

# **Nova Scotia Public Education Teacher Supply and Demand**

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Update Report

August 2012





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Nova Scotia Public Education Teacher Supply and Demand: Update Report, August 2012

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# Contents

<b>Executive Summary</b> . . . . .	<b>v</b>
<b>1. Introduction</b> . . . . .	<b>1</b>
<b>2. Teacher Supply and Demand in Other Jurisdictions and Factors Influencing Teacher Supply and Demand in Nova Scotia</b> . . . . .	<b>3</b>
2.1 Jurisdictional Review . . . . .	3
2.2 Background/Factors Influencing Teacher Supply and Demand in Nova Scotia . . . . .	4
<b>3. Employment Profile of Nova Scotia Teachers</b> . . . . .	<b>5</b>
3.1 Teacher Employment Status . . . . .	5
3.2 Probationary and Term Teachers . . . . .	7
<b>4. Teacher Demand</b> . . . . .	<b>9</b>
4.1 The Demand Model . . . . .	9
4.2 Trends in Student Enrolments . . . . .	9
4.3 French-Language Instruction . . . . .	11
4.4 Ratio of Students to Teachers . . . . .	11
4.5 Teacher Retirements and Disabilities . . . . .	12
4.6 Other Attrition of the Teacher Workforce . . . . .	13
4.7 Temporary Attrition . . . . .	14
4.8 Long-Term Demand Outlook . . . . .	14
<b>5. Teacher Supply</b> . . . . .	<b>17</b>
5.1 Overview of New Teacher Supply . . . . .	17
5.2 Nova Scotia Teacher Certificates . . . . .	17
5.3 Teacher Education Program Capacity, Graduates, and Applications . . . . .	19
5.4 Long-Term Teacher Supply Outlook . . . . .	20
<b>6. Substitute Teacher Labour Market</b> . . . . .	<b>21</b>
6.1 Substitute Teacher Activity . . . . .	21
6.2 Size and Importance of Substitute Teacher Workforce . . . . .	21
6.3 Source of Substitute Teachers . . . . .	23
6.4 Retention of Substitute Teachers . . . . .	23
<b>7. Integrated View of Regular Teacher Supply and Demand</b> . . . . .	<b>25</b>

**8. Demand and Supply by Subject, Specialty, and Administration . . . . .29**

    8.1 Projected Teacher Demand by Subject Area . . . . .29

    8.2 Projected Teacher Supply by Subject Area . . . . .31

    8.3 Projected Imbalances . . . . .31

**9. Conclusion . . . . .35**

**Appendix 1: Projected Enrolments by Grade Level and Estimated Teacher Full-time  
Equivalents (FTEs) for Nova Scotia . . . . .37**

**Appendix 2: Age Distribution of Permanent and Probationary Teachers, 2008–09 . . . . .38**

**Appendix 3: Teacher Pension Plan Retirement and Disability Assumptions . . . . .39**

**Appendix 4: Secondary Education Endorsation Disciplines . . . . .41**

**References . . . . .43**

# Executive Summary

## Purpose

This study updates the previous similar research study: *Nova Scotia Public Education Teacher Supply and Demand*, completed in 2007. This update provides a revised outlook for public education teacher supply and demand and is based on the most current data relating to the Nova Scotia labour market for teachers.

## Demand for Teachers in Nova Scotia

The overall number of teachers (noted in full-time equivalents, or FTEs) is expected to decline over the next several years. The number of teacher FTEs is projected to decline overall by 1309 (12.8 percent) from 2008–09 (9421 FTEs) to 2017–18 (8112 FTEs).

For the projection period, the students-per-teacher ratio is held constant to account for declining enrolments and efforts to align the teaching workforce with enrolment levels.

There is a projected net demand of 2531 new teachers between 2009–10 and 2017–18 to partially replace teachers who

- retire or leave due to disability (estimated at 2886)
- leave public education due to occupational mobility, such as working in other jurisdictions or leaving the labour force (estimated at 783)
- die (estimated at 54)

## Supply of Teachers

The new supply of teachers (qualified new entrants in Nova Scotia public education who are likely to seek teaching positions in the province) is estimated to average 930 per year through 2017–18.

The annual supply includes 355 Nova Scotians who graduate from teacher education programs in the province and who are likely to stay in Nova Scotia to work. Assuming this supply will continue in future years, there will not be an aggregate shortage of teachers in Nova Scotia, but some rural and other geographical areas across the province may experience difficulties in attracting teachers, especially in specific subjects and specialties.

## Substitute Teacher Labour Market

In 2008–09 a slight drop in the number of substitute teachers and substitute teacher FTEs occurred: There were 2983 active substitute teachers, representing a teaching effort of 872 FTEs. Despite this drop, the years preceding 2008–09 saw annual increases, which consistently increased the substitute teacher pool.

Although there has been an increase in the percentage of substitute teachers finding permanent or probationary positions since the last update, the probability of substitute teachers becoming regular teachers continues to be low. For example, of the substitute teachers active in 2003–04, by 2008–09 only 29 percent had obtained permanent or probationary positions and 10 percent had obtained term positions. The attrition of substitute teachers is approximately 19 percent each year.

## Integrated View of Teacher Supply and Demand

The effective substitute teacher pool is expected to decline from 3677 in 2009–10 to 3399 in 2017–18. The substitute teacher labour force will likely be sufficient to meet the overall demand; however, there may be some difficulties in meeting the demand in certain geographical areas and in particular subject areas. Specifically, a significant proportion of all substitute teacher assignments were in the Halifax Regional School Board last year.

## **Demand and Supply by Subject and Specialty Area**

Overall, the demand by subject and specialty area is projected to be higher between 2009–10 and 2013–14 compared to between 2014–15 and 2017–18. The demand is projected to be highest for elementary grades, administration, and resource. Other subjects in higher demand include English, fine arts, social studies, and mathematics.

The supply of newly certified teachers has decreased slightly over the past two years and continues to be disproportionately distributed across subject areas. When looking at the supply by subject area, the largest increases have been for teachers with a major in French, social studies, and fine arts. While a number of subject areas show an increase in the supply in 2008, they again decreased in 2009 to levels more consistent with 2007.

An analysis of the demand and supply by subject area shows surpluses in English, social studies, and biology and smaller surpluses in mathematics, chemistry, physics, fine arts, and business education. If this trend continues, there should not be a shortage in these subjects, although the market is tight for physics, technology education, physical education, and family studies.

## **Conclusion**

Nova Scotia has seen significant growth in the number of teachers being certified each year over the past several years; however, in the most recent years the numbers have been dropping. If the supply of teachers remains relatively unchanged, there will be an adequate supply to meet the province's overall demand. However, there are concerns with respect to a continued oversupply despite the recent decrease in new teacher certifications. It is also recognized that the availability of teachers is not spread evenly across the province.

The status of the teacher labour market in Nova Scotia has not changed significantly since the 2007 update report in terms of addressing subject-area shortages. There continues to be a potential shortage and/or tight market in technology education, physics, physical education, family studies, and French. There is also a possibility that some geographical areas in the province may have difficulties in recruiting teachers in particular subject areas.



# 1. Introduction

In January 2000 the Department of Education published a research paper on teacher demand and supply: *Nova Scotia Public Education Teacher Demand and Supply*. This research was updated in 2001; 2004; and, most recently, 2007, the results of which were published in *Nova Scotia Public Education Teacher Supply and Demand: 2007 Update Report*. These reports examined the public education teacher labour market in Nova Scotia for “regular” teachers (probationary, permanent, and term) and substitute teachers and the projected teacher demand and supply.

The purpose of this update report is to revise the projections of the teacher demand and supply and move the projections out to the 2017–18 school year. The Centralized Education Data, Administration and Reporting (CEDAR) database of the Department of Education was used to produce statistics on the number of teachers, their certification, and their activity over the past few years. Data and methodology provided by the Nova Scotia Pension Agency were used to project retirements and disabilities.

The most recent data used for this report is for the 2008–09 school year.

This update report is organized into the following nine sections:

- an introduction
- an overview of the teacher supply and demand in other jurisdictions, reflecting changes in the teacher labour market outlook, as well as other related background information
- an employment profile of Nova Scotia teachers
- the demand projections for teachers in the Nova Scotia public school system
- an outlook on the current and future teacher supply
- an analysis of the substitute teacher labour market
- an integrated view of the aggregate teacher demand and supply in Nova Scotia, including a view of the linkages and dynamics between the regular and substitute teacher components
- an analysis of the projected imbalances in teacher supply and demand by subject, specialty area, and administration
- a summary of the findings of the report



## 2. Teacher Supply and Demand in Other Jurisdictions and Factors Influencing Teacher Supply and Demand in Nova Scotia

### 2.1 Jurisdictional Review

Teacher supply and demand has been the focus of study in a number of jurisdictions across Canada, the United States, and other countries around the world. A significant amount of research has been conducted with respect to the overall supply of qualified teachers as well as the supply of teachers in both specific geographical areas and those qualified to teach specific subjects.

In Atlantic Canada there has been a steady decline in enrolment in grades primary to 12, which has correspondingly reduced the demand for teachers. Between 2002–03 and 2008–09 elementary and secondary enrolment declined by 10.1 percent in New Brunswick, 11.6 percent in Nova Scotia, 12.6 percent in Prince Edward Island, and 16.2 percent in Newfoundland and Labrador.<sup>1</sup> In addition, the overall supply of teachers currently exceeds the demand in Atlantic Canada. Despite the overall supply of teachers in Atlantic Canada, many jurisdictions are experiencing difficulty in meeting the demand for teachers in rural areas. In 2002 the Government of Newfoundland and Labrador announced a \$5,000 income supplement for teachers in isolated coastal Labrador communities. This supplement was meant to help attract teachers to areas of the province that traditionally had difficulty in meeting the demand and often had unfilled teaching positions.<sup>2</sup> In addition to the challenges reported in recruiting teachers to rural areas, provinces have also reported difficulty in recruiting teachers in specific subject areas.

The challenges related to the teacher supply and demand in Atlantic Canada have also been reported in other jurisdictions across Canada. This includes the demand for teachers in both rural areas and specific subject areas. A number of Canadian jurisdictions have reported difficulty in recruiting teachers in subject areas including core French, French immersion, the sciences, mathematics, special education, technology education, and guidance. Despite experiencing specific areas of need, there is a recognition that efforts must be made to prevent a continued general oversupply. For example, in 2010 the Government of Ontario announced that it would cut 1,000 spaces from BEd programs over a number of years in order to deal with the significant oversupply of teachers in that province.

The teacher supply and demand in the United States is generally similar to that in Canada. While the overall supply of teachers is enough to meet the demand, like in Canada, many jurisdictions in the United States have reported shortages in rural areas and in specific subject areas, including the sciences, mathematics, and special education. Unlike in Canada, a number of jurisdictions in the United States, such as New York City, have also reported difficulty in meeting the demand for teachers in urban centres, largely due to the increased cost of living in these areas. Some jurisdictions in the United States also report high attrition rates, particularly among new teachers.

In Australia, attrition among teachers is also reported as a problem. One Australian jurisdiction reported that only 15 percent of applicants to BEd programs were still participating in the teaching profession several years later.<sup>3</sup> Like Canada, Australia has reported difficulties in meeting the demand for teachers in rural settings as well as those qualified to teach in languages other than English.

1 R. Brockington, *Summary Public School Indicators for Canada, the Provinces and Territories, 2002/2003 to 2008/2009* (Ottawa: Statistics Canada, 2010).

2 Dibbon, *Teacher Demand in Newfoundland and Labrador* (St. John's: Memorial University of Newfoundland, 2002).

3 M. Skilbeck and H. Connell, *Attracting, Developing, and Retaining Effective Teachers: Australian Country Background Report* (Canberra: Commonwealth of Australia, 2003).

Australia, along with many European countries (including the United Kingdom, Germany, Switzerland, France, and Finland) has reported a demand for teachers qualified in specific subject areas. The areas of need in these countries are similar to those in Canada and the United States. Most jurisdictions reported shortages in the sciences, and Australia, the United Kingdom, Germany, and Finland also reported shortages in mathematics and technology education. Many jurisdictions have implemented programs to help meet the demand in these subject areas. Incentives include financial bonuses, wage increases, and proactive public relations and recruitment campaigns.

## **2.2 Background/ Factors Influencing Teacher Supply and Demand in Nova Scotia**

### **Change to Teacher Pension Plan in Nova Scotia**

In 2005 changes were made to the Nova Scotia Teachers Union Pension Plan that had a significant impact on the number of retirements that year. A lump sum payment was made by the province into the pension plan, and a change was made to the indexing rules for pension payments that would apply only to members who retired after January 1, 2006. Teachers who retired before January 1, 2006, had the choice of indexing arrangements.

The impact that this change in pension rules had on retirement levels in 2005 was substantial. With the opportunity to have a choice in pension rules, many teachers who were nearing retirement elected to retire early. In 2005–06, 58.6 percent more teachers retired than had been forecasted. It is important to consider this change when looking at the overall changes in employment status for the years following the change.

### **Labour Mobility**

The Agreement on Internal Trade (AIT), signed by all provinces and territories, came into effect on April 1, 2009. Under this agreement, teachers who are certified by a regulatory authority in one province or territory will be recognized as certified by all other provinces and territories. A Bridging Teacher Certificate can be issued to a teacher from another jurisdiction who does not meet the requirements for initial teacher certification in Nova Scotia. Bridging Teacher Certificates are issued on a permanent basis in light of the AIT. This change is not expected to have a significant impact on the supply of teachers in Nova Scotia.

### **Nova Scotia's Financial Situation**

In light of the fiscal realities facing the Province of Nova Scotia, all government departments and key partners have been asked to work together to ensure that programs are sustainable and relevant to the needs of Nova Scotians. This involves examining the use of human resources and optimizing the use of existing facilities.

## 3. Employment Profile of Nova Scotia Teachers

### 3.1 Teacher Employment Status

The data provided in this update report refer to teachers employed by the school boards who are covered under the *Teachers' Provincial Agreement* between the Nova Scotia Teachers Union and the Nova Scotia government. The agreement covers teachers with classroom and administrative assignments. (Many administrators have both.) Regardless of the nature of their assignments, teachers are required to be certified by the Department of Education.

During a school year, certified teachers in the Nova Scotia public school system can be actively teaching or be on special leave, such as maternity leave, sick leave, or a leave of absence. An "active" teacher is one who works for at least one day for any school board in the province during the school year.

The following classifications of public education teachers are used in this update:

- permanent teachers who are regular employees of the school boards and whose job security is protected by rights set down in the *Teachers' Provincial Agreement* and the *Education Act*
- probationary teachers who are regular employees of the school boards and are serving a two-year probationary period before becoming permanent teachers
- term teachers who are hired by the school boards to replace probationary or permanent teachers for a fixed, specific period of time or are to be employed for a fixed period of time
- substitute teachers who are engaged by the school boards on a day-to-day basis to take the place of regularly employed teachers

The term "regular" refers to permanent, probationary, and term teachers in the Nova Scotia public school system. The employment status of a teacher may change throughout the school year. A teacher may move from a substitute position to a term position or even a probationary position. For the purposes of this study, teachers are classified according to the highest employment status they held during the year. For example, if a teacher was a substitute teacher for part of the year and then moved to a term position, he/she is counted as a term teacher, even if he/she moved back to being a substitute teacher at the end of the school year. If a teacher moved from a term position to a probationary position, he/she is counted as a probationary teacher.

**Table 1: Active Teachers by Status and Year**

Status	2001-02	2002-03	2003-04	2004-05	2005-06	2006-07	2007-08	2008-09
Permanent/probationary	8419	8334	8441	8365	8305	8250	8530	8636
Term	1430	1507	1403	1536	1754	2017	1860	1775
Substitute	2267	2299	2454	2540	2610	2758	3005	2983
<b>Total</b>	12,116	12,140	12,298	12,441	12,669	13,025	13,395	13,394

Although the trend in the past several years has been a decrease in the number of permanent and probationary teachers, the 2007-08 and 2008-09 years both show an increase in the number of active permanent and probationary teachers. The number of term teachers has shown annual increases, with a peak in 2006-07 before a return to numbers consistent with previous years. The number of substitute teachers continues to increase, in general, each year.

The Halifax Regional School Board continues to employ the largest number of teachers in the province. In most boards, approximately 60–67 percent of the teachers are in permanent or probationary positions. The Tri-County (67 percent), Strait (67 percent), and Cape Breton–Victoria (70 percent) regional school boards have the highest percentages of permanent and probationary positions, while the Conseil scolaire acadien provincial (59 percent) and the Halifax (61 percent) boards have the lowest. The Cape Breton–Victoria, Tri-County, and Strait boards have the lowest percentage of term teachers, while the CSAP and the Strait board have the highest percentage of substitute teachers.

**Table 2: Teachers by School Board and Status, 2008–09**

School Board	Teacher Status*				
	Permanent	Probationary	Term	Substitute	Total
<b>AVRSB</b> Annapolis Valley Regional School Board	786 (54%)	119 (8%)	189 (13%)	371 (25%)	1465
<b>CBVRSB</b> Cape Breton–Victoria Regional School Board	1136 (67%)	57 (3%)	120 (7%)	387 (23%)	1700
<b>CCRSB</b> Chignecto–Central Regional School Board	1356 (62%)	32 (1%)	299 (14%)	506 (23%)	2193
<b>CSAP</b> Conseil scolaire acadien provincial	277 (49%)	58 (10%)	74 (13%)	154 (27%)	563
<b>HRSB</b> Halifax Regional School Board	3112 (60%)	59 (1%)	912 (18%)	1103 (21%)	5186
<b>SRSB</b> Strait Regional School Board	545 (62%)	47 (5%)	54 (6%)	235 (27%)	881
<b>SSRSB</b> South Shore Regional School Board	533 (64%)	1 (0%)	92 (11%)	208 (25%)	834
<b>TCSB</b> Tri-County Regional School Board	471 (60%)	58 (7%)	53 (7%)	197 (25%)	779
Nova Scotia**	8216 (61%)	420 (3%)	1775 (13%)	2983 (22%)	13,394

\*Excludes teachers on full-year leave

\*\*The number of teachers by board may be greater than the Nova Scotia total because teachers may work for more than one school board in a year.

### 3.2 Probationary and Term Teachers

Recent trends in the appointment of new probationary teachers and new term teachers are shown below for 2004–05 through 2008–09. Two factors that may have contributed to the shifts in employment during this time are the changes made to the Nova Scotia Teachers Union Pension Plan in 2005, which resulted in a higher number of permanent teachers retiring than expected, and a change in the age of entry for primary students in 2008<sup>4</sup>, which resulted in additional FTE requirements for that larger class cohort.

New probationary teacher positions may be filled by former term or substitute teachers or by members of the new supply of teachers; new term positions may be filled by former substitute teachers or by members of the new supply of teachers. Also shown are the transitions from term to permanent status and the reappointment of term teachers.

The number of new term and probationary teachers peaked in 2006–07 before dropping significantly in subsequent years. In 2007–08 there was an increase in the number of permanent teachers who previously held term positions. The number of term teachers who were term teachers in the previous year increased in 2006–07 and 2007–08 before dropping slightly in 2008–09. As a percentage of all term teachers, those remaining in term positions in 2007–08 accounted for 64 percent, a 14-percent increase over the previous year.

**Table 3: Employment of New Probationary and New Term Teachers**

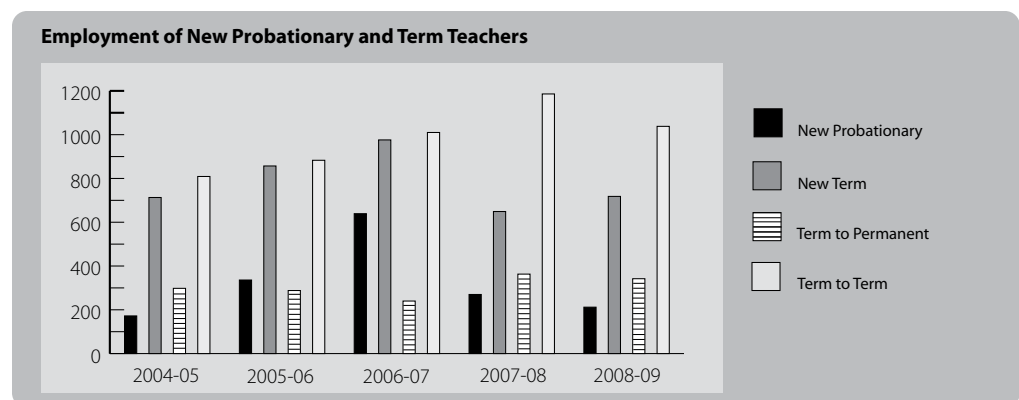
	2004–05	2005–06	2006–07	2007–08	2008–09
<b>New probationary teachers*</b>	172	336	639	270	212
<b>New term teachers**</b>	713	857	976	649	718
<b>New permanent teachers who were term teachers in the previous year</b>	298	288	240	363	342
<b>Term teachers who were term teachers in the previous year***</b>	809 (52.7%)	883 (50.3%)	1010 (50.1%)	1186 (63.8%)	1038 (58.5%)

\*Either a term or substitute teacher in the previous school year or not actively teaching in the previous school year

\*\*Either a substitute teacher in the previous school year or not actively teaching in the previous school year

\*\*\*The number in parentheses represents the percentage compared to all term teachers.

Despite the increase in new probationary teachers in 2006–07, overall, Nova Scotia school boards are offering mostly term positions to new teachers. Term teachers have a contract of employment for a specific period, and they do not have the protective staff placement rights of their permanent counterparts.



<sup>4</sup> Effective September 2008, children who had their fifth birthday on or before December 31 (previously September 30) were eligible to enter grade primary.





## 4. Teacher Demand

### 4.1 The Demand Model

The demand for teachers refers to the number of new teachers who will be required annually by Nova Scotia school boards. There are several factors that affect the demand for new teachers in the Nova Scotia public school system, including

- the annual change in the level of teacher employment as a result of changes in student enrolments and students-per-teacher ratios
- attrition as a result of teacher retirements, disabilities, death, and occupational mobility

The projected teacher demand is expressed in terms of full-time equivalents (FTEs). When a permanent teacher is on any type of leave, his/her position is normally back-filled with either a substitute or a term teacher, depending on the duration of the leave or the type of leave. Teachers can either earn pensionable years of service while they are on leave or they can buy back their leave time as pensionable time. Therefore, for retirement purposes, permanent teachers are counted as working full-time unless they are specifically designated as being part-time or job-sharing. If they job-share or work part-time, they are counted in relation to the portion of the year that they worked.

### 4.2 Trends in Student Enrolments

The number of students enrolled is a fundamental determinant of the number of teachers required. Student enrolments are projected to continue to decrease over the projection period. Enrolment in elementary, junior, and senior high is expected to decrease more in the first part of the projection period. While enrolments continue to decline in the second part of the projection period, only a small decrease in junior high enrolment is expected.

There is a 12-percent projected decline in enrolment between 2009–10 and 2017–18 (130,550 to 115,598).

The rate of decrease is expected to be lowest for the Halifax Regional School Board and the CSAP, with the CSAP actually showing a slight increase over the first part of the projection period. The greatest decreases are expected for the Tri-County, Strait, and South Shore regional school boards.

**Table 4: Actual and Projected Public School Enrolments**

	Actual Enrolments		Projected Enrolments		Percent Change (Percent Annual Change)		
	2005–06	2009–10	2013–14	2017–18	2005–06 to 2009–10	2009–10 to 2013–14	2013–14 to 2017–18
<b>Elementary</b>	69,374	64,411	62,082	60,322	-7.2 (-1.8)	-3.6 (-0.9)	-2.8 (-0.7)
<b>Junior high</b>	35,305	30,963	27,895	27,682	-12.3 (-3.2)	-9.9 (-2.6)	-0.8 (-0.2)
<b>Senior high*</b>	37,625	35,176	30,621	27,594	-6.5 (-1.7)	-12.9 (-3.4)	-9.9 (-2.6)
<b>Total</b>	142,304	130,550	120,598	115,598	-8.3 (-2.1)	-7.6 (-2.0)	-4.1 (-1.1)

	Actual Enrolments		Projected Enrolments		Percent Change (Percent Annual Change)		
	2005–06	2009–10	2013–14	2017–18	2005–06 to 2009–10	2009–10 to 2013–14	2013–14 to 2017–18
<b>AVRSB</b>	16,259	14,895	13,750	13,328	-8.4 (-2.2)	-7.7 (-2.0)	-3.1 (-0.8)
<b>CBVRSB</b>	17,882	15,479	13,825	13,075	-13.4 (-3.5)	-10.7 (-2.8)	-5.4 (-1.4)
<b>CCRSB</b>	24,415	22,397	20,894	20,119	-8.3 (-2.1)	-6.7 (-1.7)	-3.7 (-0.9)
<b>CSAP</b>	4153	4446	4534	4529	7.1 (1.7)	2.0 (0.5)	-0.1 (0.0)
<b>HRSB</b>	54,389	51,281	48,286	46,763	-5.7 (-1.5)	-5.8 (-1.5)	-3.2 (-0.8)
<b>SRSB</b>	8584	7390	6527	5891	-13.9 (-3.7)	-11.7 (-3.1)	-9.7 (-2.5)
<b>SSRSB</b>	8371	7510	6636	6237	-10.3 (-2.7)	-11.6 (-3.0)	-6.0 (-1.5)
<b>TCRSB</b>	8251	7152	6146	5656	-13.3 (-3.5)	-14.1 (-3.7)	-8.0 (-2.1)

\*Includes other secondary grades

### 4.3 French Language Instruction

In recent years, the overall enrolment for French-language program instruction (not including core French) has been increasing. Since 2005–06, the French-language program enrolment has increased by 2.3 percent, while the public school program enrolment overall has decreased by 8.3 percent during the same time period.

Early-immersion enrolments have seen a consistent increase over the years, while late-immersion enrolments have seen a decrease of almost 1000 since 2005–06. This may be due partly to recent increases in the number of schools offering early-immersion programs. Integrated French, a program starting in grade 7 and ending in grade 12, whereby students take a French course and a social studies course taught in French in each grade level, has seen a steady decline in enrolment. This decline may be due partly to schools electing to offer French-immersion programming rather than integrated French. Enrolment in the CSAP has increased: There has been an increase of almost 300 students since 2005–06.

**Table 5: Enrolment in French-Language Program Instruction**

Year	CSAP	Early Immersion	Late Immersion	Integrated French	Total
2003–04	4153	6900	6853	3273	21,179
2004–05	4121	7413	6768	3041	21,343
2005–06	4153	7955	6386	2644	21,138
2006–07	4124	8321	6304	2439	21,188
2007–08	4256	8672	6011	2277	21,216
2008–09	4358	9279	5776	2313	21,726
2009–10	4446	9680	5389	2324	21,839

### 4.4 Ratio of Students to Teachers

The ratio of the number of students per teacher determines the number of teachers required for a given enrolment size. It is related to class size, but the education system also has teachers who have assignments away from the classroom, such as principals, guidance counsellors, or teachers who provide supports outside a classroom to students facing various challenges.

The specification of a teacher in the ratio is complex because the amount of input of a teacher is not fixed. Some teachers work full-time and others part-time (perhaps on a regular basis as substitutes). When trying to delineate teachers by grade level, there is the additional complication that many teachers are involved in multiple grades (for example, a music teacher who has responsibilities in elementary, junior high, and senior high). The answer to resolving the difficulty in counting teachers, whether they have classroom or administrative duties, or both, is to measure the full-time equivalent (FTE) of teacher effort, which allocates teachers' time according to the amount devoted to each teaching and administrative task in relation to the standard workload of a full-time teacher.

The ratio of the number of students per teacher is based on the number of students enrolled and the number of teacher FTEs at each grade level (i.e., elementary, junior high, and senior high school) and administration. Teacher FTEs at each grade level are based on the teaching effort at these levels. For example, if a teacher works at both an elementary and a junior high school, the FTE for each level is based on the time he/she works at each of these levels.

Despite declining enrolments over the past several years, the system has not seen corresponding declines in total teacher FTEs. The students-per-teacher FTE ratio has steadily dropped over the past several years.

Administration FTEs refer to those positions that receive an administrative allowance, such as superintendents, assistant superintendents, supervisors, consultants who provide support to school boards, principals, vice-principals, and department heads.

In 2005–06, there was an increase of 50 administrative FTE positions (almost half of which were due to the addition of consultants who provide support to schools in mathematics, literacy, and active healthy living) for a total of 826. This number rose again in 2007–08 to 900. Based on an announcement by the Nova Scotia government in 2011 to reduce a portion of the administrative FTE effort, this number is projected to decrease within the projection period.

**Table 6: Recent and Projected Students per Teacher/Administrator**

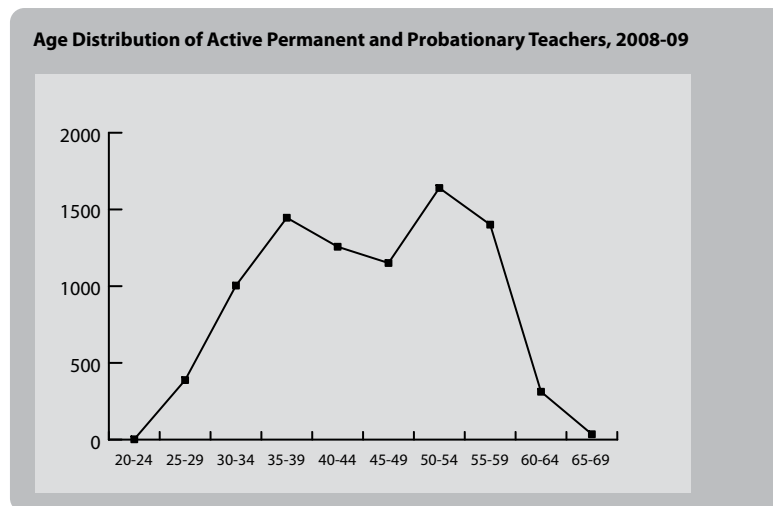
	2001–02	2002–03	2003–04	2004–05	2005–06	2006–07*	2007–08	2008–09*	Projected 2013–14	Projected 2017–18
<b>Elementary</b>										
Students	78,626	75,965	73,606	71,394	69,375	67,305	65,574	65,267	62,082	60,322
Teacher FTEs	4342	4271	4227	4163	4198	4218	4238	4234	4005	3892
Students per teacher FTE	18.1	17.8	17.4	17.1	16.5	16.0	15.5	15.5	15.5	15.5
<b>Junior high</b>										
Students	36,738	36,895	37,045	36,537	35,305	34,077	32,985	32,077	27,895	27,682
Teacher FTEs	2111	2131	2151	2146	2181	2159	2136	2077	1806	1793
Students per teacher FTE	17.4	17.3	17.2	17.0	16.2	15.8	15.4	15.4	15.4	15.4
<b>Senior high</b>										
Students	38,086	37,739	37,863	37,465	37,625	37,279	36,744	35,790	30,621	27,594
Teacher FTEs	1951	1939	1948	1965	1991	2069	2147	2091	1789	1612
Students per teacher FTE	19.5	19.5	19.4	19.1	18.9	18.0	17.1	17.1	17.1	17.1
<b>Administration</b>										
Students	153,450	150,599	148,514	145,396	142,304	138,661	135,303	133,497	120,598	115,598
Admin FTEs	764	766	780	776	826	863	900	900	815	815
Students per admin FTE	200.9	196.9	190.4	187.4	172.3	150.3	150.3	148.3	148.0	141.8

\*There was a change in methodology in the collection of teacher FTE information for the 2006–07 and 2008–09 school years. 2006–07 estimates were made by taking the average change between 2005–06 and 2007–08. Students-per-teacher FTE ratios were held constant from 2007–08 to the end of the projection period.

### 4.5 Teacher Retirements and Disabilities

Attrition due to retirements makes up the largest component of the demand for new teachers.

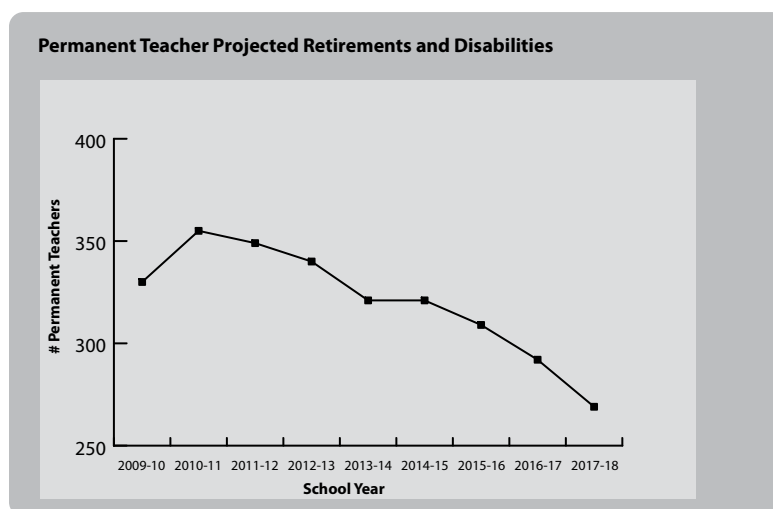
In 2008–09 the average age of active permanent and probationary teachers in Nova Scotia was 45 years. Since 2005–06 the percentage of permanent and probationary teachers over the age of 50 has dropped from 47 percent to 39 percent in 2008–09.



The Nova Scotia Pension Agency undertook an analysis of its retirement and disability data to develop assumptions on when teachers are expected to retire or go on disability pension, based on past behaviour. From this analysis, it is assumed that approximately 38 percent of teachers will retire or go on disability pension when they first become eligible for an unreduced pension, approximately 19 percent of teachers will retire or become disabled prior to becoming eligible for an unreduced pension, and the remainder will leave within a few years of becoming eligible. Appendix 3 contains a table with detailed assumptions. Based on these assumptions for retirements and disabilities, during the projection period the number of teachers leaving will peak in 2010–11 and then start to decrease through 2017–18.

The following limitations need to be considered when reviewing the data:

- Due to a change to the indexing rules of the Nova Scotia Teachers Union Pension Plan in 2005 (see page 4 for details), the subsequent two years of retirement data were impacted by an indexing effect. Therefore, retirement assumptions are based on a limited history of data (i.e., two years).
- The projections are less accurate the further they are into the future.



## 4.6 Other Attrition of the Teacher Workforce

Other than retirements and disabilities, teachers may leave employment in Nova Scotia public education due to death or occupational mobility (i.e., moving to work in other sectors or jurisdictions or leaving the labour force).

There are a number of reasons that regular teachers migrate from employment in Nova Scotia public education. These include job dissatisfaction, better opportunities in another sector or jurisdiction, accompanying a spouse moving to another region, and withdrawal from the workforce. For term teachers there are also the factors of not having their contracts renewed and being unwilling or unable to substitute teach.

The number of teachers who have died each year since 2003–04 ranges from 1 to 12. Based on this analysis, it is assumed that about six teachers will die each year.

There has been an increasing trend in the occupational mobility of regular teachers. Over the past five years there has been a consistent increase, with the exception of 2005–06, in the occupational mobility of permanent and probationary teachers. A similar trend is evident in the mobility of term teachers.

On average, about 27 permanent/probationary and 94 term teachers do not return to the Nova Scotia public school system each year due to reasons other than retirement, death, or disabilities. On average, teachers who leave due to occupational mobility represent about 72 percent of an FTE; therefore, each year the Nova Scotia public school system loses 87 teacher FTEs to occupational mobility.

**Table 7: Regular Teacher Occupational Mobility from Nova Scotia Public Education**

	2004–05	2005–06	2006–07	2007–08	2008–09	Average	FTEs*
<b>Permanent/ probationary</b>	19	10	28	36	40	27	19
<b>Term</b>	66	76	81	121	126	94	68
<b>Total</b>	85	86	109	157	166	121	87

Annual figures represent teachers who were not in the public school system but were active the previous school year.

Calculations may not add perfectly due to rounding.

\*Based on an average of 72 percent FTE

## 4.7 Temporary Attrition

Teachers can be off work for the whole of or part of a school year due to special leaves. If the number of teachers on leave remains constant from year to year, the impact on the aggregate demand for new teachers is neutral. Over time, the number of teachers on leave has been increasing. Indications are that the number of teachers going on leave will remain constant in the future unless there are new initiatives for leaves. Therefore, it is assumed that the number of teachers going on leave is offset by the number of teachers returning from leave and that the overall impact on the new demand is neutral.

**Table 8: Leaves by Type—Permanent and Probationary Teachers**

Type of Leave	2004–05	2005–06	2006–07	2007–08	2008–09
<b>Deferred salary</b>	111	167	149	100	111
<b>Educational/ sabbatical</b>	34	49	32	32	13
<b>Leave of absence</b>	541	503	570	638	757
<b>Maternity leave</b>	195	220	260	343	372
<b>Sick leave</b>	278	275	210	293	289
<b>Total</b>	1159	1214	1221	1406	1542

## 4.8 Long-Term Demand Outlook

Over the projection period, the average annual demand for teachers is approximately 281 teachers per year. On average, there are 321 retirements and new disabilities each year, 93 teachers leave due to death or occupational mobility, and there is an average annual adjustment of -132 teachers each year due to declining enrolments.

Overall, the new teacher demand is expected to increase slightly over the projection period, from 236 in 2009–10 to 285 in 2017–18. With the exception of 2011–12, the demand is expected to increase slightly each year until 2015–16 before dropping at the end of the projection period.

**Table 9: Projected Teacher FTE Demand by Component for Nova Scotia**

	2009–10	2010–11	2011–12	2012–13	2013–14	2014–15	2015–16	2016–17	2017–18
<b>Change in teacher FTEs</b>									
Elementary	-79	-59	-61	-33	3	22	-75	-19	-22
Junior high	-72	-63	-58	-37	-41	-56	59	-13	-4
Senior high	-36	-69	-63	-76	-58	-53	-33	-39	-52
Administrators	0	0	-25	-30	-30	0	0	0	0
Total*	-187	-191	-207	-177	-126	-87	-69	-71	-77
<b>Retirements and disabilities</b>									
	330	355	349	340	321	321	309	292	269
<b>Other attrition</b>									
Death	6	6	6	6	6	6	6	6	6
Occupational mobility	87	87	87	87	87	87	87	87	87
Total	93	93	93	93	93	93	93	93	93
<b>Total teacher demand</b>									
	236	257	235	256	288	327	333	314	285

\*Calculations may not add perfectly due to the rounding of FTEs.





## 5. Teacher Supply

### 5.1 Overview of New Teacher Supply

New teacher supply refers to the number of new entrants into the Nova Scotia public school system. The number of Nova Scotia teacher certificates issued to teachers with a Nova Scotia residence is used as a proxy for new entrants. It is assumed that newly certified teachers with a Nova Scotia postal code are interested in obtaining a full-time teaching position in Nova Scotia.

Although sources of teachers in Nova Scotia can be identified from the available data, it is not possible to allocate new supply to a region, or school board, within the province. Each school board will have differing advantages and challenges in attracting teachers.

### 5.2 Nova Scotia Teacher Certificates

The number of teachers receiving Nova Scotia teacher certificates has decreased each year since 2006, after a substantial increase in 2005 and 2006. The average number of teacher certificates issued in the past five years includes 392 graduates from teacher education programs in the province and 589 teachers trained in other jurisdictions. The teacher certificates issued to those trained outside Nova Scotia have been issued predominantly to graduates from the University of New Brunswick, Memorial University in Newfoundland and Labrador, and institutions in Ontario and Maine.

While the overall number of teacher certificates has been decreasing for the past three years, the number of teacher certificates issued to individuals graduating from Nova Scotia institutions has been steadily increasing from 366 in 2005 to 444 in 2009. Correspondingly, there has been a decrease in the number of teacher certificates issued to individuals coming from areas outside the province, mainly the United States (Maine) and other countries.

**Table 10: Nova Scotia Teacher Certificates Issued by Location of Educational Institution**

Nova Scotia Teacher Certificate Recipients Issued by Program Location		2005	2006	2007	2008	2009	5-Year Average
Nova Scotia institutions	Acadia	120	128	123	140	138	
	Dalhousie	2	–	1	–	6	
	MSVU	129	120	123	125	132	
	St. F.X.	101	98	96	92	107	
	Université Sainte-Anne	14	24	40	40	61	
<b>Nova Scotia institutions total</b>		<b>366</b>	<b>370</b>	<b>383</b>	<b>397</b>	<b>444</b>	<b>392</b>
Other Atlantic provinces	NB (Atlantic Baptist)	14	13	10	10	7	
	NB (St. Thomas)	8	16	8	20	16	
	NB (U de M)	9	9	6	11	8	
	NB (UNB Saint John)	1	–	–	–	–	
	NB (UNB Fredericton)	76	70	56	47	66	
	NB (Teachers College)	–	1	–	–	–	
	NB total	108	109	80	88	97	
	NL total (Memorial)	112	88	94	75	70	
	PEI total (UPEI)	22	27	19	16	15	
<b>Other Atlantic provinces total</b>		<b>242</b>	<b>224</b>	<b>193</b>	<b>179</b>	<b>182</b>	<b>204</b>
Other Canadian provinces	AB	31	19	20	12	20	
	BC	16	15	26	13	11	
	MB	3	8	6	4	1	
	ON	83	72	78	68	58	
	QC	23	20	20	16	16	
	SK	3	1	5	5	2	
<b>Other Canadian provinces total</b>		<b>159</b>	<b>135</b>	<b>155</b>	<b>118</b>	<b>108</b>	<b>135</b>
United States and other countries	Maine	192	230	181	181	143	
	Other United States	15	24	25	21	16	
	Other countries	35	46	50	54	36	
<b>United States and other countries total</b>		<b>242</b>	<b>300</b>	<b>256</b>	<b>256</b>	<b>195</b>	<b>250</b>
<b>Institutions outside Nova Scotia total</b>		<b>643</b>	<b>659</b>	<b>604</b>	<b>553</b>	<b>485</b>	<b>589</b>
<b>Total number of new certifications</b>		<b>1009</b>	<b>1029</b>	<b>987</b>	<b>950</b>	<b>929</b>	<b>981</b>

### 5.3 Teacher Education Program Capacity, Graduates, and Applications

The number of graduates from teacher education programs in Nova Scotia has been growing over the past number of years, reaching 487 graduates in 2009. The number of applications for education programs continues to be very strong.

There have been two significant changes that have had an impact on the number of graduates from Nova Scotia institutions in 2010. In 2008, Cape Breton University (CBU) was granted approval by the province to offer a 16-month BEd program, beginning in 2009, with the first cohort graduating in 2010. In addition, Acadia also began offering a 16-month program in 2009, with the first cohort of 55 students graduating in 2010.

**Table 11a: BEd Applications Received for Class of 2010, 2011, and 2012 by Program Level**

Nova Scotia Institution	Program Level	2010	2011	2012
Acadia	Elementary	162	174	207
	Secondary	139	162	190
	Total	301	336	397
St. F.X.	Elementary	132	102	106
	Secondary	197	185	164
	Total	329	287	270
MSVU	Elementary	204	154	163
	Secondary	171	144	159
	Total	375	298	322
CBU*	Elementary	78	80	N/A
	Secondary	87	74	N/A
	Total	165	54	N/A
<b>English instruction total</b>		1170	1075	989
Université Sainte-Anne	Elementary	33	29	14
	Secondary	28	31	36
<b>French instruction total</b>		61	60	53**

\*This is a 16-month program; therefore, the application process for 2012 is not complete at this time.

\*\*Three applicants were undecided as to which program level they would be pursuing.

**Table 11b: Teacher Education Institutions in Nova Scotia—Funded Capacity, Graduates, and Applicants**

	Funded Capacity	Graduates			Applicants****		
		2008	2009	2010	2010	2011	2012
Acadia	115	138	139	174*	301	336	397
St. F.X.	115**	97	101	101	329	287	270
MSVU	115	127	130	126	375	298	322
CBU***	40	N/A	N/A	41	165	154	N/A
<b>English instruction total</b>	385	362	370	442	1170	1075	989
Université Sainte-Anne <b>French instruction total</b>	80	34	59	45	61	60	53

\*119 graduates from the 2-year program and 55 graduates from the 16-month program.

\*\*The funded capacity for St. F.X. was increased from 101 to 115 seats in 2008.

\*\*\*CBU was granted approval for a BEd program in 2009, with the first cohort of students graduating in 2010.

\*\*\*\*The number of applicants for the classes of 2010, 2011, and 2012 as shown in Table 11a.

## 5.4 Long-Term Teacher Supply Outlook

Between 2005 and 2009, on average 392 teacher certificates were issued per year to graduates of Nova Scotia institutions. Of these, on average, 37 have home addresses outside Nova Scotia, and it is assumed that they are not interested in obtaining a teaching position in the Nova Scotia public education system. About 589 certificates are issued each year to graduates from non–Nova Scotia institutions. Based on these five-year figures, the average supply of new teachers would be 944 per year.

However, this average does not adequately reflect the recent decrease in newly certified teachers over the past four years (down from 1029 in 2006 to 929 and 853 in 2009 and 2010, respectively). In addition, the applications received for admittance into BEd programs in Nova Scotia institutions for the classes of 2011 and 2012 have decreased, although they are still adequate. The combination of decreasing numbers of newly certified teachers, along with the trend in the number of applications for the next few graduating classes, indicates that the average annual teacher supply will be slightly fewer than 944.

Each year, a small number of teachers who did not teach in Nova Scotia the previous school year return to the Nova Scotia public education system. For the purposes of this report, the number of new and the returning supply of teachers will be held constant at 930 per year, which includes anticipated decreases in the number of new teacher certifications and the small number of teachers returning into the system each year.

Assuming this supply will continue in future years, there will not be an aggregate shortage of teachers in Nova Scotia. However, as the following sections will note, there may be supply challenges for rural and other geographical areas across the province, both in numbers and in specific subjects and specialties.

## 6. Substitute Teacher Labour Market

### 6.1 Substitute Teacher Activity

Substitute teachers provide a valuable resource to Nova Scotia public schools. They fill in for permanent, probationary, and term teachers who are temporarily absent from work. Often, permanent teachers enter the profession as substitute teachers.

Table 12 summarizes information on the substitute teacher labour market from 2000–01 through 2008–09. The information includes

- the number of teachers teaching only as substitutes in the Nova Scotia public education system during the year, as a measure of the size of the substitute teacher workforce
- the average and median number of days of teaching of the substitute teacher workforce
- a profile of substitute teachers' previous-year teaching activity in Nova Scotia public education, to indicate the source of the substitute teacher workforce
- a profile of substitute teachers' next-year teaching activity, to indicate the ability of substitute teachers to obtain regular teaching assignments and to highlight attrition of substitute teachers from the public education system in Nova Scotia

### 6.2 Size and Importance of Substitute Teacher Workforce

Between 2000–01 and 2008–09 the number of substitute teachers continued to increase, while the average number of days taught saw a minimal drop. Therefore, the number of substitute teacher FTEs has increased. The number of substitute teachers (FTEs) is equal to about 9 percent of the regular teaching workforce (i.e., permanent, probationary, and term teachers).

On average, substitute teachers worked 57 days during the 2008–09 school year. Each year, a small number of substitute teachers find permanent teaching positions. More find term positions, while the largest number return as substitute teachers the following year. A small number of permanent teachers also return as substitute teachers in the following year. There was a particularly high number of permanent teachers returning as substitutes in 2005–06 and 2006–07. It is reasonable to assume that some of this increase was due to teachers who retired, following the change made to the Nova Scotia Teachers Union Pension Plan in 2005, returning as substitute teachers.

Each year, one-fifth (20 percent) of the substitute teachers from the previous year do not substitute or teach in the Nova Scotia public school system in any capacity.

**Table 12: Nova Scotia Substitute Teacher Labour Market**

	2000-01	2001-02	2002-03	2003-04	2004-05	2005-06	2006-07	2007-08	2008-09
Substitute teachers	2233	2267	2299	2454	2540	2610	2758	3005	2983
Average number of days taught	65	65	61	62	61	63	58	58	57
Median number of days taught	53	51	48	50	49	52	48	47	47
<b>Previous-year teaching activity</b>									
Permanent/probationary	30	65	153	132	132	189	353	116	128
Term	128	98	119	130	85	76	67	162	181
Substitute	1408	1270	1266	1392	1458	1397	1362	1773	1828
Did not teach in Nova Scotia public education	667	834	761	800	865	948	976	954	846
<b>Next-year teaching activity</b>									
Permanent/probationary	12	40	104	20	114	183	50	37	–
Term	415	439	328	500	562	601	406	510	–
Substitute	1270	1266	1392	1458	1397	1362	1773	1828	–
Did not teach in Nova Scotia public education	536	522	475	476	467	464	529	630	–
Substitute teacher attrition rate	24%	23%	21%	19%	18%	18%	19%	21%	–

**Table 13: Substitute Teacher FTEs Compared to Regular Teacher FTEs**

	2000-01	2001-02	2002-03	2003-04	2004-05	2005-06	2006-07	2007-08	2008-09
<b>Substitute teacher FTEs</b>	744	756	719	780	795	843	820	894	872
<b>Substitute teacher FTEs as a percentage of regular teacher FTEs</b>	8.1%	8.2%	7.9%	8.6%	8.8%	9.2%	8.8%	9.5%	9.2%

Although the overall number of substitute teachers has increased over the nine-year period (as seen in Table 12), the increase is not necessarily allocated evenly across the province. As indicated in Table 14, the Halifax Regional School Board (HRSB) employed the highest percentage (35 percent) of all substitute teachers in each board in 2008–09. In contrast, the CSAP and the Tri-County, South Shore, and Strait regional school boards each employed between 5 and 7 percent, while the Annapolis Valley, Cape Breton–Victoria, and Chignecto-Central regional school boards employed between 12 and 16 percent of all substitute teachers in each board.

The combination of the large number of substitutes employed in the HRSB, along with the probability that many substitutes live in (or in close proximity to) the Halifax Regional Municipality and choose to work in the HRSB, leaves only so much of the substitute pool left from which the other seven boards can draw. In addition, with the small pool of substitutes left for the boards to choose from, there may be insufficient supply to meet the demand in particular subjects or specialty areas.

**Table 14: Substitute Teachers Employed in 2008–09**

School Board	Substitute Teachers Employed in Each Board*	Percentage
AVRSB	371	12%
CBVRSB	387	12%
CCRSB	506	16%
CSAP	154	5%
HRSB	1103	35%
SRSB	235	7%
SSRSB	208	7%
TCRSB	197	6%
<b>Nova Scotia total</b>	<b>3161</b>	<b>100%</b>

\*Substitute teachers may work for more than one school board in a year. Totals are from Table 2.

A further challenge faced by school boards is that substitute teachers who are endorsed to teach at the elementary level may be reluctant to accept assignments at the junior and senior high levels. This poses significant difficulty for school boards in cases where the substitute teacher pool for the region includes a significant proportion of teachers endorsed at the elementary level.

### 6.3 Source of Substitute Teachers

The source of substitute teachers is assessed by their attachment to Nova Scotia public education in the previous year. Of the 2983 substitute teachers in 2008–09, during the previous year

- 1828 (61.3 percent) were substitute teachers
- 181 (6.1 percent) were term teachers
- 128 (4.3 percent) were permanent or probationary teachers
- 846 (28.4 percent) did not teach in public education

### 6.4 Retention of Substitute Teachers

Although many substitute teachers are interested in obtaining permanent positions, only 29 percent of the substitute teachers who were teaching in 2003–04 had obtained a permanent teaching position five years later, and only 10 percent had obtained a term position.

Approximately one-fifth (22 percent) of the substitute teachers who were substituting in 2003–04 were still substituting in 2008–09. Almost 40 (38.5 percent) percent of the substitute teachers from 2003–04 were not active in the Nova Scotia public school system five years later.

This data shows that some teachers will continue to substitute; however, a large number leave the Nova Scotia public education system.

**Table 15: Five-Year Work History of Substitute Teachers in 2003–2004**

<b>“Future” Regular Teacher Status of the 2454 Substitute Teachers Active in 2003–04</b>	<b>2004–05 (1 year later)</b>	<b>2005–06 (2 years later)</b>	<b>2006–07 (3 years later)</b>	<b>2007–08 (4 years later)</b>	<b>2008–09 (5 years later)</b>
<b>Permanent/probationary</b>	20 (0.8%)	165 (6.7%)	407 (16.6%)	580 (23.6%)	719 (29.3%)
<b>Term</b>	500 (20.4%)	646 (26.3%)	570 (23.2%)	414 (16.9%)	248 (10.1%)
<b>Substitute</b>	1458 (59.4%)	994 (40.5%)	731 (29.8%)	645 (26.3%)	541 (22.0%)
<b>Not active</b>	476 (19.4%)	649 (26.4%)	746 (30.4%)	815 (33.2%)	946 (38.5%)



## 7. Integrated View of Regular Teacher Supply and Demand

Throughout the projection period, the new teacher supply is estimated to be significantly higher than the annual demand. The demand is projected to reach highs in 2014–15 and 2015–16.

**Table 16: New Teacher Supply Versus Annual Demand, 2009–10 through 2017–18**

	2009–10	2010–11	2011–12	2012–13	2013–14	2014–15	2015–16	2016–17	2017–18
<b>Supply (newly certified teachers)</b>	930	930	930	930	930	930	930	930	930
<b>Demand</b>	236	257	235	256	288	327	333	314	285
<b>Difference</b>	694	673	695	674	642	603	597	616	645

Table 17 shows an integrated view of the dynamics of teacher supply and demand. The table synthesizes information given elsewhere in this update into a model of the overall teacher workforce in Nova Scotia and combines the new supply, returning supply, and demand for regular and substitute teachers. The model depicts how

- the supply of new teachers feeds the need for both regular and substitute teachers
- the number of teachers available to fill regular teacher positions is the sum of the new supply of teachers, the existing substitute pool, and teachers returning to the public education system
- the size of the substitute teacher pool is increased by the new supply and decreased by the demand for regular teachers
- the substitute teacher pool is diminished by the attrition of substitute teachers (i.e., substitute teachers not returning to teach in the public school system in any manner the following school year)

**Table 17: Projected Nova Scotia Permanent and Substitute Teacher Workforce (FTE) Dynamics**

	2009–10	2010–11	2011–12	2012–13	2013–14	2014–15	2015–16	2016–17	2017–18
<b>Regular teacher demand components</b>									
Retirements and disabilities	330	355	349	340	321	321	309	292	269
Other attrition	93	93	93	93	93	93	93	93	93
Change in the number employed	-187	-191	-207	-177	-126	-87	-69	-71	-77
<b>Total</b>	<b>236</b>	<b>257</b>	<b>235</b>	<b>256</b>	<b>288</b>	<b>327</b>	<b>333</b>	<b>314</b>	<b>285</b>
<b>Teachers available to meet demand for regular teachers</b>									
Beginning substitute pool	2983	2978	2957	2958	2941	2903	2840	2784	2754
New teacher supply	930	930	930	930	930	930	930	930	930
<b>Total teachers available</b>	<b>3913</b>	<b>3908</b>	<b>3887</b>	<b>3888</b>	<b>3871</b>	<b>3833</b>	<b>3770</b>	<b>3714</b>	<b>3684</b>
Meet teacher demand	-236	-257	-235	-256	-288	-327	-333	-314	-285
<b>Effective substitute pool</b>	<b>3677</b>	<b>3651</b>	<b>3652</b>	<b>3631</b>	<b>3584</b>	<b>3506</b>	<b>3437</b>	<b>3400</b>	<b>3399</b>
Attrition of substitutes	699	694	694	690	681	666	653	646	646
Attrition rate %	19%	19%	19%	19%	19%	19%	19%	19%	19%
<b>Next-year substitute pool</b>	<b>2978</b>	<b>2957</b>	<b>2958</b>	<b>2941</b>	<b>2903</b>	<b>2840</b>	<b>2784</b>	<b>2754</b>	<b>2753</b>
<b>Substitute teacher metrics</b>									
Estimated substitute requirement at 10% of the regular teacher workforce	912	893	872	854	842	833	826	819	811
Effective substitute teacher capacity utilization	24.8%	24.4%	23.9%	23.5%	23.5%	23.8%	24.0%	24.1%	23.9%
“Teacher available” probability for a regular teaching position in the current year	6.0%	6.6%	6.1%	6.6%	7.4%	8.5%	8.8%	8.5%	7.7%

Note: The numbers may not add up to the totals due to rounding.

The integrated dynamics model assumes that the labour market components for regular teachers are operating effectively, meaning that

- Nova Scotia school boards are successful in recruiting teachers to meet their demand
- all of the projected teacher supply will be available to teach, in either regular or substitute positions
- teachers are aware of the opportunities for them to work in the Nova Scotia public education system, and they are willing to move where jobs are offered
- many new teachers start their career as substitute teachers with the intention of becoming permanent teachers
- the attrition of substitute teachers is 19 percent per year—based on an analysis of the previous years' data

Based on this analysis, the effective substitute teacher pool will decrease from its current level through to the 2017–18 school year, but it is anticipated that there will still be a large enough aggregate substitute teacher pool to meet the demand in peak periods, assuming a 10 percent absenteeism rate for permanent teachers. However, it may be difficult to acquire sufficient substitute teachers to meet the demand in certain geographical regions and for certain subjects or specialty areas. This is due to the high proportion of substitute teachers in the Halifax Regional School Board and the history, in the province, of difficulty finding substitute teachers in rural areas.



## 8. Demand and Supply by Subject, Specialty, and Administration

This section compares the annual estimates of the teacher supply by category with corresponding projections of the demand to obtain indications of the subjects and specialty areas where the outlook is for significant labour market imbalances. Both the measures of the supply and the projections of the demand are approximations of the future; therefore, the comparisons are not appropriate for fine tuning. Nevertheless, there are subjects and specialties where the prospect for imbalances is clear.

The consequences of a teacher oversupply will be the misdirection of teacher education program resources in Nova Scotia institutions and that prospective teachers will be educated for an occupation in which there is a reduced opportunity to work in the province. There is at least a chance that Nova Scotia-educated teachers who are not employed in Nova Scotia will find suitable teaching work elsewhere. The consequence of shortages, however, is more critical for public education in Nova Scotia because school boards will have difficulty hiring teachers who are fully prepared to teach the Public School Program in their respective subjects. In specialized areas such as Support Services, a shortage of teachers means that the individualized needs of students may not be attended to in the best manner.

### 8.1 Projected Teacher Demand by Subject Area

The projected teacher demand by subject, specialty area, and administration combines the

- replacement demand for teachers who are estimated to retire (or become disabled) by year according to the amount of time the teacher devotes to the subject, specialty area, or administrative duties in the 2008–09 school year
- net changes in teaching employment and other attrition components that are distributed according to the number of FTEs providing services in these areas in the 2008–09 school year

The following should be considered when interpreting these data:

- The uncertainty around when teachers retire will be greater the smaller the number of teachers in a subject or specialty area.
- Information about teaching efforts by subject, specialty area, and administration was not collected in 2008–09. In order to conduct this analysis with the most recent year of data available, it was assumed that permanent and probationary teachers in the 2008–09 school year did not significantly change their area of work since 2007–08.
- The subject areas taught are based on one year of data— teachers may change the subjects they teach in future years.
- The changes in emphasis on curriculum or specialty areas may impact the future supply and demand by subject and specialty area.

**Table 18: Projected Demand for Teachers in Nova Scotia by Subject/Specialty/Administration**

	2009–10 through 2013–14			2014–15 through 2017–18		
	Retirements and Disabilities	Other Factors	Total	Retirements and Disabilities	Other Factors	Total
<b>Secondary*</b>	<b>542</b>	<b>-174</b>	<b>368</b>	<b>385</b>	<b>-126</b>	<b>259</b>
English	87	-24	63	59	-18	41
French**	45	-17	28	35	-13	22
Other languages	0	0	0	0	0	0
Social studies	67	-19	48	45	-14	31
Mathematics	76	-28	48	52	-20	32
Science	49	-23	26	41	-16	25
Biology	12	-4	8	9	-3	6
Chemistry	5	-3	2	8	-2	6
Physics	5	-2	3	4	-1	3
General and other sciences	26	-14	12	20	-10	10
Physical education**	51	-16	35	33	-12	21
Fine arts**	74	-20	53	49	-14	35
Technology education	24	-9	15	20	-6	14
Business education/ entrepreneurship	10	-2	8	4	-2	2
Personal development/career education	29	-11	18	22	-8	14
Family studies	16	-4	12	10	-3	7
Multiple subjects	12	0	12	10	0	10
Vocational	2	-1	1	4	0	4
<b>Elementary</b>	<b>561</b>	<b>113</b>	<b>674</b>	<b>391</b>	<b>218</b>	<b>609</b>
<b>Specialties</b>						
Education support	26	-1	25	20	1	21
Guidance	43	-7	36	36	-5	31
Resource	180	-5	175	141	16	157
<b>Administration</b>	<b>327</b>	<b>45</b>	<b>372</b>	<b>204</b>	<b>36</b>	<b>240</b>
<b>Total</b>	<b>1679</b>	<b>-29</b>	<b>1650</b>	<b>1178</b>	<b>140</b>	<b>1318</b>

\*Secondary also includes teachers with assignments in both secondary and elementary grades.

\*\*Includes the demand in this subject at the elementary level.

Table 18 shows the projected teacher demand by subject and specialty areas. Overall, the demand is higher in the 2009–10 through 2013–14 projection period than in the 2014–15 through 2017–18 period. The demand is highest for elementary grades, administration, and resource. Other subjects in higher demand include English, fine arts, social studies, and mathematics.

In Table 19 the academic majors and minors of newly certified teachers in Nova Scotia (with a Nova Scotia postal code) are tabulated to show trends related to the teacher supply by subject/specialty area over the past three years. Appendix 4 outlines the related disciplines used to produce the numbers for each subject/specialty area.

**Table 19: Academic Majors/Minors of Teacher Certification Recipients with a Nova Scotia Postal Code**

	Initial Teaching Certificates Issued by Undergraduate*					
	2007		2008		2009	
	Major	Minor	Major	Minor	Major	Minor
<b>Secondary</b>	<b>643</b>	<b>454</b>	<b>688</b>	<b>415</b>	<b>680</b>	<b>371</b>
English	143	136	137	112	126	104
French	33	32	56	44	48	25
Other languages	3	7	3	0	1	6
Social studies	268	162	265	157	313	144
Mathematics	33	30	33	21	27	26
Science	124	61	128	60	114	48
Biology	92	31	98	29	93	28
Chemistry	12	14	17	22	12	16
Physics	14	5	8	4	7	2
General and other sciences	6	11	5	5	2	2
Physical education	9	3	11	4	6	3
Fine arts	23	18	38	7	34	9
Music	12	6	22	3	19	3
Technology education	4	0	3	2	4	3
Business education	17	6	22	9	17	2
Personal development/career education	NE	NE	NE	NE	NE	NE
Family studies	3	0	1	1	3	1

\*For teachers with a Nova Scotia postal code

NE: No Endorsation

Table 19 used Appendix 4: Secondary Education Endorsation Disciplines.

## 8.2 Projected Teacher Supply by Subject Area

The teacher supply by subject area is based on the academic major and minor of newly certified teachers. While the supply of newly certified teachers has remained strong over the past several years, the educational backgrounds of newly certified teachers are not evenly distributed across all subject areas. As shown in Table 19, the largest increases have been for teachers with a major in French, social studies, and fine arts (including music). While a number of subject areas show an increase in 2008, they have again decreased in 2009 to levels more consistent with 2007. The supply of newly certified teachers with an educational background in English has shown a slight decrease in each of the three years.

## 8.3 Projected Imbalances

### Elementary and Secondary Teachers

As shown in Table 20, the average annual teacher demand overall is expected to increase in the second half of the projection period. However, this increase is mainly due to the demand for elementary teachers. The demand for most subjects is projected to decrease in the second half of the projection period, with the exception of science and technology education, which project slight increases.

The supply of newly certified teachers (with a Nova Scotia postal code) by subject, shown in Table 20, was calculated by using the secondary education endorsement disciplines outlined in Appendix 4. Not all of the supply is included because the analysis focusses only on key subject areas.

An analysis of the demand and supply by subject area shows surpluses in English, social studies, and biology and smaller surpluses in mathematics, chemistry, physics, fine arts, and business education. If this trend continues, there should not be a shortage in these subjects, although the market is tight for physics, technology education, physical education, and family studies.

The supply of French teachers implies that there may be a surplus of teachers with a major or minor in French. However, the situation is clouded by the challenge that school boards face with respect to recruiting teachers who are fluent in French and have an academic background in other subject areas. Further, French first-language schools and French second-language programs within English school boards compete for the same pool of teachers. Therefore, it is anticipated that school boards will continue to face challenges in recruiting qualified teachers to teach subjects in French first- and second-language programs.

In addition, with enrolment in early immersion showing a consistent increase over the years, there is a potential concern that even more immersion teachers may be required. However, there has been a steady decrease in integrated French during the same time, which may be due partly to schools electing to offer French-immersion programming rather than integrated French. As well, there has been an enrolment decrease of almost 1000 in late-immersion since 2005–06, which may, again, be due partly to recent increases in the number of schools offering early-immersion programs. Enrolment may also be declining due to other reasons, such as when students move or select other programs. As a result, teachers who teach in programs that have been replaced by others may in some cases be allocated to the new programs.

The supply of elementary teachers is equal to the average annual demand. It is possible that the demand for elementary teachers may be met by the continuing oversupply of teachers with an academic background in secondary endorsement subjects.



**Table 20: Secondary and Elementary Teacher Supply and Projected Demand by Selected Subject Areas**

	Initial Teaching Certificates Issued in 2009 by Undergraduate*		Projected Average Annual Demand	
	Major	Minor	2009–10 through 2013–14	2014–15 through 2017–18
<b>Secondary</b>	<b>680</b>	<b>371</b>	<b>74</b>	<b>65</b>
English	126	104	13	10
French	48	25	6	5
Other languages	1	6	0	0
Social studies	313	144	10	8
Mathematics	27	26	10	8
Science	114	48	5	6
Biology	93	28	2	1
Chemistry	12	16	0	1
Physics	7	2	1	1
General and other sciences	2	2	2	3
Physical education	6	3	7	5
Fine arts	34	9	11	9
Music	19	3	6	5
Technology education	4	3	3	4
Business education	17	2	2	1
Personal development/career education	NE	NE	4	4
Family studies	3	1	2	2
<b>Elementary</b> (equal to average annual demand)	<b>143</b>	<b>N/A</b>	<b>135</b>	<b>152</b>
<b>Total</b>	<b>823</b>	<b>371</b>	<b>209</b>	<b>217</b>

\*For teachers with a Nova Scotia postal code

NE: No endorsement

Table 20 used Appendix 4: Secondary Education Endorsation Disciplines.

**Table 21: Administration and Student Support Services Projected Demand**

	Projected Average Annual Demand	
	2009–10 through 2013–14	2014–15 through 2017–18
<b>Administration</b>	74	60
<b>Education support</b>		
Speech therapy	1	1
Testing services (school psychologists, psychometrists)	1	1
Social work	0	1
Other	1	0
<b>Guidance</b>	7	8
<b>Resource</b>	35	39
<b>Total</b>	<b>119</b>	<b>110</b>

### **Administration**

The demand for administrators is estimated to be 74 FTEs per year for the first part of the projection period, falling to 60 in the second period. (See Table 21.) In 2010, 36 teachers graduated from the Leadership program at Acadia University, 32 teachers graduated from the Educational Foundations program at Mount Saint Vincent University, and 63 teachers graduated from the Education Leadership and Administration program at St. Francis Xavier University. The completion of an administration program may not mean that teachers intend to apply for administration positions. The number of teachers participating in and completing these programs, as well as school board recruiting results, needs to be monitored regularly to ensure that there will be a sufficient supply of administrators.

### **Education Support**

Education support includes supports for students, such as speech-language pathologists and school psychologists. The demand is estimated to be approximately three FTEs per year. In 2010, seven students graduated from the Master of Arts in School Psychology program at Mount Saint Vincent University. It is estimated that 10 students will graduate from this program in 2011. In 2010, 24 students graduated from the speech-language pathology program and eight graduated from the audiology program at Dalhousie University. It is expected that an additional 24 speech-language pathology students and eight audiology students will graduate from this program in 2011. The demand for these services is not rising, but the loss of one or two FTEs has a significant impact as they are specialists and can be very difficult to replace. In addition, it can be difficult to attract and retain staff to fill these positions, as schools and school boards must compete with health boards, private practices, and other provinces in recruiting specialists to fill these positions.

### **Guidance**

The demand for qualified school guidance counsellors is estimated to be approximately eight FTEs per year. In 2010, 44 teachers graduated from the Counseling program at Acadia University. There are currently 13 teachers enrolled in this program on a full-time basis. It is difficult to estimate the total number of teachers enrolled in the program on a part-time basis, as Acadia University only counts enrolment in a particular program when a student is registered for a course. Part-time students in the Counseling program have up to eight years to complete their degree. It is anticipated that the supply will be adequate to meet the demand.

### **Resource**

The demand for qualified resource teachers is approximately 37 FTEs per year. In 2010 the first cohort of 14 teachers graduated from the Curriculum Concentration on French Immersion and French Language Resource Education program at St. Francis Xavier University. The second cohort of 19 teachers will graduate in 2012. In addition, 31 teachers graduated from the Inclusive Education program at Acadia University in 2010. This program was recently redesigned to provide teachers with a broader focus on students who may need additional resources and supports. Mount Saint Vincent University offers a program called Supporting Learners with Diverse Needs and Exceptionalities. In 2010 there were approximately 60 graduates from four cohorts of this program. Slightly fewer than that number (53–57 graduates) are expected over the next couple of years.

## 9. Conclusion

Nova Scotia continues to experience a strong supply of newly certified teachers each year, even with a drop in recent years in the number of new teachers being certified in the province.

The status of the teacher labour market in Nova Scotia has not changed significantly since the 2007 update report in terms of addressing subject-area shortages. There continues to be a potential shortage and/or tight market in technology education, physics, physical education, family studies, and French. There is also a possibility that some geographical areas in the province may have difficulties in recruiting teachers in particular subject areas. In areas of shortage, continued effort is required to recruit teachers with an appropriate background to meet these subject-area needs.

Although the substitute teacher pool is projected overall to be large enough to meet the demand in peak periods, school boards may find it difficult to acquire sufficient substitute teachers to meet the demand in their region, especially for certain subject and specialty areas.



# Appendix 1: Projected Enrolments by Grade Level and Estimated Teacher Full-time Equivalents for Nova Scotia

## Projected Enrolments by Grade Level and Estimated Teacher Full-time Equivalents (FTEs) for Nova Scotia

	2009–10	2010–11	2011–12	2012–13	2013–14	2014–15	2015–16	2016–17	2017–18
<b>Enrolments</b>									
Elementary	64,411	63,494	62,550	62,033	62,082	62,417	60,946	60,655	60,322
Junior high	30,963	29,997	29,101	28,534	27,895	27,030	27,943	27,738	27,682
Senior high	35,176	33,999	32,926	31,618	30,621	29,722	29,149	28,487	27,594
Total	130,550	127,489	124,577	122,185	120,598	119,169	118,038	116,881	115,598
<b>Students per teacher FTE</b>									
Elementary	15.5	15.5	15.5	15.5	15.5	15.5	15.5	15.5	15.5
Junior high	15.4	15.4	15.4	15.4	15.4	15.4	15.4	15.4	15.4
Senior high	17.1	17.1	17.1	17.1	17.1	17.1	17.1	17.1	17.1
Administrators	145	142	142	145	148	146	145	143	142
<b>Teacher FTEs</b>									
Elementary	4156	4096	4036	4002	4005	4027	3932	3913	3892
Junior high	2005	1942	1884	1848	1806	1750	1810	1796	1793
Senior high	2055	1987	1924	1847	1789	1737	1703	1665	1612
Administrators	900	900	875	845	815	815	815	815	815
Total	9116	8925	8719	8542	8416	8329	8260	8189	8112
<b>Annual FTE change</b>									
Elementary	-79	-59	-61	-33	3	22	-95	-19	-22
Junior high	-72	-63	-58	-37	-41	-56	59	-13	-4
Senior high	-36	-69	-63	-76	-58	-53	-33	-39	-52
Administrators	0	0	-25	-30	-30	0	0	0	0
Total	-187	-191	-207	-177	-126	-87	-69	-71	-77

## Appendix 2: Age Distribution of Permanent and Probationary Teachers, 2008–09

Age Group	Number	Percentage	Cumulative Percentage
20–24	2	0	0
25–29	388	4.5	4.5
30–34	1004	11.6	16.1
35–39	1446	16.7	32.9
40–44	1257	14.6	47.4
45–49	1151	13.3	60.8
50–54	1640	19	79.8
55–59	1401	16.2	96
60–64	312	3.6	99.6
65–69	35	0.4	100
<b>Total</b>	<b>8636</b>	<b>100</b>	
<b>Average age = 45</b>			

## Appendix 3: Teacher Pension Plan Retirement and Disability Assumptions

### Interpreting this Data

In the top part of the chart that follows, the second column on the left identifies for each year the number of teachers who will first become eligible to retire with an unreduced pension. Moving to the right across each row, the percentages identify how many of those teachers are projected to retire and when.

In the bottom part of the chart, the second column repeats the number of teachers who will first become eligible to retire with an unreduced pension. The percentages in each row from the top chart are applied to these totals to identify how many teachers are projected to retire and when.

For example, the bottom chart shows that in 2013–14 a total of 339 teachers will first become eligible for an unreduced pension. From the top chart, the percentages across the row for 2013–14 are applied to this total: In 2009–10, 1.6 percent (5) were projected to retire; in 2010–11, 3.7 percent (13) were projected to retire; in 2011–12, 10.8 percent (37) are projected to retire, etc.

**Erratum (September 2012):** Subsequent to the original publication of this report, a correction has been made to the following table. Years and corresponding data were not aligned due to the omission of "2009–10" in both instances in column one.

First Become Eligible to Retire with Unreduced Pension	Number Eligible for Unreduced Pension	Projected to Retire (totals in bold at bottom of chart)								
		2009–10	2010–11	2011–12	2012–13	2013–14	2014–15	2015–16	2016–17	2017–18
Before 2009–10	503	28.9%	21.1%	15.6%	11.0%	7.7%	5.3%	3.6%	2.4%	1.6%
2009–10	302	46.4%	12.4%	10.4%	8.0%	6.1%	4.6%	3.4%	2.5%	1.8%
2010–11	335	11.2%	38.0%	12.9%	9.8%	7.5%	5.6%	4.2%	3.1%	2.3%
2011–12	332	3.0%	10.5%	38.0%	12.9%	9.5%	7.2%	5.4%	4.0%	2.9%
2012–13	339	1.6%	3.7%	10.8%	38.0%	12.2%	9.2%	6.8%	5.1%	3.7%
2013–14	287	1.6%	2.0%	3.4%	10.8%	38.0%	12.0%	9.0%	6.6%	4.9%
2014–15	313	1.8%	1.3%	1.8%	3.4%	10.8%	38.0%	12.0%	8.8%	6.5%
2015–16	304	0.6%	0.9%	1.4%	1.8%	3.4%	10.8%	38.0%	12.3%	9.0%
2016–17	283	0.7%	0.3%	1.4%	1.4%	1.8%	3.4%	10.8%	38.0%	12.4%
2017–18	255	0.4%	0.7%	0.5%	1.4%	1.4%	1.8%	3.4%	10.8%	38.0%
2018–19	224	0.2%	0.8%	0.7%	0.5%	1.4%	1.4%	1.8%	3.4%	10.8%
2019–20	240	0.2%	0.0%	0.6%	0.7%	0.5%	1.4%	1.4%	1.8%	3.4%
First Become Eligible to Retire with Unreduced Pension	Number Eligible for Unreduced Pension	Projected to Retire (totals in bold at bottom of chart)								
Before 2009–10	503	145	106	78	55	39	27	18	12	8
2009–10	302	140	38	31	24	18	14	10	8	6
2010–11	335	37	127	43	33	25	19	14	10	8
2011–12	332	10	35	126	42	32	24	18	13	10
2012–13	339	5	13	37	129	41	31	23	17	13
2013–14	287	5	6	10	31	109	35	26	19	14
2014–15	313	6	4	6	11	34	119	37	28	20
2015–16	304	2	3	4	6	10	33	116	37	27
2016–17	283	2	1	4	4	5	10	31	108	35
2017–18	255	1	2	1	3	4	5	9	28	97
2018–19	224	0	2	2	1	3	3	4	8	24
2019–20	240	1	0	1	2	1	3	3	4	8
	<b>Total</b>	<b>354</b>	<b>336</b>	<b>344</b>	<b>340</b>	<b>321</b>	<b>321</b>	<b>309</b>	<b>292</b>	<b>269</b>
	<b>Adjustments</b>	<b>330*</b>	<b>355**</b>	<b>349**</b>						

\*Actual retirement/disability count (330) available and provided by the Nova Scotia Pension Agency, summer 2010 (24 less than projected)

\*\*24 expected retirements left over from 2009–10 allocated to 2010–11 and 2011–12 on an 80/20 split on direction from the Nova Scotia Pension Agency

Note: The teacher retirement and disability assumptions were provided by the Nova Scotia Pension Agency staff, based on an analysis of two years of pension data.



## Appendix 4: Secondary Education Endorsation Disciplines

Subject Field	Secondary Education Endorsations—Related Disciplines	
1. English	1.1 English	
2. French*	2.1 French	
3. Languages	3.1 Latin 3.2 German 3.3 Spanish	3.4 Gaelic 3.5 Mi'kmaq
4. Social studies	4.1 History 4.2 Geography 4.3 Political science 4.4 Sociology 4.5 Economics	4.6 Law 4.7 Classics 4.8 African-Canadian studies 4.9 Mi'kmaq 4.10 Acadian studies
5. Mathematics	5.1 Mathematics	
6. Science	6.1 Biology 6.2 Chemistry 6.3 Physics	6.4 Geology/earth sciences 6.5 Oceanography 6.6 Environmental studies
7. Physical education/health education*	7.1 Physical education	
8. Health education	8.1 Health	
9. Fine arts*	9.1 Visual arts 9.2 Music 9.3 Drama	9.4 Dance 9.5 Theatre arts
10. Technology education	10.1 Technology education	10.2 Computer science
11. Business education	11.1 Business administration 11.2 Commerce 11.3 Marketing 11.4 Accounting	11.5 Finance 11.6 Organizational behaviour 11.7 Secretarial arts
12. Family studies	12.1 Human ecology 12.2 Home economics	12.3 Food science

\*Subject fields endorsement valid in both elementary and secondary schools



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