

**The Training and Education Challenges of
Meeting the Objectives of the New
Brunswick Prosperity Plan 2003-2011**

May 5th, 2003

Executive Summary:

The information contained in this report can be summarized into two scenarios, each of which investigates the training needs of the New Brunswick economy between the years 2003 and 2011. The tables below investigate the demand for university- and college-trained individuals to fill jobs, and compare that to current supply (in the form of graduates) of such individuals. The actual supply of potential graduates would include anyone who could potentially acquire training and attain an available job, including high school graduates, those seeking job transitions, unemployed individuals, those not currently in the labour force, immigrants, older workers, etc.

Anticipated Number of Graduates under the Current System (2003-2011)				
STATUS QUO	University		College	
# of graduates	33,552		22,671	
Projected new job growth (COPS)*	(8,886)		(8,288)	
COPS projected attrition	(18,492)		(19,133)	
Training needs deficit without Prosperity Plan targets	6,174		(4,750)	
TWO SCENARIOS	Scenario 1		Scenario 2	
	University	College	University	College
# of graduates	33,552	22,671	33,552	22,671
Projected new job growth (COPS)	(8,886)	(8,288)	(8,886)	(8,288)
COPS projected attrition	(18,492)	(19,133)	(18,492)	(19,133)
Additional New Jobs Prosperity Plan	(8,027)	(7,854)	(15,012)	(14,688)
Training needs deficit with Prosperity Plan targets	(1,853)	(12,604)	(8,838)	(19,438)

* COPS = Canadian Occupational Projection System

If one considers only current COPS projections for new jobs and jobs created by attrition over 2003-2011, university-level training at current levels of graduates will be more than sufficient to fill jobs requiring a university-level education. For college-level training, under this scenario, there will be a shortfall of 4,750 trained individuals to fill positions requiring a college-level education.

Two scenarios based of different projections model - COPS and Conference Board - were develop to estimate the additional job growth needed to meet the Prosperity Plan targets. Over the 9-year period in question (i.e. 2003-2011), university-level training at current levels of graduates will result in a deficit of between 1,900 and 8,800 university-trained individuals. It will also result in a deficit of between 12,600 and 19,400 college-trained individuals.

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Introduction:

The purpose of this document is to look at where we are now, where we are going to be in the future, and where we want to be in 2012 in order to meet the goals of the New Brunswick Prosperity Plan in terms of economic and employment prosperity. The paper also looks at future job opportunities (both new job growth and attrition) in terms of the level of training and education that will be required to fill these opportunities. The paper also explores current levels of education and the types of programs people are taking. Finally, we look at the training gap that exists between where we are now and where we want to be in 2012.

Greater Opportunity: New Brunswick's Prosperity Plan, 2002 – 2012 Economic and Employment Performance Indicators

The following are some of the targets we hope to achieve as a Province by 2012; they in turn present us with the challenge of educating people to meet the needs of both existing jobs and those created over the coming years.

Ten-Year Prosperity Targets

- ☞☞ Increase real GDP per capita (expressed in relation to national average) by 10 percentage points to reach or exceed 85% of Canadian average by 2012.
- ☞☞ Increase employment per working age population ratio (expressed in relation to national average) by 5 percentage points to reach or exceed 95% of Canadian average by 2012.

Building Block: Investing In People

Some indicators to monitor progress:

- ☞☞ Employment per working age population.
- ☞☞ Post-secondary graduate completions.
- ☞☞ The number of people requiring social assistance.
- ☞☞ The number of immigrants coming to, and staying in, New Brunswick.
- ☞☞ Employment of Aboriginal persons.
- ☞☞ Employment of persons with disabilities.

Building Block: Embracing Innovation

Some indicators to monitor progress:

- ☞☞ Levels of R&D expenditures by all partners in New Brunswick.
- ☞☞ NBs share of federal R&D funding from key programs.
- ☞☞ Technology usage by New Brunswickers.

Building Block: Building Strategic Infrastructure

Some indicators to monitor progress:

- ☞☞ Availability of quality and sustainable public infrastructure, including education and healthcare facilities and business park.

Methodology Behind Scenario Development:

The Prosperity Plan's Economic Target

One of the key targets of the Prosperity Plan is the Economic Prosperity Target, i.e. that the New Brunswick real Gross Domestic Product (GDP) per capita be increased from the present 76% of the Canadian average to 85% of the Canadian average by 2012. An increase of this magnitude on the real GDP per capita has an obvious impact on employment growth.

To determine what is going to be needed to meet the goals of the Prosperity Plan in terms of economic prosperity, we had to first determine where we are today (in terms of real GDP per capita), where we are going to be in the future (in relation to the national rate for real GDP per capita), and then determine how much New Brunswick real GDP would need to increase over the target period to be in line with where we want to be in 2012.

For this purpose, we used two different economic models to ensure that the most accurate picture possible is presented here, because economic and employment projections vary depending on the source of the data used and the date the data was produced, and they are heavily dependent on the leading economic assumptions built into the model used to make the projections. Therefore, we developed two different scenarios based on two different independent projection models - the COPS model and Conference Board model.

The Canadian Occupational Projection System (COPS) is a family of national and provincial demographic, labour market and educational models intended to provide a sound and timely picture of current industrial, occupational and educational labour market conditions and to provide a rigorous and consistent well thought-out view of how these labour market conditions are expected to evolve over the medium term.

The COPS process involves past performances and anticipated future developments in the economy to project anticipated levels of employment over a 9-year period based on new job growth and attrition (i.e. the number of deaths and retirements anticipated).

The Conference Board model and projection process is very similar to that of COPS. The significant difference lies in the underlying assumptions of the model (the Conference Board tended to be more conservative in GDP growth than COPS).

In both scenarios, the same starting point¹ for actual real GDP and projected population for Canada and NB were used to determine the level of growth that will be needed to

¹ GDP figures were taken from latest release for real GDP for Canada and NB for the year 2001 (Statistics Canada). Population projections were developed by applying population growth rates provided by the Demography Division of Statistics Canada to the most recent population estimates for Canada and New Brunswick.

reach the economic prosperity target. The year 2011 is used since it is the last year available under current COPS projections.

Scenario 1, which is based on the assumptions built into the Conference Board Model, provides a more conservative estimate of the number of job openings that will be available between 2003 and 2011, compared to the picture provided by Scenario 2, which is based on a more robust level of economic growth between 2003 and 2011.

Scenario 1:

- ? *Leading Assumption:* conservative growth expectation for GDP between 2003-2011 in NB and Canada. (Under this scenario NB's GDP will grow on average by 3.1% per year between 2003 and 2011, and Canada by 3.2% per year)
- ? *Data Sources:* Statistics Canada 2001 GDP and population-based figures, and Conference Board of Canada long-term economic forecast

SCENARIO 1				Prosperity Plan target
	2001	2006	2011	2011
NB Real GDP	\$18.97 Billion	\$22.10 Billion	\$25.05 Billion	\$25.83 Billion
NB Pop	755,953	756,256	749,337	749,337
NB Real GDP per Capita	\$25,097	\$29,223	\$33,433	\$34,473
	2001	2006	2011	2011
Can Real GDP	\$1.02 Trillion	\$1.18 Trillion	\$1.35 Trillion	\$1.35 Trillion
Can Pop	31,002,200	32,228,600	33,361,700	33,361,700
Can Real GDP per Capita	\$33,060	\$36,855	\$40,557	\$40,557
NB as a % of Canada	75.9%	79.3%	82.4%	85.0%

EXTRA job growth needed above and beyond existing growth projections (2003-2011)

Formula: ? Real GDP needed / NB GDP per worker = # of Extra jobs needed
780,000,000 / \$40,522 = 19,250 jobs (or 2,139 per year)

NB GDP per worker = average of NB GDP per employed worker between 2003-2011
 # Of Extra jobs needed = Total new jobs needed to be created above existing levels

Under this scenario, reaching the Prosperity Plan Target (i.e. the average per capita real GDP in New Brunswick being 85% of the Canadian average) adds \$780 Million to the projected Provincial real GDP by 2012. Given the current New Brunswick real GDP per employed worker and factoring the increase in productivity envisaged by the Prosperity Plan, it is estimated that an additional 19,250 workers will be needed by 2011 over and above regular COPS economic growth projections.

Scenario 2:

? *Leading Assumption:* more robust growth expectation for GDP between 2003-2011 in NB and Canada. (Under this scenario NB's GDP will grow on average by 3.5% per year between 2003 and 2011, and Canada by 3.9% per year)

? *Data Sources:* Statistics Canada, 2001 GDP and population-based figures, and the Canadian Occupational Projection System long-term economic forecast

SCENARIO 2				Prosperity Plan target
	2001	2006	2011	2011
NB Real GDP	\$18.97 Billion	\$21.75 Billion	\$25.47 Billion	\$26.93 Billion
NB Pop	755,953	756,256	749,337	749,337
NB Real GDP per Capita	\$25,097	\$28,772	\$33,991	\$35,938
	2001	2006	2011	2011
Can Real GDP	\$1.02 Trillion	\$1.19 Trillion	\$1.42 Trillion	\$1.42 Trillion
Can Pop	31,002,200	32,228,600	33,361,700	33,361,700
Can Real GDP per Capita	\$32,962	\$37,116	\$42,585	\$42,585
NB as a % of Canada	76.1%	77.5%	79.8%	84.4%

EXTRA job growth needed above and beyond existing growth projections (2003-2011)

Formula: ? Real GDP needed / NB GDP per worker = # of Extra jobs needed
1,458,800,000 / \$40,522 = 36,000 jobs (or 4,000 per year)

NB GDP per worker = average of NB GDP per employed worker between 2003-2011

Of Extra jobs needed = Total new jobs needed to be created above existing levels

Therefore, reaching the Prosperity Plan Target (i.e. the average per capita real GDP in New Brunswick being 85% of the Canadian average) adds \$1.5 Billion to the projected Provincial real GDP by 2012. Given the current New Brunswick real GDP per employed worker and factoring the increase in productivity envisaged by the Prosperity Plan, it is estimated that an additional 36,000 workers will be needed by 2011 over and above regular COPS economic growth projections.

The Prosperity Plan's Employment Target

Another of the key targets of the Prosperity Plan is the Employment Prosperity Target, i.e. increase employment per working age population ratio (expressed in relation to national average) by 5 percentage points to reach or exceed 95% of the Canadian average by 2012.

The following shows, under existing conditions, based on population estimates for the future, that NB will already be very close to meeting the desired target. Therefore, any employment increase generated by the Prosperity Plan's economic target will be more than sufficient to meet the needs of the employment target.

Employment Prosperity		
NEW BRUNSWICK (COPS Projections)	2003	2011
Working age population 15+	612,500	634,200
Employment level	350,000	369,400
Employment rate	57.1%	58.2%
NB (With additional 19,250 new jobs or 2,139/year)	2003	2011
Working age population 15+	612,500	634,200
Employment level	352,139	388,650
Employment rate	57.5%	61.3%
NB (With additional 36,000 new jobs or 4,000/year)	2003	2011
Working age population 15+	612,500	634,200
Employment level	354,000	405,400
Employment rate	57.8%	63.9%
CANADA	2003	2011
Working age population 15+	25,256,810	28,561,881
Employment level	15,645,730	17,655,050
Employment rate	61.9%	61.8%
New Brunswick Compared to Canada		
NB (Today) as a % of Canadian Average	92.2%	94.2%
NB (2,139 more new jobs per year) as a % of Can. Avg.	92.9%	99.2%
NB (4,000 more new jobs per year) as a % of Can. Avg.	93.4%	103.4%

Determining the educational requirements of jobs to be created by the Prosperity Plan

The determination of the number of jobs to become available between now and 2012 as well as the required educational level of those jobs was derived using two sources of information. They are the *Canadian Occupational Projection System (COPS)* and the *New Brunswick Prosperity Plan*. Based on the assigned National Occupational Classification (NOC) code for each occupation included in the COPS model, we were able to determine the skill level (the level of education required) and skill type (the main job sector this occupation falls into) for projected employment growth and attrition across all occupations and industries (excluding all job opportunities created as a result of the New Brunswick Prosperity Plan).

Consequently, we make the assumption that any new job opportunities that become available as a result of the Prosperity Plan will have proportionally the same educational requirements and fall into the same skill type as those opportunities available as a result of already anticipated job growth and attrition. Therefore, we are able to determine how many of the new job opportunities created under the Prosperity Plan by 2011 will require a university education, college education, or high school or less.

Jobs and the Economy:

Employment Projections (New Demand)

COPS projections show that between 2003 and 2011², under current conditions, the number of new jobs generated by the economy will be 19,644. Of this 19,664 jobs created, over 85% will require post-secondary training.

Projected Employment Levels by Skill Level: New Brunswick 2003-2011				
			Growth +/-	Employment
			New Jobs	Growth
Occupation: NOC Skill Level	2003	2011	2003-2011	2003-2011
0 Management Occupations	30,949	32,767	1,818	5.9%
A Professional Occupations	55,956	63,024	7,068	12.6%
B Technical, Paraprofessional & Skilled Occupations	105,195	111,026	5,831	5.5%
C Intermediate Occupations	113,518	118,431	4,913	4.3%
D Labouring & Elemental Occupations	44,407	44,421	14	0.0%
All	350,025	369,669	19,644	5.6%

Source: COPS, 2002 model projections

?? Between 2003 and 2011, 8,886 (45.2%) management and professional skill level jobs will require a university level of training.

?? Another 8,288 (at a minimum 42.2%) technical, paraprofessional, and intermediate skill level jobs will require college level training or an apprenticeship-based program.³

² Note that although the Prosperity Plan covers the time period to 2012, COPS projections are for 2003 to 2011.

³ This 8,288 is derived from taking all jobs in skill level B and half the jobs in skill level C (an investigation of occupations in level C show that approximately half of them would require some post-secondary training).

Replacement Demand (Attrition)

In addition to the new jobs being created by the economy, over 48,000 people currently in the workforce will be exiting the labour market between 2003 and 2011 due to attrition (deaths and retirements). The result is a significantly high replacement demand (aging population).

Projected Attrition Levels by Skill Level: New Brunswick 2003-2011										Total
										Attrition
Occupation: NOC Skill Lev	2003	2004	2005	2006	2007	2008	2009	2010	2011	2003-2011
0 Management Occupations	553	594	634	657	692	724	752	780	783	6,168
A Professional Occupations	1,083	1,157	1,244	1,313	1,377	1,448	1,519	1,584	1,598	12,324
B Technical, Paraprofessional & Skilled Occupations	1,254	1,317	1,384	1,440	1,502	1,556	1,621	1,692	1,700	13,468
C Intermediate Occupations	1,115	1,153	1,185	1,225	1,262	1,299	1,331	1,375	1,385	11,329
D Labouring & Elemental Occupations	502	519	557	576	599	615	631	645	649	5,293
All	4,507	4,740	5,004	5,211	5,432	5,642	5,855	6,076	6,114	48,582

Source: COPS, 2002 model projections

- ?? Between 2003 and 2011, 18,492 (38.1%) of the total jobs left vacant will require a university level of education (management occupations and skill level A occupations).
- ?? A further 19,133 (39.4%) will require at least a college level training or an apprenticeship-based program. This 19,133 is derived from taking all jobs in skill level B and half the jobs in skill level C.
- ?? This means that more than 77% (37,625) of all the jobs left vacant by attrition between 2003 and 2011 will require some level of post secondary training.

Types of Jobs available between 2003 and 2011

COPS Projected Employment Levels by Skill Type (both New Jobs and Attrition)

The following table looks at all jobs (both new jobs created as well as jobs available through attrition) available between 2003 and 2011 by the National Occupational Classification (NOC) skill type.

Projected Employment Levels by Skill Type: New Brunswick 2003-2011				
Occupation: NOC Skill Type	Total # of New Jobs	Employment		Total
	Job Growth +/-	Growth	Attrition	Job Opportunities
	2003-2011	2003-2011	2003-2011	2003-2011
0 Management Occupations	1,818	5.9%	6,168	7,986
1 Business / Finance / Administration Occ's	3,046	5.2%	8,278	11,324
2 Natural / Applied Sciences & Related Occ's	3,255	15.3%	1,810	5,065
3 Health Occupations	2,608	13.4%	3,303	5,911
4 Social Science / Education / Gov't Service / Religion Occ.	2,063	8.6%	7,687	9,750
5 Art / Culture / Recreation / Sport Occ's	914	9.4%	825	1,739
6 Sales and Service Occupations	3,369	3.5%	9,054	12,423
7 Trades / Transport / Equipment Operation Occ's	336	0.7%	7,299	7,635
8 Primary Industry Occupations	160	1.0%	2,016	2,176
9 Processing / Manufacturing / Utilities Occ's	2,075	8.7%	2,142	4,217
All	19,644	5.6%	48,582	68,226

Source: COPS, 2002 model projections

- ?? The largest categories of new jobs to be created according to the COPS model are in the areas of sales and service (17.2%); natural and applied sciences and related occupations (16.6%); business, finance, and administration occupations (15.5%); and health occupations (13.3%). These account for almost 63% of jobs.
- ?? The picture is somewhat different for jobs available through attrition between 2003 and 2011. The largest categories of jobs are in the areas of sales and services (18.6%); business, finance, and administration occupations (17.0%); social science, education, government services, and religious occupations (15.8%); and trades, transport, and equipment operation occupations (15.0%). Those jobs account for over 66% of jobs available through attrition.
- ?? If one considers the overall picture (new jobs and attrition together), the largest areas of available jobs between 2003 and 2011 will be sales and service occupations (18.2%); business, finance, and administration occupations (16.6%); social science, education, government services, and religious occupations (14.3%); management occupations (11.7%); and trades, transport, and equipment operation occupations (11.2%). Together, those account for 72% of jobs available.

COPS Projected Employment Levels by Industry (both New Jobs and Attrition)

The following table looks at all jobs (both new jobs created as well as jobs available through attrition) available between 2003 and 2011 by industry classification.

Projected Employment levels by Industry (SIC) : New Brunswick 2003-2011				
Industry	Job Growth +/- Total New Jobs 2003-2011	Employment Growth 2003-2011	Total Attrition 2003-2011	Total Job Opportunities 2003-2011
1 Agriculture (1)	-195	-3.2%	831	636
2 Fishing & Trapping (2)	147	4.3%	427	575
3 Logging and Forestry (3)	185	3.1%	666	851
4 Mining, Quarries & Sand Pits (4,5,8)	-91	-3.0%	374	283
5 Crude Petroleum, Gas Mining & Coal (6,7)	0	0.0%	32	32
6 Mining Services (9)	123	16.7%	101	224
7 Food Products & Beverages (10,11,12)	754	6.2%	1,366	2,120
8 Rubber, Plastics & Chemicals (14,15,23)	-29	-2.9%	105	76
9 Pulp and Paper, Paper Products (19,20)	1,539	26.8%	719	2,258
10 Wood (24)	39	0.5%	809	848
11 Printing and Publishing (21)	-73	-3.2%	265	192
12 Manufactured Mineral Products (22,26,27,35)	374	12.7%	370	743
13 Metal Fabrication & Machinery, except electrical (28,29)	-423	-13.7%	329	-94
14 Motor Vehicles, Trailers & Parts (31)	-60	-4.8%	105	45
15 Other Transportation Equipment (30,32,33)	732	182.0%	79	810
16 Electrical & Electronic Products (34)	126	15.3%	87	213
17 Other Manufacturing (13,16,17,18,25,36)	943	22.0%	477	1,420
18 Construction (37)	-1,431	-7.7%	2,652	1,220
19 Transportation & Storage (38,39,40,41,42,43,44)	752	4.6%	2,278	3,030
20 Communication (45,46,47)	-609	-6.8%	1,101	492
21 Utilities (48,49,50)	162	3.0%	753	915
22 Wholesale Trade (51)	798	4.9%	1,988	2,785
23 Retail Trade (52)	1,292	2.6%	6,104	7,395
24 Finance, Insurance, & Real Estate (53)	-126	-1.0%	1,683	1,556
25 Advertising (54)	155	11.1%	171	326
26 Professional Business Services (55)	549	8.2%	1,038	1,588
27 Computer, Consulting and Other Business Services (56)	5,747	33.0%	2,502	8,249
28 Public Administration (57,58,59)	-251	-1.1%	3,177	2,926
29 Education (60)	522	2.3%	5,840	6,362
30 Health Services (61,62,63)	5,033	13.1%	6,121	11,155
31 Accommodation, Food & Recreational Services (64,65)	2,493	7.5%	3,713	6,206
32 Personal & Household Services (66)	617	7.6%	829	1,447
33 Other Services Industries (67)	-149	-1.4%	1,490	1,340
All	19,644	5.6%	48,582	68,226

Source: COPS, 2002 model projections

?? The largest categories of new jobs created, by industry, according to the COPS model, are in the areas of computer, consulting, and other business services (29.3%); health services (25.6%); accommodation, food and recreational services (12.7%); pulp and paper and paper products (7.8%); and retail trade (6.6%). Together, these account for 82% of all new jobs created.

?? For jobs available through attrition by industry between 2003 and 2011, there is more dispersion among several industries. The largest categories are in the areas of health services (12.6%); retail trade (12.6%); education (12.0%); accommodation, food and recreational services (7.6%); public administration

(6.5%); and construction (5.5%). Together, these account for almost 57% of replacement jobs.

?? If one considers the overall picture (new jobs and attrition together) by industry, the largest areas of available jobs between 2003 and 2011 will be in health services (16.4%); computer, consulting and other business services (12.1%); retail trade (10.8%); education (9.3%); accommodation, food and recreational services (9.1%); and transportation and storage (4.4%). Together, these account for over 62% of jobs available.

Other New Jobs to be created between 2003 – 2011

In addition to the 19,644 new jobs and 48,582 through attrition that the COPS model anticipates for the New Brunswick labour market between 2003 and 2011, the Prosperity Plan’s targets aim for an additional 19,250 to 36,000 new jobs between 2003-2011 (depending on the scenario used).

It may be assumed that these additional new jobs fall into similar skill type areas, as do the new jobs and replacement jobs in the COPS model. Therefore, a weighted average of new jobs and replacement jobs by skill type provides the following breakdown by skill type for those additional jobs.

Projected Employment Levels by Skill Type: New Brunswick 2003-2011			
	Scenario 1	Scenario2	
	Additional	Additional	proportional
Occupation: NOC Skill Type	jobs under PP	jobs under PP	weight
0 Management Occupations	2,113	3,951	11.0%
1 Business / Finance / Administration Occ's	3,133	5,859	16.3%
2 Natural / Applied Sciences & Related Occ's	1,953	3,653	10.1%
3 Health Occupations	1,932	3,613	10.0%
4 Social Science / Education / Gov't Service / Religion Occ's	2,534	4,739	13.2%
5 Art / Culture / Recreation / Sport Occ's	611	1,143	3.2%
6 Sales and Service Occupations	3,445	6,442	17.9%
7 Trades / Transport / Equipment Operation Occ's	1,611	3,012	8.4%
8 Primary Industry Occupations	478	893	2.5%
9 Processing / Manufacturing / Utilities Occ's	1,441	2,695	7.5%
All (total # of jobs above current growth projections)	19,250	36,000	100.0%

?? Under both scenarios, the new jobs are fairly well distributed amongst the skill types, with the largest areas of projected new jobs in the areas of sales and service occupations (17.9%); business, finance, and administration occupations (16.3%); social science, education, government services, and religious occupations (13.2%); management occupations (11.0%); natural and applied sciences and related occupations (10.1%); and health occupations (10%). Together, those skill areas comprise almost 80% of additional new jobs, under this scenario.

It may similarly be assumed that these additional new jobs fall into similar skill level areas as do the COPS model new jobs and replacement jobs. Therefore, a weighted average of new jobs and replacement jobs by skill *level* provides the following breakdown by skill level for those additional jobs.

Source: COPS	Scenario 1: Prosperity Plan New Jobs	Scenario 2: Prosperity Plan New Jobs	Proportional Weight
Occupation: NOC Skill Level			
0 Management Occupations	2,118	3,960	11.00%
A Professional Occupations	5,910	11,052	30.70%
B Technical, Paraprofessional & Skilled Occupations	5,525	10,332	28.70%
C Intermediate Occupations	4,659	8,712	24.20%
D Labouring and Elemental Occupations	1,040	1,944	5.40%
All	19,250	36,000	100.00%

?? Of the 19,250 to 36,000 new jobs to be created under the Prosperity Plan, 8028 to 15,012 (41.7%) of them, within the management and professional skill levels, will require a university level of training.

?? Another 7,855 to 14,688 (40.8%) will require college level training or an apprenticeship-based program. The 7,855 to 14,688 range was derived by taking all jobs in skill level B and half the jobs in skill level C (an investigation of occupations in level C show that approximately half of them would require some post-secondary training).

Post-Secondary Education in New Brunswick:

Current Picture

- ?? In New Brunswick, there are 4 publicly funded universities (with a total of 7 campuses), a community college network with 11 campuses, and 89 private occupational training institutions (registered in 2001-2002).
- ?? According to the Prosperity Plan, 30% of 18-24 year olds in New Brunswick are participants in post-secondary education.

New Brunswick Community College (NBCC)

The following table looks at the numbers of graduates from all NBCC campuses over the five most recent years available.

Numbers of Graduates⁴ from NBCC⁵.	
Graduation Year	Number of Graduates
2001	2,580
2000	2,716
1999	2,456
1998	2,352
1997	2,493
Average	2,519

- ?? On average, over the past five survey years, the NBCC network has graduated over 2,519 students per year.
- ?? Using a similar scenario for 2003 – 2012 (10 year period), a total of 25,190 students would graduate from NBCCs (or 22,671 from 2003 to 2011).

An investigation of the most recent two years of graduate information by field of study / cluster reveals a similar pattern over the period. The largest concentration of graduates fall into the management and commerce (accounting, business and management, sales and marketing, tourism, office studies, finance, purchasing, warehousing and distribution, food and hospitality services disciplines). The next largest concentration fall into the architectural and building technology (architectural technology and urban development, and building technology disciplines) clusters.

⁴ Includes graduates from regular programs of 12 weeks or longer and non-regular programs of 20 weeks or longer.

⁵ From Survey of 2001 New Brunswick Community College Graduates.

Fields of Study/Clusters⁶ of NBCC Graduates (proportion of graduates).		
Fields of Study / Clusters	2001 Graduates (# / % of total graduates)	2000 Graduates (# / % of total graduates)
Physical / Natural Sciences and Science	20 (0.8%)	35 (1.3%)
Health	270 (10.5%)	334 (12.3%)
Education, Culture and Social Service	244 (9.5%)	260 (9.6%)
Information Technology	247 (9.6%)	257 (9.5%)
Engineering Technologies and Related	280 (10.9%)	247 (9.1%)
Architectural and Building Technology	579 (22.4%)	568 (20.9%)
Agriculture, Environment, and Related	65 (2.5%)	89 (3.3%)
Management and Commerce	716 (27.8%)	757 (27.9%)
Creative Arts	119 (4.6%)	169 (6.2%)

Private Occupational Trainers

- ?? The Department of Training and Employment Development administers the Private Occupational Training Act (POTA). Private trainers provide some enrolment information to the Department, but graduation figures are not provided, and to date, no follow-up studies have been conducted of those graduates.⁷
- ?? For consistency in reporting, a graduation rate of 80% is applied to enrolment figures (this is the average graduation rate for NBCC campuses over the last 6 years) for the private occupational trainers.
- ?? Some institutions report enrolment figures without indicating which programs students are enrolled in. Those figures have been left out of the following table. The total enrolment reported for 2001-2002 was 3,832 (or approximately 3,065 graduates, based on 80% graduation rate).
- ?? The following table attempts to cluster number of assumed graduates (based on 80% of enrolments) into areas of study (using a similar grouping scheme as the NBCCs). The figures are for the academic year 2001-2002.

⁶ These fields of study / clusters are draft and have not been approved by the NBCC network.

⁷ Information provided by POTA Branch of TED.

Graduates of Private Occupational Trainers, 2001-2002, by Field of Study. (Derived by TED)	
Field of Study	Number of Graduates (80% of enrolment assumption)
Health	199 (9.2%)
Education, Culture and Social Services	226 (10.4%)
Information Technology	467 (21.5%)
Engineering Technologies and Related	25 (1.2%)
Architectural and Building Technology	252 (11.6%)
Management and Commerce	1,002 (46.2%)
Totals	2,171

- ?? Using an assumption that 80% of enrollees complete their program and graduate, private occupational trainers graduate almost 2,200 students per year.
- ?? Programs offered vary in length, and no conclusions can be drawn about comparability of these programs to community college programs.
- ?? Assuming a similar scenario for the period 2003 – 2012, private occupational trainers would graduate 21,710 students.
- ?? The two largest areas of graduates are the management and commerce and information technology areas.

New Brunswick Universities

The following table looks at the numbers of graduates from all NB Universities over the five most recent years of information available⁸.

Numbers of Graduates from NB Universities.	
Graduation Year	Number of Graduates
1998	3,600
1997	3,835
1996	3,940
1995	3,681
1994	3,587
Average	3,728

- ?? Assuming a similar scenario over the period 2003 – 2012, New Brunswick universities would graduate 37,280 students (or 33,552 from 2003 to 2011).
- ?? The following table shows the fields of study for the two most recent years of information available (1998 and 1997).

⁸ *Education in Canada*. 2000.

Fields of Study/Clusters⁹ of NB University Graduates (proportion of graduates).		
Number of Graduates of NB Universities by major field of study		
Arts & Science-General	102 (2.8%)	58 (1.5%)
Education	481 (13.4%)	770 (20.1%)
Fine & Applied Arts	60 (1.7%)	54 (1.4%)
Humanities and Related	401 (11.1%)	447 (11.7%)
Social Sciences	822 (22.8%)	875 (22.8%)
Commerce and Administration	562 (15.6%)	575 (15.0%)
Agriculture & Biological Sciences	295 (8.2%)	256 (6.7%)
Engineering & Applied Sciences	446 (12.4%)	381 (9.9%)
Health Professions	250 (6.9%)	256 (6.7%)
Mathematics & Physical Sciences	181 (5.0%)	163 (4.3%)
TOTAL	3,600	3,835

?? An investigation of the most recent two years of graduate information by field of study / cluster reveals a similar pattern over the period. The largest concentration of graduates falls into the Social Sciences, Commerce and Administration, and Education fields.

Projection of Graduates over the Next Nine Years (2003 – 2011)

Projections of Graduates over 2003-2012		
Institution	Current Average of Graduates /Year	Projection over 2003 - 2012
NBCCs	2,519	22,671
NB Universities	3,728	33,552
Private Occupational Trainers	2,171	19,539
Totals	6,247 (NBCCs + Universities) 8,418 (all three groups)	56,223 (NBCCs + Universities) 75,762 (all three groups)

The table above shows that over the next 9 years, there will be a total of 56,223 graduates of community colleges and universities combined, given a similar number of annual graduates as currently. In addition, there will be almost 20,000 graduates of private occupational training institutions, in various programs. Since little information is known about graduates of these institutions, it is difficult to ascertain the equivalency of these programs to other college or university programs.

⁹ Ibid.

Conclusion:

Training Needs Assessment

The information contained in this report can be summarized into two scenarios, each of which investigates the training needs of the New Brunswick economy between the years 2003 and 2011. The tables below investigate the demand for university- and college-trained individuals to fill jobs, and compare that to current supply (in the form of graduates) of such individuals. The actual supply of potential graduates would include anyone who could potentially acquire training and attain an available job, including high school graduates, those seeking job transitions, unemployed individuals, those not currently in the labour force, immigrants, older workers, etc.

STATUS QUO: *Training needs according to current COPS “new jobs” and “attrition” projections (2003-2011)*

Category	University	College
A. New Jobs – COPS Projections	8,886	8,288
B. Attrition	18,492	19,133
C. Total Training Needs (2003-2011) [A+B]	27,378	27,421
D. Graduates under Current System	33,552	22,671
E. Training Need Deficit [C-D]	(6,174)	4,750

- ?? If one considers only current COPS projections for new jobs and job opportunities created by attrition over 2003-2011, university-level training at current levels of graduates will be more than sufficient to fill jobs requiring a university-level education. For college-level training, under this scenario, there will be a shortfall of 4,750 trained individuals to fill positions requiring a college-level education. Over a 9-year period, this would require the colleges to graduate on average 528 more individuals per year.
- ?? With the status quo, the need for community college graduates will be approximately 1.2 times current supply, or 20% higher. It can be further assumed that this factor of 1.2 can be extrapolated to enrolment and capacity – that is, both enrolments and capacity at the community colleges would have to be increased by 20%.
- ?? Also under this scenario, the total need for university- and college training is almost the same, that is, virtually a ratio of 1:1.

Scenario 1: Training needs under the Prosperity Plan target of 2,139 additional new jobs per year (2003-2011).

SCENARIO 1										
New Brunswick - Jobs and the Economy (2003 and 2011)										
	2003	2004	2005	2006	2007	2008	2009	2010	2011	Total (2003-2011)
Projected Job Growth (COPS)	-	1,943	3,016	2,712	2,367	1,741	2,697	2,634	2,534	19,644
Prosperity Plan jobs (Targets)	2,139	2,139	2,139	2,139	2,139	2,139	2,139	2,139	2,139	19,250
Total Attrition (COPS)	4,507	4,740	5,004	5,211	5,432	5,642	5,855	6,076	6,114	48,582
Total Job Openings	6,646	8,822	10,159	10,062	9,938	9,522	10,691	10,849	10,787	87,476

SCENARIO 1				
Occupational Training Requirements	New Jobs Prosperity Plan	New Jobs	Attrition	Total
		(COPS Projections)	(COPS Projections)	
University	8,027	8,886	18,492	35,405
College	7,854	8,288	19,133	35,275
High School or Less	3,369	2,470	10,957	16,796
All	19,250	19,644	48,582	87,476

SCENARIO 1		
Category	University	College
A. New Jobs – COPS Projections	8,886	8,288
B. Attrition	18,492	19,133
C. Additional New Jobs – Prosperity Plan	8,027	7,854
D. Total Training Needs (2003-2011) [A+B+C]	35,405	35,275
E. Graduates under Current System	33,552	22,671
F. Training Need Deficit [D-E]	1,853	12,604

?? Scenario 1 considers current COPS projections for new jobs and jobs created by attrition, as well as the Prosperity Plan's target of 19,250 new jobs over the period to 2011. According to this scenario, university-level training at current levels of graduates will result in a deficit of university-trained individuals of 1,853. It will also result in a deficit of college-trained individuals of 12,604. Over a 9-year period, this would require the colleges to graduate on average 1400 more individuals per year.

?? Under this scenario, the need for community college graduates will be approximately 1.56 times current supply, or 56% higher. It can be further assumed that this factor of 1.56 can be extrapolated to enrolment and capacity – that is, both enrolments and capacity at the community colleges would have to be increased by 56%.

?? Under scenario 1, the total need for university- and college training is virtually the same, that is, a ratio of 1:1.

Scenario 2: Training needs under the Prosperity Plan target of 4,000 additional new jobs per year (2003-2011).

SCENARIO 2										
New Brunswick - Jobs and the Economy (2003 and 2011)										
	2003	2004	2005	2006	2007	2008	2009	2010	2011	Total (2003-2011)
Projected Job Growth (COPS)	-	1,943	3,016	2,712	2,367	1,741	2,697	2,634	2,534	19,644
Prosperity Plan jobs (Targets)	4,000	4,000	4,000	4,000	4,000	4,000	4,000	4,000	4,000	36,000
Total Attrition (COPS)	4,507	4,740	5,004	5,211	5,432	5,642	5,855	6,076	6,114	48,582
Total Job Openings	8,507	10,683	12,021	11,923	11,799	11,383	12,552	12,710	12,649	104,226

SCENARIO 2				
Occupational Training Requirements	New Jobs Prosperity Plan	New Jobs	Attrition	Total
		(COPS Projections)	(COPS Projections)	
University	15,012	8,886	18,492	42,390
College	14,688	8,288	19,133	42,109
High School or Less	6,300	2,470	10,957	19,727
All	36,000	19,644	48,582	104,226

SCENARIO 2		
Category	University	College
A. New Jobs – COPS Projections	8,886	8,288
B. Attrition	18,492	19,133
C. Additional New Jobs – Prosperity Plan	15,012	14,688
D. Total Training Needs (2003-2011) [A+B+C]	42,390	42,109
E. Graduates under Current System	33,552	22,671
F. Training Need Deficit [D-E]	8,838	19,438

?? Scenario 2 considers current COPS projections for new jobs and jobs created by attrition, as well as the Prosperity Plan's target of 36,000 new jobs over its nine year period (2003-2011). According to this scenario, university-level training at current levels of graduates will result in a deficit of university-trained individuals of 8,838. It will also result in a deficit of college-trained individuals of 19,438. Over a 9-year period, this would require the colleges to graduate on average 2160 more individuals per year.

?? Under this scenario, the need for community college graduates will be approximately 1.86 times current supply, or 86% higher. It can be further assumed that this factor of 1.86 can be extrapolated to enrolment and capacity – that is, both enrolments and capacity at the community colleges would have to be increased by 86%.

?? Again, under this scenario, the total need for university- and college training is virtually the same, that is, a ratio of 1:1.

Training Needs Summary:

To arrive at the training needs assessment, the COPS model was used to determine the types and numbers of jobs to be created and to be made available through attrition. These types of jobs each have their educational requirements. The educational requirements categories included University, Community College, some Post-Secondary, High School and less than High School.

If one considers only current COPS projections for new jobs and jobs created by attrition over 2003-2011, university-level training at current levels of graduates will be more than sufficient to fill jobs requiring a university-level education. For college-level training, there will be a shortfall of 4,750 trained individuals to fill positions requiring a college-level education.

To determine what is going to be needed to meet the goals of the Prosperity Plan in terms of economic prosperity, we had to first determine where we are today (in terms of real GDP per capita), where we are going to be in the future (in relation to the national rate for real GDP per capita), and then determine how much New Brunswick real GDP would need to increase over the target period to be in line with where we want to be in 2012.

For this purpose, we used two different economic models to ensure that the most accurate picture possible is presented here, because economic and employment projections vary depending on the source of the data used and the date the data was produced, and they are heavily dependent on the leading economic assumptions built into the model used to make the projections. Therefore, we developed two different scenarios based on two different independent projection models - the COPS model and Conference Board model.

Under the two additional scenarios which considers the additional job growth needed to meet the Prosperity Plan targets, over the 9-year period in question (i.e. 2003-2011), university-level training at current levels of graduates will result in a deficit of between 1,900 and 8,800 university-trained individuals. It will also result in a deficit of between 12,600 and 19,400 college-trained individuals. Over the 9-year period span, this would require the colleges to graduate at least 1,400 to 2,160 more individuals per year.

Under these two scenarios, the need for community college graduates will be approximately 1.56 to 1.86 times current supply, or 56% to 86% higher. It can be further assumed that this factor of 1.56 to 1.86 can be extrapolated to enrolments and capacity – that is, both enrolments and capacity at the community colleges would have to be increased by 56% to 86%.