants both continued to decline. In comparison

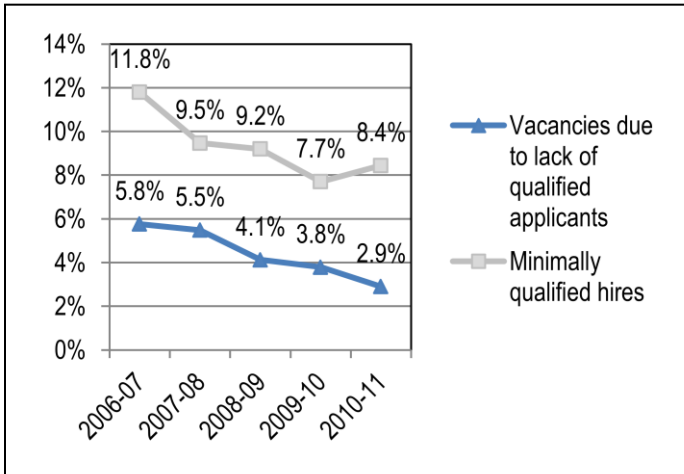
**Table 1: Public School Hiring, School Years 2006-07 to 2010-11**

School Year	Total Certified Positions	Available Positions LEAs Sought to Fill	Percent of Available Positions that were Part-time	Available Positions as Percent of Total Positions	Percent of Available Positions Filled by Oct 1	Available Positions Not Filled by Oct 1	Available Positions Not Filled by October 1 Due to Lack of Qualified Applicants	Median Applicants per Available Position
2010-11	52,208	3,260	10.4%	6.2%	92.6%	241	95	23
2009-10	52,718	2,957	10.9%	5.6%	91.4%	255	112	20
2008-09	53,427	4,533	8.1%	8.5%	94.1%	269	187	16
2007-08	53,129	4,793	8.2%	9.0%	92.0%	382	263	15
2006-07	52,870	4,894	9.3%	9.3%	92.5%	369	282	14
Change 2009-10 to 2010-11	-1.0%	10.2%	-	-	-	-5.5%	-15.2%	15.0%
Change 2006-07 to 2010-11	-1.3%	-33.4%	-	-	-	-34.7%	-66.3%	64.3%

with 2009, the percent of available positions that were part-time also declined and full-time positions accounted for 286 of the 303 increased available positions in 2010. As in the previous school year, 13 public school LEAs did not have any available positions that they sought to fill for the 2010-11 school year.

The median number of appropriately-credentialed applicants per available position increased sharply from 14 in 2006-07 to 23 in 2010-11.<sup>1</sup> The percent of available positions that were filled by October 1 was nearly identical in the 2006 and 2010 school year (92.5 percent and 92.6 percent, respectively). During this period, however, the percentage of available positions that remained vacant due to the lack of qualified applicants steadily declined from 5.8 percent in 2006 to 2.9 percent in 2010-11 (Figure 1). Similarly, the percent of “minimally qualified” hires also declined from 11.8 percent to an 8.4 percent.<sup>2</sup>

**Figure 1: Percent of Available Positions Remaining Vacant Due to Lack of Qualified Applicants and Percent of All Minimally Qualified Hires, 2010-11**



## Local Hiring Trends

To examine local hiring trends, the 2010 Fall Hiring Survey Results were analyzed utilizing District Reference Groups (DRGs), a classification system that groups school districts together based upon community and student socio-demographic characteristics (see table 2).<sup>3</sup> There was considerable variability across DRGs regarding change in the number of available positions over the last two years: from an 8.8 percent decrease in DRG G (moderate-sized LEAs with lower socioeconomic status [SES]) to a 49.3 percent increase in DRG H (larger LEAs with lower SES). (DRG A, smaller, wealthiest districts) filled the highest percentage of available positions (97.7 percent), while DRG F (small LEAs with lower SES) filled the lowest percentage (88 percent). Compared with 2009, most DRGs either increased the rate at which they filled their vacancies or remained the same, with the largest increases in DRG I (largest urban districts: 5.8), DRG H (3.1), and DRG F (2.2). Over the last two school years, the median number of applicants per available position increased or stayed the same for six of the nine DRGs.

Six of the nine DRGs had lower percentages of available positions that remained vacant due to the lack of qualified applicants than the overall rate for the state’s public school system (2.9 percent). DRG E and DRG F, which are composed of smaller LEAs with moderate SES, had no vacancies due to a lack of qualified candidates, while DRG G (5.2 percent) and DRG I (4.7 percent) had the highest percentages (Figure 2). Over the last two years, six of the nine DRGs had fewer vacancies due to a lack of qualified candidates with the largest percentage point decreases in DRG H (-3.4), DRG I (-2.9) and DRG D (-2.3) (moderate LEAs with high SES).

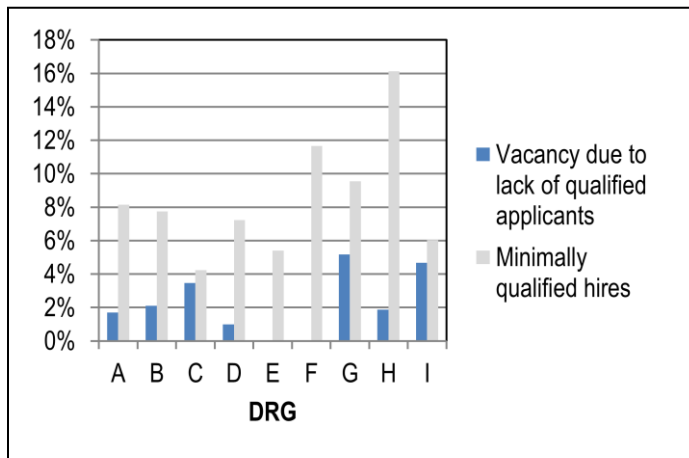
Six DRGs also had lower percentages of minimally qualified hires than the state as a whole (8.4 percent). DRG C (smaller LEAs with high SES) had the lowest percentage (4.2 percent) while DRG H (16.1 percent) and DRG F (11.7 percent) had the highest percentages (Figure 2). In comparison with 2009, the percentage of minimally qualified hires declined for five DRGs and the largest decrease occurred in DRG I (from 8.9 percent to 6 percent).

**Table 2: Hiring Statistics by District Reference Groups, 2010-11**

DRG	Total Certified Positions	Change in Total Positions 2009 to 2010	Available Positions Sought to Fill for 2010-11 School Year	Change in Available Positions 2009 to 2010	Percent of Available Positions that were Part-time	Percent of Available Positions Filled by October 1	Available Positions Not Filled by October 1	Median Applications per Available Position
A	2,953	0.1%	176	-5.9%	14.2%	97.7%	4	36
B	8,938	-0.8%	522	26.7%	19.3%	96.6%	18	28
C	3,707	-0.7%	202	1.0%	19.3%	93.6%	13	23
D	7,692	-2.4%	402	19.6%	10.2%	93.0%	28	24
E	2,463	-1.6%	155	25.0%	15.5%	95.5%	7	23
F	2,656	-1.7%	117	-2.5%	6.8%	88.0%	14	16
G	6,093	-2.4%	271	-8.8%	10.0%	88.9%	30	28.5
H	5,795	-0.6%	427	49.3%	5.4%	94.4%	24	20
I	8,590	-1.5%	663	9.8%	1.2%	89.9%	67	12
NA*	4,344	2.7%	433	-13.7%	11.5%	87.3%	55	15

\*Includes the Connecticut Technical High School System, Unified School Districts, charter schools, RESCs and state-approved private special education programs.

**Figure 2: Percent of Available Positions that Remained Vacant Due to a Lack of Qualified Applicants and Minimally Qualified Hires as a Percent of All Hires by DRG, 2010-11**



### State-approved, Non-public Special Education Programs

Among the 52 state-approved, non-public special education programs, 18 (or over one-third) did not have any available certified positions that they sought to fill for the 2010-11 school year, which was a slight increase from 16 programs in the prior school year.<sup>4</sup> Despite this, these programs' overall number of total positions and available positions has

remained remarkably stable over the last three years (Table 3). Over the last three years, state-approved, non-public special education programs filled a higher percentage of their available positions. Furthermore, their number of vacancies due to the lack of qualified applicants (-56 percent) and minimally qualified hires (-55 percent) declined significantly. These trends may be related to the increased median number of applicants per available position (from 3.5 to 6.0). Despite these positive trends, in comparison with public LEAs, non-public special education programs filled a lower percentage of their available positions (82.4 percent versus 92.6 percent), had a higher percentage of available positions that remained vacant due to the lack of qualified applicants (8.3 percent versus 2.9 percent) and had more "minimally qualified" hires (12.4 percent versus 8.4 percent). Available positions were also a higher percentage of total positions in state-approved, non-public special education programs than public LEAs (12 percent versus 6.2 percent).

### Public-school, Non-certified Special Services

The number of available, non-certified special services positions that LEAs sought to fill increased from 208 in 2009 to 248 in 2010 (Table 4).<sup>5</sup> Most of this increase was due to growth in the number of special education paraprofessionals (from 114 to 143). Despite this recent increase, the number of available positions for the 2010-11 school year was still significantly lower than the number that was available five years ago (424). Public LEAs filled 92.3 percent of available, non-certified special services positions.

**Table 3: State-approved, Non-public Special Education Programs, 2008-09 to 2010-11**

School Year	Total Certified Positions	Available Positions LEAs Sought to Fill	Percent of Available Positions that were Part-time	Available Positions as a Percent of Total Positions	Percent of Available Positions Filled by October 1st	Available Positions Not Filled by October 1	Available Positions Not Filled by October 1 Due to Lack of Qualified Applicants	Median Applications per Available Position
2010-11	900	108	7.4%	12.0%	82.4%	19	9	6
2009-10	904	111	10.8%	12.3%	80.2%	22	14	5
2008-09	857	110	4.5%	12.8%	75.5%	27	20	3.5

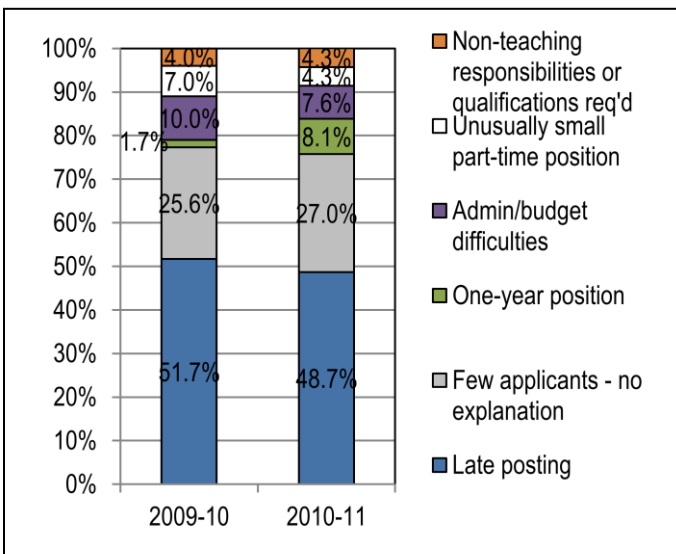
**Table 4: Public-school, Non-certified Special Services, 2010-11**

Service Area	Available Positions LEAs Sought to Fill for 2010-11 School Year	Available Positions Not Filled by October 1	Median Applicants per Available Position
Licensed Physical Therapist	3	2	1
Licensed Physical Therapist Assistant	1	1	0
Licensed Occupational Therapist	8	3	5
Licensed Occupational Therapist Assistant	1	0	6
Pre-kindergarten Paraprofessional	21	1	24
Kindergarten Paraprofessional	25	1	24
Regular Program Paraprofessional	33	0	63.5
Special Education Paraprofessional	143	11	26
English as a Second Language(ESL)/Bilingual Paraprofessional	2	0	4
Other Program Paraprofessional	11	0	59

**Accounting for October Vacancies**

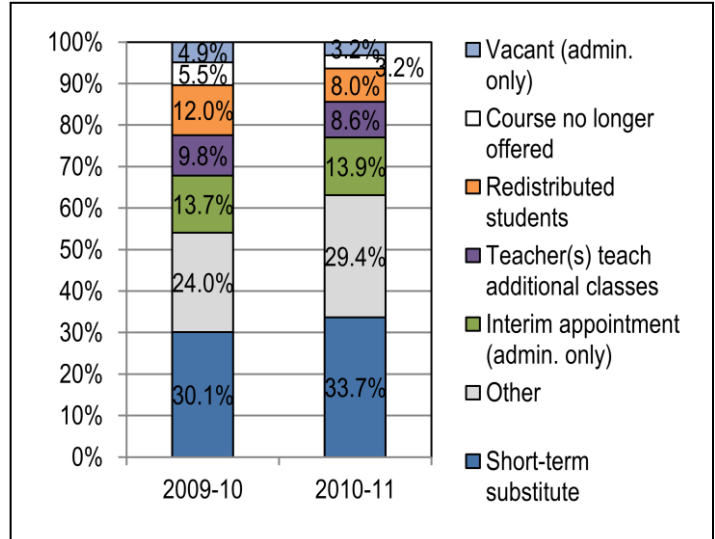
Public school LEAs reported that 39 percent of all positions, which remained vacant on October 1, were due to the lack of qualified candidates. This was down from 44 percent in the previous school year and 70 percent just two years ago. Public LEAs (48.7 percent) identified late job postings as a key factor affecting both the number and quality of job applicants for positions that remained vacant (Figure 3). In contrast, significantly more LEAs in 2010 cited the one-year nature of positions (8.1 percent in 2010 versus 1.7 percent in 2009).

**Figure 3: Factors Affecting the Size and Quality of Applicant Pools for Positions that Remained Vacant on October 1, 2009 and October 1, 2010**



temporary teachers, long-term substitutes and consultants; rehiring former or retired staff; and continuing to search for appropriate candidates. Conversely, they were less likely to cancel courses, redistribute students among other classes or require teachers to teach additional classes.

**Figure 4: LEA Responses to October Vacancies, 2009-10 and 2010-11**



**Shortage Areas, 2011-12**

Despite volatility in the number of available positions over the last three school years, the shortage areas have remained remarkably consistent. Based upon the 2010 Fall Hiring Survey, the only new shortage areas for the 2011-12 school year will be TESOL and Science, 7-12, and the latter has traditionally been a shortage area with the exception of the 2010-11 school year (Table 5). Collectively, the shortage areas accounted for 42.3 percent of total positions: they were the majority of available positions that LEAs sought to fill (50.8 percent); positions that remained vacant on October 1 (62.7 percent); vacancies due to the lack of qualified applicants (71.3 percent); and minimally qualified hires (64.4 percent). With the exceptions of Comprehensive Special Education and Speech and Language Pathologists, the number

**Table 5: Designated Shortage Areas for the 2011-12 School Year Based upon 2010 Fall Hiring Survey Results**

Endorsement Type	Shortage Area Rank	Total Positions	Change in Total Positions 2009-10 to 2010-11	Available Positions Sought to Fill for 2010-11 School Year	Change in Available Positions 2009-10 to 2010-11	Percent of Available Positions Filled by Oct 1	Available Positions Not Filled Due to Lack of Qualified Applicants	Median Applications per Available Position
Bilingual Education, PK-12	1	411	-3.5%	34	36.0%	73.5%	7	4.5
Comprehensive Special Education, K-12	2	6,176	0.2%	376	-10.9%	88.6%	19	31.5
Speech and Language Pathologist	3	1,119	0.2%	106	-10.2%	82.1%	15	5
World Languages, 7-12	3	1,607	-2.3%	197	20.9%	91.9%	7	8.5
Mathematics, 7-12	5	2,657	-1.2%	246	30.9%	92.3%	11	36.5
Intermediate Administrator	6	2,781	-2.4%	256	46.3%	89.8%	6	27.5
Science, 7-12	7	3,092	0.4%	192	2.7%	97.4%	4	21
English, 7-12	8	3,029	-2.2%	237	15.6%	93.2%	5	49
Remedial Reading and Lang. Arts, 1-12	9	644	1.7%	76	22.6%	84.2%	4	12
TESOL, PK-12	10	458	0.9%	36	50.0%	77.8%	4	9.5

of available positions increased for each of the shortage areas from 2009 to 2010. Although the shortage areas accounted for most of the positions staffed under Durational Shortage Area Permits (DSAPs: 69.4 percent) and long-term substitutes (55.4 percent), only 44.5 percent of all first Connecticut certificates were issued or renewed in the shortage areas.

The number of positions that remained vacant due to the lack of qualified applicants is the most critical factor used to identify shortage areas (Appendix A). In comparison with state (2.9 percent) or other endorsements (Table 6), vacancies due to the lack of qualified applicants were quite prevalent in shortage areas such as Bilingual Education (20.6 percent), Speech and Language Pathology (14.2 percent), TESOL (11.1 percent), Remedial Reading and Language Arts (5.3 percent), and Special Education (5.1 percent).

A second important factor in the identification of shortage areas is the median number of qualified applicants per available position. Median applicants for Bilingual Education (4.5), Speech and Language Pathologist (5), World Languages, 7-12 (8.5), TESOL (9.5), and Remedial Reading and Language Arts positions (12) were well below the statewide overall median (23). These areas were strikingly lower than the median number of applicants in such non-shortage areas as Elementary, K-6 (178), History and Social Studies (88.5), and School Counselor (47.5).

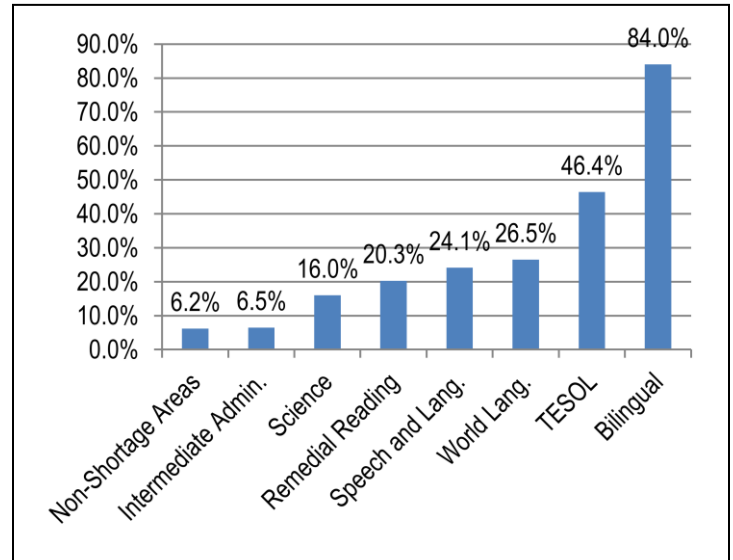
A third factor for identifying shortage areas was the number of first or renewed Connecticut certificates per available position. Statewide, there were 1.2 new certificates or renewals per available position. With the exceptions of Science, 7-12, English, 7-12, and Intermediate Administrator, however, most of the shortage areas averaged less than one renewal per available position.

An additional factor used to identify shortage areas was the use of long-term substitutes and DSAPs during the 2009-10 school year. On average, there were four long-term substitutes and four DSAPs per endorsement type. However, LEAs employed DSAPs and long-term substitutes more frequently in shortage areas such as World Languages (26 and 17, respectively), Special Education (20 and 40), Science, 7-12 (14 and 27), Math, 7-12 (10 and 10), and Bilingual Education (6 and 7).

A final shortage indicator was the prevalence of “minimally

qualified hires” (see footnote 2), which was particularly pronounced in World Languages, 7-12 (48), Science, 7-12 (30), Bilingual Education (21) and Speech and Language Pathologist (21). For several shortage areas, minimally qualified hires were a significant percentage of the total number of staff hired for the 2010-11 school year (Figure 5).

**Figure 5: Minimally Qualified Hires as a Percentage of All Hires in Selected Shortage Areas. 2010-11**



#### Footnotes

<sup>1</sup>In the distribution of applicants for available positions, the median is the middle value, meaning that half of all available positions had more applicants while half had fewer. Positions remaining vacant had fewer median applicants than those that were filled (9 versus 25). The median varies by endorsement but the overall median is intended to provide a general indicator. See Table 6 for the median number of applicants per position by endorsement.

<sup>2</sup>“Minimally qualified hires” are those hired from an applicant pool of fewer than 20, which also received the poorest quality rating from LEAs (“few or no ‘minimally qualified’ candidates”).

<sup>3</sup>For more on DRGs, including DRG membership, see [http://sdeportal.ct.gov/Cedar/Files/Pdf/Reports/db\\_drg\\_06\\_2006.pdf](http://sdeportal.ct.gov/Cedar/Files/Pdf/Reports/db_drg_06_2006.pdf).

<sup>4</sup>State-approved, non-public special education programs are private facilities that have applied to and received approval from the Connecticut State Department of Education (CSDE) to provide special education services to public school students upon the request of public school districts. They are required to participate in the Fall Hiring Survey. However, they are private entities and so their data were not included with the public school figures (Table 1 and Figures 1 through 4). Their data are, however, included in the determination of shortage areas.

<sup>5</sup>Non-certified, special services data were not included in any analysis and are only presented in Table 4.

#### For Further Information Contact:

Subject	Contact	Contact Information
Federal Perkins Loan Deferment/Forgiveness	U.S. Department of Education	1-800-433-3243 and <a href="http://studentaid.ed.gov/PORTALSWebApp/students/english/cancelstaff.jsp">http://studentaid.ed.gov/PORTALSWebApp/students/english/cancelstaff.jsp</a>
Teachers' Mortgage Assistance Program	Connecticut Housing Finance Authority (CHFA)	860-721-9501 or 860-571-3502 and <a href="http://www.chfa.org">http://www.chfa.org</a>
Teacher Certification	CSDE Bureau of Certification Helpline	860-713-6969 and <a href="http://www.sde.ct.gov/sde/cwp/view.asp?a=2613&amp;Q=321230">http://www.sde.ct.gov/sde/cwp/view.asp?a=2613&amp;Q=321230</a>
Teacher Retirement/Rehiring of Retired Teachers	Teachers' Retirement Board	860-241-8402 or 1-800-504-1102 and <a href="http://www.ct.gov/trb/site/default.asp">http://www.ct.gov/trb/site/default.asp</a>
Fall Hiring Survey Data and Analysis	CSDE Bureau of Data Collection, Research and Evaluation	860-713-6856 or <a href="mailto:Michael.sabados@ct.gov">Michael.sabados@ct.gov</a>

**Table 6: 2010-11 Hiring Statistics by Endorsement**

Endorsement	Available Positions that LEAs Sought to Fill for 2010-11	October 1 Vacancies Due to Lack of Qualified Applicants	Durational Shortage Area Permits <sup>1</sup>	Temporary Authorization for Minor Assignments <sup>1</sup>	Minimally Qualified Hires	Median Applicants	First CT Certificates and Renewals <sup>1</sup>	Median Applicant Quality Rating <sup>2</sup>	Shortage Rank
Agriculture, PK-12	5	0	0	0	1	5	4	2	40
Art, PK-12	93	0	0	1	4	32	113	3	31
Bilingual Education, PK-12	34	7	7	0	21	4.5	11	1.5	1
Blind, PK-12	1	0	0	0	1	2	3	1	42
Business, 7-12	17	0	0	0	5	28	33	3	33
Comprehensive Special Education, K-12	376	19	40	0	8	31.5	315	3	2
Cooperative Work Education/Diversified	1	0	1	0	1	1	3	1	37
Department Chairperson	9	2	19	0	1	4.5	33	3	15
Elementary, K-6	646	2	0	0	6	178	618	5	16
English, 7-12	237	5	5	0	2	49	326	4	8
English, Middle School	22	0	3	1	2	22	11	2.5	29
External Diploma Program/Noncredit Mandated Program	2	0	0	0	1	11	53	2.5	46
Health Occupations - Comprehensive High School	1	0	0	0	1	1	5	1	43
Health Occupations – CT Technical High Schools	2	2	0	0	0	5	7	1	25
Health, PK-12	37	0	1	4	2	31	51	4	34
Hearing Impaired, PK-12	19	1	0	0	3	5	9	2	23
History and Social Studies, 7-12	125	0	0	7	1	88.5	308	4	37
History and Social Studies, Middle School	19	0	0	1	1	29.5	12	3.5	35
Home Economics, PK-12	27	1	0	0	7	10	21	2	21
Integrated Early Childhood/Spec. Ed, Birth-K	3	0	2	0	0	11	22	3	36
Integrated Early Childhood/Spec. Ed, Nursery-K- Elem. 1-3	34	0	1	0	0	28.5	50	4	39
Intermediate Administrator	256	6	20	0	15	27.5	506	4	6
Marketing Education, 7-12	2	0	0	0	0	37	5	2	48
Mathematics, 7-12	246	11	10	1	8	36.5	186	3	5
Mathematics, Middle School	30	3	4	1	2	18	27	3	11
Music, PK-12	122	3	1	0	5	31	116	3	14
Non-English Speaking Adults	1	0	0	0	0	8	37	4	47
Occupational Subject, CT Technical High Schools	14	2	1	0	0	143	90	2	27
Physical Education, PK-12	87	1	0	2	2	27	155	4	25
Reading and Language Arts Consultant	20	2	0	0	4	7	48	1	20
Remedial Reading and Language Arts, 1-12	76	4	2	0	13	12	11	2	9
School Business Administrator	10	0	0	0	1	9	52	2	44
School Counselor	74	1	0	0	1	47.5	148	4	28
School Library Media Specialist	44	2	11	0	5	13	25	2.5	13
School Nurse Teacher	6	0	0	0	0	5	3	3	41
School Psychologist	76	4	0	0	8	15	72	3	11
School Social Worker	39	1	1	0	10	14.5	90	3	22
Science, 7-12	192	4	27	16	30	21	262	3	7
Science, Middle School	18	1	1	2	2	10	14	3	19
Speech and Language Pathologist	106	15	0	0	21	5	84	2	3
Superintendent	19	0	0	0	0	6	38	3	45
Technology Education, PK-12	40	1	1	0	12	8	27	2	18
TESOL, PK-12	36	4	1	0	13	9.5	35	1.5	10
Trade and Industrial Occupations - Comprehensive High School	6	2	0	0	1	4	16	1	24
Unique Subject Area Endorsement	6	0	9	0	2	2	10	1	30
Vocational Agriculture, 7-12	2	0	0	0	2	3	3	1	32
World Language Instructor, Elementary	22	2	1	0	5	7	37	2	17
World Languages, 7-12	197	7	17	3	48	8.5	162	2	3

<sup>1</sup>Certification data are from the 2009–10 school year, which is the most recent year of complete data. These figures are smaller than those from the 2008-09 school year presented in the 2009 Fall Hiring Survey Bulletin. In 2008-09, there was a large number of Professional Educator certificate renewals because it was the end of their five year cycle and there was also a substantial number of initial educator certificates issued.

<sup>2</sup>Applicant Pool Ratings: 1) few or no minimally qualified applicants; 2) some acceptable applicants; 3) many acceptable applicants; 4) some high-quality applicants; and 5) many high-quality applicants.

## Appendix A: Shortage Area Methodology

The Connecticut State Department of Education's (CSDE) Bureau of Data Collection, Research and Evaluation and the Bureau of Educator Standards and Certification collaborated to develop a methodology to identify teacher shortage areas that incorporate several significant factors (Table 7). Data for this analysis are from the Bureau of Teacher Certification's Connecticut Educator Certification System and the Fall Hiring Survey, an annual employment survey covering the current school year. In 2010, Fall Hiring Survey participants included 166 public school districts, 18 charter schools, six regional educational service centers (RESCs), the three endowed and incorporated academies, 52 state-approved, non-public special education programs, the Connecticut Technical High School System and the Connecticut Departments of Correction, Children and Families, and Developmental Services.

Endorsements for which positions were available in the current school year are included in the shortage area analysis. An "available position" is one for which an LEA actively sought internal and external applicants in response to a position announcement and/or reviewed applications from existing files. There are, however, four areas for which the individual endorsements are aggregated into general categories: World Languages, 7-12 (French, 7-12; German, 7-12; Italian, 7-12; Latin, 7-12; Russian, 7-12; Spanish, 7-12; and Other World Languages, 7-12); Science, 7-12 (Biology, 7-12; Chemistry, 7-12; Physics, 7-12; Earth Science, 7-12; and General Science, 7-12); Science, Middle School (Biology, Middle School; Chemistry, Middle School; Physics, Middle

School; Earth Science, Middle School; General Science, Middle School; and Integrated Science, Middle School); and Intermediate Administrator (Principal, Assistant/Vice Principal; Subject Area Supervisor, District Level; Program Director/Curriculum Coordinator, School Level; and Assistant/Deputy/Associate Superintendent).

For the Fall Hiring Survey, LEAs may report up to two endorsements per available position (e.g., Mathematics, 7-12, and Physics, 7-12). When there are multiple endorsements per position, each endorsement is counted as a separate position for calculating the shortage area scores (e.g., a position requiring Mathematics, 7-12, and Physics 7-12, endorsements treated as one Mathematics 7-12 position and one Physics 7-12 position). This is only done for calculating the shortage areas and not for any other analysis presented in this Bulletin.

The first step in identifying shortage areas is assigning ranks to each endorsement, from least to most severe, for each of the following four factors: number of vacancies due to the lack of qualified candidates; median number of applicants per position; number of first CT certificates and renewals divided by the number of available positions; and the sum of DSAPs, long-term substitutes, minimally qualified hires and Temporary Authorizations for Minor Assignments (TAMAs). These four ranks are placed in the CSDE's formula to produce a shortage score for each endorsement. Finally, these shortage scores are ranked to identify the top ten shortage areas.

**Table 7: Factors Used for Calculation of Shortage Area Scores**

Factor	Description
Durational Shortage Area Permits (DSAP)	Issued by the CSDE to LEAs so they may staff positions for which there was a shortage of available, qualified candidates. Teachers working under a DSAP must hold a bachelor's degree, have 12 semester hours in the subject area being taught and meet the state's basic skills testing requirement. DSAPs are issued for a year and may be conditionally reissued for an additional two years.
First issued or renewed Connecticut certificates per position	The number of people receiving or renewing Connecticut certificates between October 1, 2009, and September 30, 2010, divided by the total number of available positions in each endorsement area.
Long-term substitutes	Individuals serving in the employ of a board of education in the same assignment for more than 40 school days.
Median number of appropriately credentialed applicants per available position	Median is the middle number in a distribution (e.g., the number of applicants per position for which half of all available positions had more applicants and half had fewer applicants).
Minimally qualified hires	Those hired from an applicant pool of fewer than 20, which also received the lowest quality rating from the LEA ("Few or no minimally qualified applicants").
October vacancies due to the lack of qualified applicants	Positions that LEAs sought to fill for the 2010-11 school year but could not because they had no available qualified applicants.
Temporary Authorizations for Minor Assignments (TAMA)	Issued by the CSDE to districts which cannot find an appropriately credentialed applicant with certification in the subject area of the minor assignment. The minor assignments supplement a primary assignment. Teachers working under a TAMA must be certified in another area and have 12 semester hours of credit in the subject being taught. TAMAs are issued for a year and may be conditionally reissued for an additional year.