

## Projected Occupational Pressures over the coming decade in B.C.

Skills shortages are difficult to predict, particularly over a ten-year period of time. Typically provinces have relied on employment demand projections to identify areas of high opportunity. Provinces such as Alberta attempt to track occupations in shortage by looking at the unemployment rate as the main indicator of labour market pressure.

These approaches which rely primarily on labour market demand estimates, will not indicate where skills shortages are likely to emerge, as they do not also include projections of the sources of labour supply. Approaches which focus on unemployment rates, can only be constructed for the current labour market, and are not sufficiently sensitive to factor in atypical sectors or occupations with higher than average rates of turnover, or frictional unemployment, such as in the construction sector.

In order to begin the discussion about where specific programs might best be focused, the Ministry of Economic Development has developed a list of forecasted occupational pressures, which will be updated annually with each demand forecasting cycle. Other improvements the ministry will be making include the creation of a more fully-developed labour supply model. The list below is an indicative (rather than definitive) list of future pressures, and should be used as a starting point for further planning in these sectors.

The following occupations are likely to experience pressure over the coming decade. Those that are identified in ***bold italics*** are occupations where skills shortage pressures are most likely to be alleviated with continued strong inter-provincial migration.

Financial Managers  
Managers in Health Care  
Restaurant & Food Services Managers  
Accommodation Services Managers  
Fire Chiefs & Senior Firefighting Officers  
Construction Managers  
Transportation Managers  
Utilities Managers  
Supervisors, Mail & messaging distr.  
Court Officers & Justices of the Peace  
Bookkeepers  
Court Clerks  
***Engineers (Mining, Geological, Petroleum)***  
Civil Engineering Technologists & Construction Estimators  
Specialist Physicians  
Technical - health (sonographers, cardiology technology, EEG technicians)  
Medical lab technologists & pathologists' assistants  
***Nurses in specialty areas***  
University professors  
College Instructors  
Hotel front desk clerks  
***Building superintendents & caretakers***

Wholesale trade sales reps (technical and non-technical)  
Trades supervisors  
***Industrial electricians***  
Power systems electricians  
***Cement finishers***  
Tile setters  
Plasterers, drywall installers, finishers & lathers  
***Painters & decorators***  
Stationary engineers & auxiliary equipment operators  
Truck drivers  
Heavy equipment operators  
Farmers & farm managers  
Nursery & greenhouse operators/managers  
Supervisors, landscape & horticulture  
Supervisors, mining  
Supervisors, oil & gas drilling & service  
***Oil & gas well drillers, servicers & testers***  
***Oil & gas well drilling workers & services operators***  
***Oil & gas drilling, servicing & related labourers***  
***Process control & machine operators, food & beverage processing***

Labour supply is somewhat fluid, responding to market signals in order to achieve market clearing. For example, wages will rise in tight labour markets, causing qualified people to consider moving from another province, and unqualified people to invest in training for that occupation. Employers also have a number of market mechanisms they can employ to alleviate pressures, and their choices are not always straightforward and predictable, or be the same solutions adopted in the previous business cycle (e.g. investment in equipment, changes in organizational structure). Fundamentally, all of these market responses are human behaviours, which can only be predicted with a limited degree of accuracy. In addition, market clearing may very well take a different form depending on the occupation. A more detailed model needs to be developed in order to fully incorporate this concept. Some occupations will achieve balance with an unemployment rate of close to 0, whereas others with naturally high frictional unemployment may actually require a surplus of workers in order for the market to clear.

For these reasons, the estimates developed by the Ministry of Economic Development are **not definitive, but should be viewed as indicative**, and the basis for more detailed planning in partnership with sectors.

### **Conceptual model**

Analysis of occupational pressures begins with an estimate of employment demand. In this case, the base demand estimate comes from the COPS, 2003-2013 B.C. and COPS 2004-2014 Unique Scenarios, developed jointly by Human Resources Development Canada and B.C.'s Ministry of Advanced Education. This estimate gives a projected number of new and retirement job openings over the 10-year period, at the detailed occupational level.

For each occupation, a number supply sources have been factored in. These include:

- Apprentices
- Inter-provincial migrants into B.C.
- Inter-provincial migrants out of B.C.
- International migrants
- Graduates of public colleges and institutes in B.C.
- Graduates of public universities in B.C.
- High school graduates going directly into the workforce
- People leaving provincial income assistance.

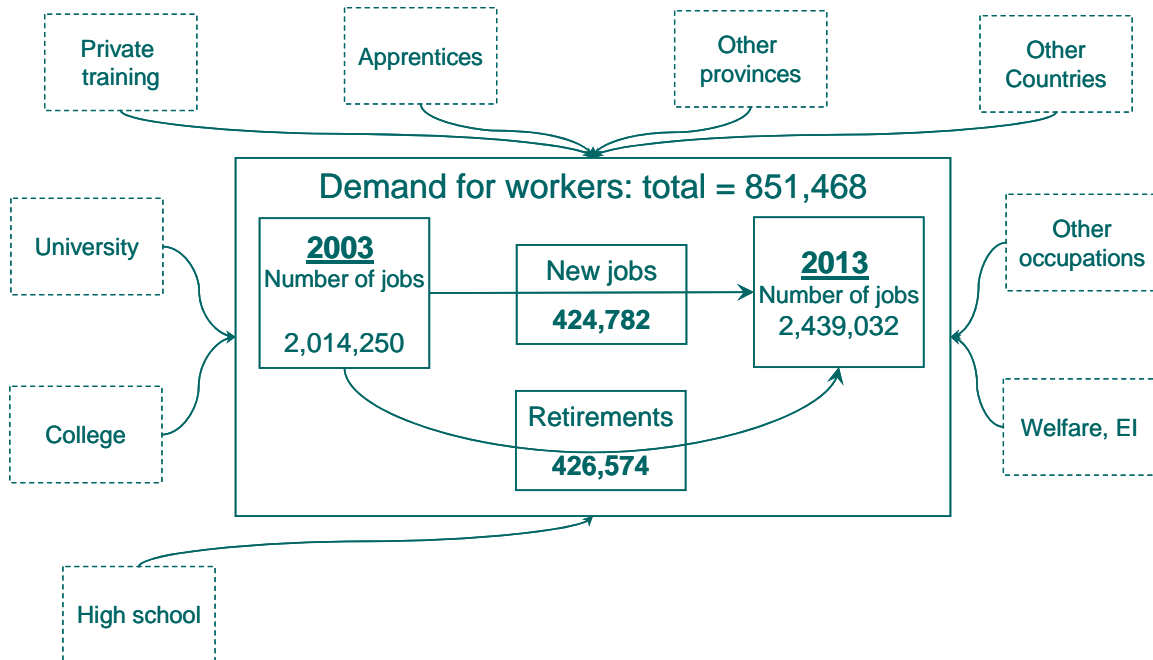
Given the limitations of current data sets, a number of supply sources are not factored in. These include:

- Inter-occupational mobility
- Those who successfully challenge trades qualifications
- Graduates of private training institutes
- People leaving Employment Insurance

Lack of availability of these data sources will lead to some underestimation of the true gap; therefore these initial results should be viewed as preliminary and indicative of areas likely to experience future labour market pressure, rather than definitive areas of shortage. Given more time, more refined modeling of the existing data sources can be

done, and it would be feasible to begin modeling the numbers leaving EI, estimate the number of private training graduates, and determine the number of TQ challengers. However no source of data exists, for inter-occupational mobility – either provincially or nationally – and for some occupations, this will be a significant source of supply.

The figure below illustrates the initial model for identifying potential pressures.



Quantification of the gap alone is not adequate to assess pressure. In addition to the quantification of potential gaps, an attempt has been made to look at the degree to which historical pressures have manifested themselves within an occupation and the degree to which market signals have been demonstrated. Market signals include such things as: higher-than-average growth in earnings, higher-than-average growth in employment and lower-than-average unemployment rate. Market signals are reflecting the ability of an occupation or industrial sector to accommodate anything extraordinary. Therefore, some basic pressures have been selected to help assess the potential pressure within an occupation. In doing this the Ministry of Economic Development has constructed a “pressure gauge” consisting of 4 factors, equally weighted:

- Earnings growth rate, 1995-2000 (Census, 2001) supplemented with various other wage info (e.g. LFS annual averages where CV’s permit)
- Employment growth, 2003-2005 (Census 2001 provided base case, which has been supplemented with data from sources such as LFS where CV’s permit)
- Projected annual rate of job growth (COPS, BC Unique Scenario, 2001-2011)
- Projected retirements as a per cent of total job openings (COPS, BC Unique Scenario, 2003-2013)

Future versions of this work will also include unemployment rates by occupation. At the time of completion, a limited number of reliable estimates can be gleaned from Labour Force Survey due to sample sizes, and detailed information from the Census (2001) is too dated to reflect the nature of labour market challenges today.

The pressure gauge will register between 0 and 4 for each occupation, with 0 representing the least degree of pressure, and 4 representing the most.

Results from the pressure gauge have then been combined with the gap analysis, to determine the list of occupations likely to be experiencing pressure. Those that have been identified include any occupation with a projected gap, combined with those that register more than “3” or “4” on the pressure gauge, or those that have a large gap relative to other occupations.

The list has also been reviewed with an eye to incorporating “feeder” occupations into those where underestimation due to inter-occupational mobility. This has helped limit the number of managerial/supervisory occupations expected to be facing future pressure.

Despite the lack of comprehensive data and the risks of under-counting, the initial analysis has been useful in ruling out a number of occupational pressures. Use of inter-provincial data from a number of Census periods has also permitted some sensitivity analysis, to determine which occupational pressures might likely alleviate themselves via market mechanisms such as migration.