

ATLANTIC HOME BUILDING & RENOVATION SECTOR COUNCIL

**NOVA SCOTIA RESIDENTIAL CONSTRUCTION
LABOUR SUPPLY STUDY**

PROJECT REPORT

PREPARED BY:

DMD Economics Limited

Canmac Economics Limited

AND

PRAXIS Research & Consulting Inc.

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EXECUTIVE SUMMARY

This report presents an analysis of the current and future demand for, and supply of, skilled workers in key occupational categories in Nova Scotia's home building and renovation industry. Policy and programming recommendations are derived from the analysis. The project was carried out for the Atlantic Home Building & Renovation Sector Council (AHB&RSC) with funding support from Service Canada.

Methodology

The work of the project addressed a number of research issues including:

1. A projection of demand for housing and renovations in Nova Scotia over the 2007 to 2026 period.
2. A projection of the demand for skilled trades related to changes in construction activity.
3. A projection of the balance of supply and demand for skilled trades in the housing and renovations sectors.
4. An analysis of expected changes in factors such as building methods and materials, energy efficiency practices, consumer tastes and preferences, and demographic trends.
5. An assessment of the impacts of these changes on the demand for specific skills within key trades.
6. Identification of possible skills shortages or surpluses.
7. Key policy variables affecting the supply of skilled trades people and specific skills and specialities within the trades.

Research activities for the project included:

- An econometric analysis of labour demand and supply trends in the province for the 2007 to 2026 period;
- A review of the research and policy literature;

- Key informant interviews; and
- Focus groups with industry stakeholders.

The objective of the econometric study, carried out by Canmac Economics Ltd. and presented in an independent report, was to provide analysis and projections of the demand for and supply of skilled trades in the Nova Scotia residential construction sector over the period 2007 to 2026. The Canmac report presents a base case scenario and a sensitivity analysis around the base case. Alternative scenarios include a pessimistic case which reflects current “conventional wisdom” about the implications of current demographic, migration and economic trends in the province, and an intermediate case.

The interview research included structured interviews with 11 informed observers and stakeholders representing different industry sectors, academic and training institutions and government research and policy agencies.

The focus group research and consultations included four meetings with Nova Scotia Home Builders’ Association Board Members and other new home builders and renovators in different regions of the province.

Key Findings

The key findings of the overall study are summed up as follows:

1. Shortages of skilled and semi-skilled workers in most trade categories in the residential construction industry are real and pressing in 2008. They are already having measurable impacts on business conditions for builders in some sectors of the industry and in most regions of the province.
2. The econometric analysis provides evidence that, barring a sharp and sustained downturn in the province’s population and a resulting collapse in residential construction demand (the “pessimistic scenario” supported by Conference Board of Canada projections), these shortages will persist and become critical over the next eight to ten years.
3. The Canmac report concludes that the most reasonable future scenario for the 2007 to 2026 period foresees a gradual slowing in demand for new housing offset to some degree by increases in renovation and repair activity

and continuing demand for custom homes, cottages and retirement housing. It is projected that the shrinking of the skilled labour force through retirement, emigration and weak recruitment will outpace the moderate decline in housing demand to a degree that labour shortages will persist and intensify in almost all areas of the province.

4. The tightening of labour supply is general across most sectors of the economy and is evident in other regions of the country, so the residential construction industry in Nova Scotia will increasingly find itself competing for labour with other industries and other regions.
5. There are measurable differences in trends across the province centred on the continuing concentration of population in and around Metro Halifax and gradual population declines in some towns and the rural regions of the province.
 - Labour shortages are most acute in the Halifax region.
 - However, there has not been any sharp fall off in construction activity to date in the slower-growth areas of the province due to moderate to strong demand for higher-end homes, vacation homes and renovation/retrofitting.
6. Labour shortages and rising wage costs, in addition to rising energy and land costs, are already driving changes in the structure of the industry and in business conditions:
 - The larger housing development firms, allied with larger sub-contractor companies, are taking an ever-greater share of the new home construction market, most notably in Halifax Regional Municipality (HRM), due to their advantages in accessing financing, in assembling land and in achieving economies of scale on materials and labour costs.
 - There is more and more off-site construction of housing components making use of just-in-time manufacturing methods to reduce labour and other costs.
 - Manufactured housing now plays a significant role in the construction of lower-end starter homes in some rural regions and is expected to expand and to produce larger and higher value homes in the future.
 - Owner-operator builders are encountering more challenging competitive and financial pressures together with labour shortages

and rising wage costs, and there is some evidence that smaller operators are shifting from new home construction to renovation/repair activities.

- The evidence indicates, however, that small and medium-sized owner-operator builders will continue to represent a significant proportion of the industry due to continuing strong demand for custom homes and renovations/repair services.
7. The study encountered anecdotal but nonetheless convincing evidence that shortages of appropriately skilled labour are already affecting manufacturers of new housing and of housing components and building supply companies that market renovations packages. There are also indications that sub-contractor firms face the greatest difficulty meeting their labour needs because the jobs can be relatively less attractive than positions in other sectors of the industry. In sum, shortages of skilled people and rising wage levels seem to be ubiquitous across the sector and may seriously constrain efforts to achieve gains in productivity and efficiency.
 8. While there is general agreement among industry stakeholders on the relevance and effectiveness of the training and apprenticeship system for the residential construction sector, the study found convincing evidence of a continuing and serious “disconnect” between industry needs and the capacities of the training system.
 - The Nova Scotia Community College (NSCC) presents convincing evidence that marketing of careers in the sector and recruitment of new trainees is not the issue: their programs in carpentry and related trades are over-subscribed every year. However, not enough of these new recruits carry all the way through training and apprenticeship to become appropriately qualified career workers in the sector and in the province.
 - A key issue appears to be the need for more effective transitions by trainees from pre-employment training to placements in industry. A shortage of employers willing to take apprentices and the increasingly limited number of tradespersons qualified to mentor apprentices are seen as the most important constraints.
 - Industry stakeholders emphasize two key areas of concern:
 - The need to engage more young people at an earlier age through a redevelopment of trades training at the high school level; and

- The need for more effective screening and selection of NSCC recruits to ensure they have appropriate aptitudes for the industry.
 - Among trainees who do get placements, too many are dropping out of apprenticeship before reaching journey person status. In a tight labour market and a very busy industry the costs for employers in providing training to unskilled new entrants, the costs to apprentices of taking their block release units for classroom work, and the lack of meaningful wage incentives for completion are key factors.
 - The apprenticeship system may need to show greater flexibility in relation to mentor/apprentice ratios and other issues.
 - Compared to the Industrial-Commercial-Institutional (ICI) construction sector, residential construction is constrained in the capacity to partner with the training/apprenticeship system to support new approaches and innovations because of the large number of small enterprises and the lack of organizational capacity around human resources issues.
9. The increasing reliance of builders and housing developers on off-site production of housing components, the expanding role of building supply companies in providing housing components and renovations services, and the growth of manufactured housing activities are together generating demand for workers with more narrowly specialized skill sets. Stakeholders in these sub-sectors feel that the training system needs to address their expanding and quite specific human resources needs more directly and effectively.
10. There is a substantial population of trades workers who have made career commitments to residential construction, who have been in the industry for some time and who have accumulated significant knowledge and skills. However, a significant majority of these workers have not completed apprenticeships and lack formal qualifications. This represents a serious constraint on labour force development in the sector for the following reasons:
- Many of these workers, particularly in small and medium-sized enterprises, need to participate in training to address the overall need to improve productivity in the sector to support rising wage levels and changing skills requirements. Their lack of positive experience with training is a barrier to such participation.

- With the accelerating retirement of the limited pool of journeypersons in the sector there is a growing shortage of qualified mentors for apprenticeship. More mentors will be needed to support expanded recruitment and training to meet future labour demand, and many of these experienced workers could quite readily become qualified to play this role.
 - Mentorship provides a means for the retiring generation to pass on its knowledge and skills before it leaves. A huge resource will be wasted if ways are not found to benefit from these older workers in the near future.
11. The underground economy is a continuing and seemingly intractable problem affecting the overall economics and labour market dynamics of the residential construction sector. While some industry stakeholders felt that a tight labour market with rising wage rates may work against underground operators, others felt that consumers would be even more likely to turn to “fly-by-night” operators and non-professional builders to save on construction costs. Most industry participants in the research felt that the underground economy is in fact thriving in the current environment and that it holds down profitability and the ability of legitimate operators to pay competitive wages, making the industry less attractive to new entrants. The ultimate consequence is unsafe working conditions for many industry people and lower quality and less safe housing for many citizens.

Conclusions

Conclusions derived from the research include:

1. Residential construction is a strategic growth sector within the Nova Scotia economy. The industry attracts and sustains a skilled workforce with multiple occupations and trades. The continuing viability of the sector is essential to the availability of affordable, safe and good quality housing throughout the province.
2. The productivity and sustainability of the industry depends on interdependence among at least six different sub-sectors including real estate and housing development, sub-contracting, manufactured housing, artisanal builders and renovations specialists.

3. Somewhat in contrast to other studies that project labour supply and demand in residential construction in the province, the more extensive econometric analysis carried out by this project produced evidence that, while demand for residential construction products and services may decline moderately over the 2007 to 2026 period relative to recent high levels of activity, the demand for skilled labour in the industry will remain strong and there will be critical shortages late in the period.
4. Ongoing changes in construction and energy conservation standards, in building methods, tools and materials, and in other factors will generate demand for higher skill levels generally and, in some industry sub-sectors, for workers with more specialized skills.
5. With regard to training, the findings point to a serious disconnect between the industry and the training system stemming in part from the relatively limited capacities of the industry as a whole to work in concert with the NSCC and other interests to drive an effective partnership to meet current and future skills needs. While the training system has these kinds of arrangements in other industry sectors, the prevalence of small and medium-sized businesses in the residential sector and limited participation by employers in providing apprenticeship placements are real constraints. Another emerging issue is the need for the training system to support more specialized skills training for particular sub-sectors of the industry. It is clear that the Sector Council has a key role to play in facilitation and coordination of joint action on training.
6. Regarding the training challenge, both employers and employees in the sector are constrained by concerns about the cost of training and the fear among employers of losing employees once they become more highly qualified. Evidence from the literature suggest that these constraints can be offset by regulatory measures to make certain types or levels of training mandatory and financial contributions or incentives from government.
7. The work in this project confirms that underground economy activity in the sector distorts both labour and product markets and has long-term negative affects on industry sustainability and viability. The findings lend further support for AHB&RSC proposals for the establishment of a Residential

Construction Commission and the introduction by the Commission of mandatory licensing of builder-contractors with requirements for training and product warranties and enforcement through the building permit system.

Four action priorities related to training emerged from the research:

1. Expanded prior learning assessment and recognition (PLAR) programs to help experienced trades workers qualify as journeypersons in their trades.
2. Greater flexibility in the rules on ratios of apprentices to journeypersons in workplace training settings.
3. Training and certification for trades specializations.
4. New training opportunities for the manufactured housing and components manufacturing sub-sectors.

Recommendations

1. The AHB&RSC should take the lead in establishing a multi-stakeholder Working Group on the Future of Residential Construction in Nova Scotia with a mandate to develop a comprehensive strategy to address the short-medium and longer-term skills and labour needs of the residential sector.
2. The AHB&RSC should take the lead in initiating pilot projects with the NSCC and the Apprenticeship Board to develop collaborative programs linking classroom-based activities and job-site placements and with a focus on attracting young people to the sector.
3. The AHB&RSC should initiate new research to know more about the training needs and certification potential of the many career workers in the industry who are not qualified journeypersons in their trades.
4. The AHB&RSC with its partners should move forward in partnership with the provincial government and the training sector on the implementation of its professionalization strategy to address skills and labour shortages and to reduce underground economy activity in residential construction.

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1. INTRODUCTION

This report presents findings, conclusions and recommendations from a comprehensive study of labour supply and demand dynamics in the residential construction industry in Nova Scotia. The objective of the project, as set out in the Terms of Reference provided by the Atlantic Home Building & Renovation Sector Council, was as follows:

To develop a comprehensive and up to date analysis of the current and future demand for and supply of skilled workers in all occupational categories in Nova Scotia's home building and renovation sector and to develop policy and programming recommendations for realistic and effective recruitment strategies and training programs.

Methodologies and work activities during the project included the following:

- An econometric analysis of labour demand and supply trends in the province for the 2007 to 2026 period, carried out by Canmac Economics Ltd. and presented in a separate report;
- A review of the research and policy literature on labour supply issues in the province and in Canada;
- Key informant interviews with industry leaders, training sector representatives and other knowledgeable individuals; and
- Focus groups with industry stakeholders in the different regions of the province.

The following chapters present the literature review and findings from interviews and focus groups, a synthesis of findings from all research activities including the econometric analysis, and then conclusions and recommendations.

2. LITERATURE REVIEW

2.1. Introduction

The Literature Review addresses seven tasks identified in the Request for Proposals for this project:

1. A projection of demand for housing and renovations in Nova Scotia over the long-term (Task 1).
2. A projection of the demand for skilled trades that results from the demand for housing and renovations (Task 2).
3. A projection of the balance of supply and demand for skilled trades in the housing and renovations sectors in Nova Scotia (Task 3).
4. An analysis of expected changes in factors influencing the type of homes built in Nova Scotia and the type of renovation activity undertaken in the future. These changes include: changes in building methods and materials, energy efficiency practices, consumer tastes and preferences, changing demographics and migration, and changes in the size and value of homes and renovations completed in future (Task 4).
5. An assessment of the implications of the changes described in Task 4 on the demand for specific skills and specialties within key trades (Task 5).
6. Identification of specific skills that are projected to be in shortage or surplus (Task 6).
7. An identification of key policy variables that affect the supply of skilled trades people and specific skills and specialties within the trades (Task 7).

The findings of the Literature Review will be combined with: (1) projections of the demand and supply of skilled trades made by an econometric model, (2) interviews with key informants and (3) focus groups with home builders and renovators. The combination of these research instruments will provide in-depth information and analysis of the seven tasks outlined above.

The Literature Review will first present findings on the demand for home building and renovation followed by findings on the supply of skilled trades. The balance of demand and supply for specific skills and specialties will then be examined followed by a discussion of policy implications.

The Literature Review report is based on the following documents:

- Identifying and Supporting Enhanced Opportunities in the Renovation Sector, Gardner Pinfold and Collins Management, March 2004.
- CHBA Pulse Survey, Canadian Home Builders' Association, Spring/Summer 2007.
- Skill Requirements and Training for Carpenters in the Residential Construction Industry in Nova Scotia, PRAXIS Research & Consulting Inc., October 2005.
- Socio-Economic Trends Affecting Consumers and Housing Markets, Canada Mortgage and Housing Corporation, June 2003.
- Profile and Prospects for the Factory-Built Housing Sector in Canada, Clayton Research, October 22, 2005.
- Housing Trends among Baby Boomers, Gary V. Engelhardt (United States), 2006.
- Socio-Demographic Factors in the Current Housing Market, Derrick Thomas, Canadian Economic Observer, October 2005 (Statistics Canada – Catalogue No. 11-010).
- Labour Requirements from 2007 to 2015 for Nova Scotia, Construction Sector Council, Undated.
- The Housing Construction Industry: Challenges and Opportunities for the 21st Century, Canada Mortgage and Housing Corporation Socio-Economic Series 03-004, June 2003.
- The 2007 Labour Market Assessment of the Industrial-Commercial-Institutional Construction Sector of Nova Scotia, Nova Scotia Construction Sector Council, March 2007.

2.2. The Demand for New Home Construction and Home Renovation

2.2.1. Quantitative Information

The Spring/Summer 2007 CHBA Pulse Survey identified the following trends in home building and renovation in Canada:

- Housing starts in Canada reached a 17-year high in 2004 and remained relatively high in the 2005-07 period.
- Housing starts in Nova Scotia averaged 4,700 units over the 2001-05 period. Starts rose to 4,900 units in 2006 but were expected to moderate to 4,500 starts in 2007-08.
- The Pulse Survey found that the move-up market continued to be the main target market for most new home builders as of the spring/summer of 2007. By contrast, traffic was down for new home sales among first-time and move-down buyers in most regions in 2007. The report noted that:

New home builders in most regions plan some shift away from targeting the first-time buyer market over the next year. (p. 1)

Consumer trends for 2006 in Atlantic Canada are summed up in the following quote:

In Atlantic Canada and Quebec, traffic was down in all segments except the custom home market. (p. 9)

- The Pulse Survey estimated that the average size of a new home built in 2006 was 1,825 square feet in both Canada and Atlantic Canada.

Gardner Pinfold and Collins Management, March 2004 report indicated that (nominal) spending on renovation activity in Nova Scotia almost doubled from \$400 million in 1998 to \$725 million in 2003. The authors of the report felt that the growth in renovation activity would continue.

The Nova Scotia Construction Sector Council, March 2007 study provided evidence that spending in the Industrial-Commercial-Institutional (ICI) sector of the construction industry would increase in the immediate future in Nova Scotia.

Optimism among study participants reflects a belief that the next three to four years will see significant ICI project work throughout Atlantic Canada. (p. 7)

A list of major projects scheduled as of 2006 was provided in the report to support the finding that there would be a significant amount of work in the ICI sector in the three to four year period following the publication of the report.

The undated Construction Sector Council (CSC) study provided the following summary of the investment outlook for residential and non-residential building construction to 2015:

The projection for investment in the province is the key driver for the demand for construction trades. The current projection shows a downward trend in residential investment over the medium term followed by a recovery, as population growth strengthens – see Table 2.1 Non-residential investment strengthens over the next three years with the undertaking of a number of major projects. It falls with the completion of these projects, and then cycles back up as economic growth continues to require capacity additions. (p. 41)

Table 2 of the CSC report shows a drop in housing starts by 25% from 4,800 in 2005 to 3,600 in 2011-15.

The decline in housing starts is not matched by a decline in real spending on residential construction, which remains quite steady over the period. The decline in new housing activity is projected to be offset by an increase in renovation activity.

The CSC report shows that investment in non-residential construction is projected to remain quite steady in real terms over the 2005-15 projection period. It also shows that spending on renovations will experience an average inflation adjusted increase of 1.4% to 2010 and 1.9% thereafter.

This report summed up its forecast as follows:

The forecast period is best broken into two intervals – 2006 to 2010 and 2011 to 2015. In the first period, markets are dominated by a big cyclical shift:

- *Residential and non-residential cycles diverge.*
- *Industrial and engineering projects, started in 2006 continue to add more jobs in 2007.*

¹ Population growth will be dependent on in-migration.

- *Most projects begin closing down in 2008 and employment begins to drop.*
- *Housing starts begin an extended decline from 2007 to 2012.*
(p. 44)

2.2.2. Changes in Housing and Renovation Demand

Changes in housing demand is a broad topic that includes changes in preferences for the size and features of homes as well as changes in technology, materials and methods used in building homes. The following changes were identified in the literature.

2.2.2.1. Size of Homes

The Canada Mortgage and Housing Corporation (CMHC), June 2003 study entitled “Socio-Economic Trends Affecting Consumers and Housing Markets” showed that the average size of a new home in Canada rose by 1% annually from 1993-98. A review of U.S. publications and websites by Gardner Pinfold and Collins Management for their March 2004 report also showed that the size of homes was increasing.

In perhaps a related finding the Spring/Summer 2007 Pulse Survey found that for Atlantic Canada, the average construction timeframe from start to completion for a new home increased from 12 weeks in 2001 to 15 weeks in 2006 and 16 weeks in 2007. These data suggest that the increasing size of houses could translate into an increased use of labour per housing start.

2.2.2.2. The Growing Importance of Renovations

The CMHC, June 2003 Socio-Economic Trends study indicated that renovation activity was increasing as a proportion of total residential construction spending. This study also found that renovation activity is less volatile than spending on new housing and completed by smaller firms, primarily owner-operators and that the nature of renovation activity varied from one region and province to another.

The Gardner Pinfold and Collins Management, March 2004 study showed that remodelling expenditures grew nearly 2% annually in the early years of the new millennium. This rate of growth was substantially higher than the 0.5% growth rate of new home construction in the U.S.

The study also used data from a Statistics Canada study report entitled “The Economy – Repair and Renovation”² to show that, according to the 2001 Census, 8% (950,000 homes) needed major renovations to repair structural damage, wiring and plumbing and that the average Canadian homeowner spent \$2,585 on repairs and renovations in 2001 totalling \$20.4 billion.

The Gardner Pinfold and Collins Management, March 2004 report shows that Nova Scotia expenditures on repair and renovation tend to be below Canadian expenditures with Nova Scotian households averaging about 89% of the Canadian estimates from 1997-2002.

The report also notes that the renovation industry appears to be evolving into two sub-components:

U.S. and Canadian data suggest a segmentation of the renovation market into two or more segments; this situation appears to be occurring in Nova Scotia as well. The lower end of the renovation market, the Do-It-Yourself homeowner, focuses on small renovation and repair projects. This market is shrinking for economic and demographic reasons. Higher end market segments are emerging that demand increased renovator skills and expertise in both managing projects and doing the required work. (p. 55)

The Spring/Summer 2007 Pulse Survey found that the average duration of a renovation in Atlantic Canada was six weeks and the average cost was \$35,000.

2.2.3. The Decline in the Construction of Rental Housing

The CMHC, June 2003 Socio-Economic Trends study found that very little new rental housing was built in Canada from the early 1990s to 2003 (the time when that report was prepared). The report indicated that low returns from rental investments explained this trend. The report indicated that rental demand was increasing in Canada at the time the report was prepared but that the construction of rental accommodations was not responsive to increased demand because the rates of return for rental accommodations were low.

The CMHC, June 2003 Socio-Economic Trends report also indicated that the demand for affordable and subsidized rental units was increasing due to

² Statistics Canada, Homeowner Repair and Renovation Expenditure, 2002 Catalogue No. 62-201.

demographic trends and ongoing increases in income disparities. An increase in the number of seniors in the future was expected to exacerbate this trend. The report indicated that public involvement in the rental market would be required to bridge the gap between the ability of renters to pay and the return from rental accommodations required to make ownership of these units viable.

The availability of affordable rental units was anticipated to be a problem for government organizations responsible for public housing.

The report also found that the stock of public housing was aging and that a significant investment in repair and maintenance would be required in the future.

2.2.4. Energy-saving and Environmental Changes to Housing

The June 2003 CMHC Socio-Economic Trends study found that energy-saving and environmental aspects of housing had become more important to new home consumers. The report concluded that meeting these changing needs would require new materials, methods and skills on the part of home builders.

The Gardner Pinfold and Collins Management, March 2004 report cited an unreferenced 2003 study produced by the Canadian Home Builders' Association as saying that energy retrofitting to upgrade the energy performance of a home was expected to become more important in response to on-going increases in energy costs. This study also indicated that more Canadians were experiencing environmental illnesses and were placing increased importance on ensuring the air in their home was clean. As noted in the report, this process would involve specialists coming into the home and doing an assessment of the air quality and how to improve it.

The June 2003 CMHC study entitled "The Housing Construction Industry: Challenges and Opportunities for the 21st Century" acknowledges that technology in the industry changed rapidly in the 1990s and these changes had significant implications on the home building industry.

The residential construction industry witnessed a number of innovations that improved the production process for housing in the 1990s. Areas of innovation included: energy-efficiency measures, foundation systems, roofing and the building envelope.

The report also indicates the objectives-based building code will encourage technological innovation in the future.

2.2.5. Changes in Housing Design and Features

U.S. publications and websites reviewed in the Gardner Pinfold and Collins Management, March 2004 report identified the following trends in housing design:

A shift in the use of interior space within homes: Home layouts are changing as kitchens become more multi-functional, master bedrooms become larger, dining rooms decrease in size and home offices are added.

A growth in the implementation of universal design products:³ Estimates of population changes expected that by 2000 one-third of Americans would be disabled, over the age of 65, or chronically ill. As a result, renovations are being done to accommodate these people and give them greater freedom of movement in their homes. (p. 16)

The report also presented some changes in housing design and features identified in an unreferenced 2003 study produced by the Canadian Home Builders' Association. These were:

- An increase in the addition of “in-law” suites to houses to accommodate aging parents or children who do not leave home until later in life.
- Retrofitting houses to accommodate elderly or people with disabilities.
- Designing or renovating homes to include home entertainment centres with appropriate electrical infrastructure, acoustical insulation and sound barriers.
- Including a home office in renovation plans.
- Installing full security systems in new homes or as part of renovation projects.

2.2.6. Manufactured Housing

The June 2003 CMHC Socio-Economic Trends study found that manufactured housing shifted from mobility to modular over the 20 years leading up to that report. The report noted that manufactured housing held a 17% share of the new housing market in 1994.

³ Universal design products are accessible to and usable by all individuals, including the handicapped and infirm.

The Gardner Pinfold and Collins Management, March 2004 study reported the growth of pre-designed remodelling packages. The report indicated that these packages save time and money and are predicted to revolutionize the industry by offering consumers more choice and a greater price range of products. The report also identified a growth in installed sales programs in which manufacturers, lumberyards and home centres had begun offering these programs to better meet customer needs.

The document entitled “Profile and Prospects for the Factory-Built⁴ Housing Sector in Canada” produced by Clayton Research, October 22, 2005 indicated that the number units of residential factory-built housing constructed in Canada increased from 14,987 in 1993 to 16,890 in 2004. This translates into an annual growth rate of approximately 1%. The number of wood frame prefabricated non-residential units rose from 2,343 in 1993 to 7,550 in 2004 – a growth rate of approximately 11%.

The following table presented in the October 2005 publication by Clayton Research provides an overview of domestic consumption of the single family factory-built sector in 1993 compared to 2004.

TABLE 1: DOMESTIC CONSUMPTION OF THE SINGLE FAMILY FACTORY-BUILT SECTOR 1993 AND 2004			
	Number of Units		% Change
	1993	2004	
Single-Family Factory-Built Production	13,698	14,800	8%
Plus: Imports	111	190	71%
Minus: Exports	3,869	2,861	-26%
Equals: Domestic Consumption	9,940	12,129	22%

Source: Profile and Prospects for the Factory-Built Housing Sector in Canada, Clayton Research, October 22, 2005; p. 11.

The table shows that domestic consumption of the single family factory-built homes increased by 22% between 1993 and 2004 – annual growth rate of about 2%. Domestic production increased by 8% representing an annual growth rate of less

⁴ The terms manufactured housing and factory-built housing are used inter-changeably in this report.

than 1%. The reason for the gap between the growth rate of domestic consumption and production is that exports declined by 26% over the 1993-2004 period. Imports of single family factory-built housing are low.

The Clayton Research, October 2005 report showed that manufactured (mobile) homes accounted for 22% of manufactured single family houses in 1993 and 23% in 2004. Modular homes accounted for the largest component of manufactured homes with the percentage of single family factory-built homes rising from approximately 34% in 1993 to 42% in 2004.

The research conducted for this report indicates that factory-built single family homes as a proportion of homes built on-site declined from 8.4% in 1993 to 7.3% in 2004. The Clayton Research, October 2005 report also showed that the number of households living in movable dwellings declined from 215,440 in 1981 to 156,385 in 2001.

2.2.7. Financing by Builders and Contractors

The Gardner Pinfold and Collins Management, March 2004 study reported that contractors were increasingly offering credit and financing to customers. The report also noted that the provision of financing benefited the contractor by increasing their customer base and professional image and also benefited consumers by allowing consumers to undertake a project without having the income readily available.

2.3. Key Influences Affecting Housing and Renovation Demand

2.3.1. Housing Sub-markets

The CMHC, June 2003 Socio-Economic Trends report asserts that the demand for new home building and renovation in Canada varies by housing sub-market within the country. Five markets were identified in this report. The markets are: High-Growth Metropolitan Centres, Slow-Growth Metropolitan Centres, Small Town Canada, Rural Communities and The North. The separation of the overall housing

market into sub-markets facilitates the analysis of housing trends and issues that are common to all sub-markets and those that vary significantly among the sub-markets.

2.3.2. Macro-economic Factors

The CMHC, June 2003 Socio-Economic Trends report notes that macro-economic factors have an important impact on demand in the home building and renovation sector. Macro-economic factors mentioned in the report include interest rates, taxation and changes in labour markets. The report notes that low interest rates stimulate housing activity and that the low interest rate environment, which has existed since 2000, has contributed to robust housing activity in North America.

The CMHC, June 2003 Socio-Economic Trends report concludes that increased government charges, taxes and regulations since the 1990s have increased industry costs and reduced the economic margins of new home builders and renovators. By contrast, the report notes that targeted and general tax cuts have increased disposable income and enhanced the purchasing power of households.

The October 2005 study by Derrick Thomas entitled “Socio-Demographic Factors in the Current Housing Market” points out the importance of interest rates to the housing boom of the 2000-07 period.

... the trigger for the current housing boom was lower interest rates after the mid-1990s. The most precipitous drop occurred in 2001, when the Bank Rate plunged from around 6% to 2.5%. Mortgage rates followed suit, with the one-year rate falling from 7.7% in 2000 to 4.6% in 2001 and remaining below 5% since. (p. 3.5)

Based on SHS⁵ data, each percentage-point drop in interest rates between 1997 and 2003 spurred about 16,000 additional first-time home buyers. In addition, since 2001 CMHC has twice reduced premiums on the mortgages it insures, and banks have been willing to lend without any down payment by the purchaser. (p. 3.6)

The June 2003 CMHC report entitled “The Housing Construction Industry: Challenges and Opportunities for the 21st Century” also demonstrated the importance of mortgage rates on housing activity.

⁵ Survey of Household Spending (SHS), Statistics Canada.

Mortgage interest rates fell almost without interruption during the 1990s. Home ownership became increasingly affordable and helped to increase the level both of new construction activity as well as home renovation, causing lenders to look for new ways to offer their services. (p. 4)

The June 2003 CMHC Challenges and Opportunities report predicted the boom in the residential construction industry, which occurred between 2000 and 2008.

In many respects, the 2000s appear to be more promising – interest rates are relatively low and may remain that way, productivity levels continue to improve, immigration is expected to be robust, and income growth is likely to be stronger in the 2000s than in the 1990s. (p. 3)

The same report showed that mortgages became more flexible over the 1990s and after 2000. The added flexibility made borrowing easier, more convenient and cheaper in some cases. Government programs and initiatives made borrowing cheaper and more accessible.

In 1992, tax policy changes enabled first-time homebuyers to withdraw money accumulated in their RRSP in order to help in the purchase of a home. The plan has facilitated an estimated 527,000 home purchases, about 75,000 of which occurred in the year 2000. (p. 4)

The report also shows that the decline in interest rates in the early part of the new millennium increased home buying among a variety of groups. It also showed that changing household incomes also affected home buying. The article pointed out that the tax free status of home sales increased the attractiveness of houses as investments as lower rates and increased incomes among baby boomers resulted in greater wealth and buying power.

The June 2003 CMHC Challenges and Opportunities report identified a close link between income levels and housing activity:

One of the links between job growth and housing markets is the impact of employment patterns on income. Real per capita disposable income fell for much of the decade and only began to recover in 1997. Sluggish income growth may have been the single most important factor behind the weakness in housing starts in the 1990s. (p. 3)

2.3.3. Demographic Changes and Household Formation

The CMHC, June 2003 Socio-Economic Trends report summarized the most important national demographic trends and their impact on housing demand as follows:

Overall, Canada's population is expected to illustrate modest rates of growth, with the most significant growth concentrated in major urban centres in British Columbia, Alberta, Ontario and Quebec. Most of the increase in numbers will be attributed to migration from a variety of international locations, which will also increase the diversity of the population. The population will continue to age, although the Aboriginal population will stand out as distinctly different in this respect, reflecting a much younger profile. The overall trends suggest a modest, but continuing, demand for housing with disinvestment in rural areas and smaller communities in most provinces and more substantive investment in major urban centres. Aging, the diversity generated by migrants and the growth in what has been characterized as non-traditional households will strengthen the already prevalent trend towards new tenure and design options. Many of these same characteristics, as well as the growth of the Aboriginal population, will also generate a need for more affordable housing options. (p. 17)

That report noted that the proportion of single-person and non-family households in Canada grew significantly from 1961 to 2001. It concluded that there was a strong relationship between income levels and household type and that single-person and non-family households are more likely to be found in the lowest income groups.

The report also shows that an increasing proportion of seniors is predicted to result in a wide variety of changes to housing design and financing and result in renovations to the existing housing stock to address the requirements of seniors. It also predicts that household sizes in Canada will decline resulting in high housing demand for a given population.

Demographic related predictions contained in the CMHC, June 2003 Socio-Economic Trends report include:

- Modest demand for starter homes in Canada.
- Housing demand will increase in Central and Western Canada and in urban areas.
- Seniors will move in significant numbers to warmer and coastal parts of the country.

- Reduced investment in housing, low house values, vacancies and abandonments are predicted to be significant for rural areas and small centres in Canada including those in Nova Scotia. Population loss is the primary factor driving these predictions.

The Derrick Thomas, October 2005 Socio-Demographic Factors report makes some interesting observations about why housing starts have remained robust in recent years despite negative demographic factors.

Several factors have maintained the number of households and recently even produced a modest increase in the rate of growth. First, the vanguard of the large baby boom echo generation (born in the 1980s and early 1990s) is now entering their twenties and presumably starting to move out on their own, raising the demand for housing. (p. 3.4)

While birth rates have declined for some time, this generation owes its size to the even larger boomer generation from which its parents are drawn. This large 'echo' group led demographers to predict rising demand for rental accommodation in this period (Foot and Stoffman, 2000). The growing number entering their twenties helps to sustain the rental market and ensure that buying remains an attractive alternative. The SHS data also suggest that there are more home buyers in this age group. (p. 3.4)

Secondly, the population may be aging but people are also living longer and remaining in their homes longer (Cranswick and Thomas, 2005). (p. 3.5)

The report also notes that the size of households has declined for a number of reasons, noting that:

... Canadians have been spreading themselves over more housing units. (p. 3.5)

This implies that housing demand may be higher than population growth.

The June 2003 CMHC Challenges and Opportunities study identified several trends that emerged in the 1990s. One important trend was that, while household sizes declined steadily, the average size of new homes did not decrease. The authors of the report indicated that this reality was due to increasing income levels for some Canadians and to consumer expectations. The study also reported that there was a steady decline in the home ownership (non-condominium) rate for household maintainers under the age of 30, and an increasing interest in rental and condominium ownership by younger households. The report predicted that the

demand for rental housing, notably affordable housing, would increase because of economic insecurity in the workforce and student debt loads.

The undated report by the Construction Sector Council entitled “Labour Requirements from 2007 to 2015 for Nova Scotia” makes the following comment about the relationship between housing starts and household formation:

Housing starts have risen in excess of household formation over the past few years. As a result, they are expected to fall over the next few years to a level more consistent with household formation. They move in line with household formation thereafter. (p. 41)

The Thomas, October 2005 Socio-Demographic Factors report also indicated that there was no discernable increase in the number of second or vacation homes purchased by Canadians and linked this finding to the fact that a second home would not enjoy the tax-free status enjoyed by the first one.

A 2006 report by Gary V. Engelhardt on the U.S. housing market entitled “Housing Trends among Baby Boomers” showed that the supply and demand for housing by older households will have a significant impact on housing markets as demonstrated by the following quotes:

First, listings by older homeowners are an important source of supply of existing homes for sale, and those older sellers looking to buy another home represent an important source of demand, especially for smaller, trade-down homes or homes with desirable features ...

Second, there has been a sustained increase in the demand for second and vacation homes, as well as lots for the building of future retirement homes. Third, there has been recent media attention on empty-nesters selling suburban homes in areas with good schools and purchasing real estate in urban areas to take advantage of urban amenities. (p. 1)

The Engelhardt report presented the following key findings related to second home ownership:

- In 2004, 15% of American households comprised of individuals aged 50 and older owned a second home.
- Second-home mortgage activity was highly geographically concentrated.
- Turnover of second homes by older homeowners was high and primarily caused by changes in marital status and health rather than income or employment.

- The report notes that most second-home owners make limited use of their homes: ... *one-half spend 2 weeks or less and two-thirds spend 4 weeks or less per year in the home. Also, only 12 percent of owners intend to sell their main home and eventually occupy their second home. (p. 2)*
- The report indicates that the rate of second home ownership among 50 to 60 year olds did not grow over the 1992-2004 period. As stated in the report:
Despite anecdotal evidence, the rate of second-home ownership among 50-60 year olds – the peak demanders for these properties among older households – has remained flat over the 12-year period from 1992-2004. The Early Baby Boomers were no more likely to own such homes than older cohorts of homeowners. (p. 3)
- Despite this finding, the study projects that the number of second homes in the U.S. will grow by 36% between 2004 and 2020 as older households comprise a greater population share.

The Engelhardt, 2006 study also showed that empty-nest retirement-age suburban homeowners in the U.S. did not move to urban areas in great numbers. In fact, the study projected that only 2% of all empty-nest retirement-age suburban homeowners can be expected to move to an urban area in a given five year period. The study found that suburban empty nesters are just as likely to move to a non-metropolitan area as they are to urban areas.

The report drew the following conclusion about second home ownership:

Although the housing and mortgage markets associated both with second homes and empty-nest movers are small, they will experience sustained growth as the Baby Boomers age, simply because of the sheer size of the Baby Boom cohort. In the next ten years, the number of second homes is forecast to grow by 2 million housing units according to these projections. (p. 4)

The June 2003 CMHC Challenges and Opportunities report presents the following outlook for the home building and renovation industry:

An aging population with an increasing propensity to remain as homeowners, younger generations facing less job security and looking for flexibility and diversity in housing, tenure and financing options, and an increasing trend to multi-generational households and related housing needs will present the industry with challenges to respond with diversity, flexibility and affordability in design, construction, renovation, financing and tenure options. (p. 7)

2.3.4. Migration and Immigration

Immigration will be one of the most important drivers of the demand for housing in the future. The CMHC, June 2003 Socio-Economic Trends report notes that immigrants settle almost entirely in large cities and often face limited housing options in the early years of their residency in Canada. Many immigrants become renters but move to home ownership after they live in the country for 15 to 20 years.

The undated CSC Labour Requirements from 2007 to 2015 report indicates that immigration will be a key source of demand for housing in Nova Scotia in future years. The assumption for immigration policy and levels used in the report is summarized as follows:

It is assumed that the federal government will increase annual immigration levels over the projection period in line with labour force requirements. (p. 40)

The report also summed up the overall growth prospects for Nova Scotia as follows:

Additional immigration is the main source of workers across the country. The province's potential economic growth over the next 10 years is largely constrained to productivity growth plus the contribution to labour force growth that results from attracting workers from the rest of the world. (p. 41)

The importance of migration and immigration is highlighted in the following quote from the Thomas, October 2005 report:

... the housing market is tied to migration, both within Canada and from abroad. People moving to a new area need housing. Some will rent and others will buy. For more than a decade, immigration from abroad has been sustaining the size of our population and the formation of new households. According to the Census, the number of households grew by 7%, or about 734,000, between 1996 and 2001. Almost one-third of this growth was due to an increase in households where the primary maintainer (the person who pays most of the bills) is foreign-born. (p. 3.5)

The June 2003 CMHC Challenges and Opportunities report cites evidence that there is significant regional variation in employment growth in Canada. Variations in employment growth translate into migration from areas of low growth to high growth. In-migration is associated with increased housing activity while out-migration, notably from rural areas, has a negative effect on housing activity.

The CMHC, June 2003 Socio-Economic Trends report notes that housing activity in Atlantic Canada and Quebec, and rural areas of Canada, has been negatively affected by low levels of employment increases and out-migration.

2.3.5. Labour Force Changes

The CMHC, June 2003 Socio-Economic Trends report identified the following key labour force changes affecting the demand for housing in Canada:

- A polarization of the labour market into high paying and low paying jobs has a direct impact on the demand for housing. High paying jobs create demand for high-end housing while low paying jobs that may be part-time and/or impermanent make it difficult for a significant portion of the labour force to access adequate and affordable housing without spending a disproportionately high share of their incomes. Aboriginal people, immigrants and youth make up a disproportionately large share of the low paying wage earners.
- Increased participation rates for women have had a positive effect on housing markets by increasing the disposable income of households.
- Most growth in the labour force, particularly in the high end of the job market, has been and is expected to remain in large urban centres.
- Individuals in rural areas that do not have the skills required to participate in the modern economy will experience “spatial entrapment” where their inability to sell their existing house will reduce their ability to move from their rural location. Low income inner city dwellers without the skills required by the modern economy will experience the same problem.

The June 2003 CMHC Challenges and Opportunities study is clear that labour availability is a major issue for the home building industry and that labour shortages will increase building costs and limit industry’s ability to respond to housing demand.

2.3.6. Housing Prices and Builder Profitability

The June 2003 CMHC Socio-Economic Trends study found that housing prices increased at a lower rate than the Consumer Price Index in Canada between 1986 and 2001. The result was a gain in purchase value by consumers at the expense of builders whose profit margins became narrower. Research conducted by the Canadian Home Builders’ Association was cited that suggested that builders’ labour and materials costs increased much more than house prices up to 2001.

2.3.7. Regulation, Increased Infrastructure and Service Costs

The June 2003 CMHC Socio-Economic Trends report found that the cost of infrastructure and services provided by municipalities was rising and that these costs are borne by home builders. These rising costs were said to be hindering the potential growth of new housing sales.

The June 2003 CMHC Challenges and Opportunities study documented the emergence of liability as a significant concern for home builders in the 1990s. This increased the cost and complexity of operating a home building company.

The study also identified the implementation of building codes as another major trend that occurred in the 1990s.

The groundwork has begun for a big change to building codes with the creation and use of more flexible objective-based codes intended to encourage innovative approaches to construction. The first edition of an objective-based code is expected in 2003. (p. 3)

The study showed that the home building industry is becoming more mature and professional as described in the following quote:

There is a demand among builders for regulatory reform which recognizes, supports and rewards varying degrees of professionalism in the industry. Builder occupational licensing and mandatory warranties are expected to become more important throughout the country in the future. (p. 3)

The study also reported on progress in adapting regulations to emerging trends as demonstrated in the following quote about urban development trends:

The move to more sustainable urban development generated opportunities for creative design for infill and higher density housing, and was supported by increasing use of innovative regulatory tools. (p. 4)

The June 2003 CMHC Challenges and Opportunities report predicted that municipal governments will play an increasingly important role in regulating the housing industry.

The trend will likely be for provincial governments to continue to offload responsibilities to the local level. Municipalities, however, have expressed the concern over their financial capacity to take on these new responsibilities under existing revenue-generating mechanisms. (p. 6)

2.3.8. Economic Drivers of Renovation Spending

The Gardner Pinfold and Collins Management, March 2004 report summarized findings from a CMHC website⁶ including the following interesting insight:

Resales are a principal driving force behind renovation spending. The historical correlation between renovation and home resales is strong because households generally undertake renovations within the first three years after buying a house. (p. 20)

The report provided a discussion of trends in the renovation industry in a Nova Scotia context. It noted that the renovation market in Nova Scotia mirrors the kinds of activities underway in other parts of the country and in the U.S. but that our unique economic and demographic structures, as well as our settlement patterns, have an important influence on the demand for home renovation in the province.

The Gardner Pinfold and Collins Management, March 2004 report identified the following key drivers of renovation spending in Nova Scotia:

- *Low mortgage interest rates have also encouraged homeowners to refinance their homes to facilitate significant renovation and improvement activities.*
- *The investment potential of real estate, in contrast to the stock market or other more volatile investments, has increased the interest of homeowners in renovating their existing homes.*
- *Outside of the HRM, housing starts have declined over the past few years. In the absence of new homes, renovation activity has increased.*
- *The moratorium on new housing construction in the HRM will likely increase the demand for renovation, as homeowners and potential homeowners seek to improve existing properties in the absence of new construction. (p. 21)*

The report quoted the National Association of Homebuilders (NAHB) in the U.S. as estimating that 1994-95 spending by Do-It-Yourselfers (D-I-Y) was just over 40% of the total annual purchases of products used in remodelling. The report noted that the number of D-I-Y would decline due to demographics and made the following observation on the implications of this trend.

⁶ See: http://142.206.72.67/03/03c/03c_003c_e.htm#supp01.

The D-I-Y market is shrinking due to the aging market. As people age they are less likely to take on projects themselves and hire the trades persons they need to undertake renovation projects on their homes. This trend points to increasing demand for renovation professionals. (p. 14)

This finding was supported by findings from “The Home Depot 1997 Annual Report” which was also reviewed in Gardner Pinfold and Collins Management, March 2004 report. The Home Depot report noted that:

As the population ages, many of the D-I-Y will become a buy-it-yourselfers, where they select and purchase the products they put in their homes, but who prefer to hire someone else to complete the project. (p. 15)

2.3.9. A Summary Overview of Key Factors that Affect Housing Demand

The Thomas, October 2005 Socio-Demographic Factors report summed up the primary factors that affect housing demand and the actual influence of these factors on the Canadian housing market as follows:

The relationships between socio-demographic change and housing are complex. At their nexus, however, is household formation and dissolution. The rate at which people set up new households in Canada affects demand for many goods, but economic conditions and prices can also influence the behaviour of individuals to form or break a household. The cost of housing is obviously important in this regard.

There are clearly social and demographic forces including the maturation of the baby-boom-echo, declining household size and immigration that would predict a modest increase in the number of new households and thus the demand for housing over the first half-decade of the new millennium. It is certain, however, that the impact on housing has been amplified by declining interest rates.

While homebuyers have more diverse social and demographic characteristics than in the past, the probability of purchasing a first home is still highest for young couples and the probability of trading up is higher for older higher-income families. For first-time buyers, a certain minimum income is essential, but beyond this threshold the probability of purchasing does not increase.

Thus, over certain ranges, first-time buyers may be particularly sensitive to changes in the cost of buying and financing a home. Young couples may make decisions around household formation, marriage and even childbearing according to the cost of housing. These decisions have social and demographic implications that in turn feed back into the economy. (pp. 3.8-3.9)

The Thomas, October 2005 study predicted a modest overall increase in the demand for housing in Canada and pointed to immigration as the primary driver of increased demand.

2.4. The Supply of Skilled Trades Workers in the Residential Construction Industry

2.4.1. The Impact of Skills Segmentation

The October 2005 PRAXIS report entitled “Skill Requirements and Training for Carpenters in the Residential Construction Industry in Nova Scotia” showed that the National Occupational Classification system (NOC) groups trades workers into one designated occupation regardless of skill levels, certifications and specialties. This practice makes it difficult to assess demand and supply conditions because demand and supply vary significantly according to the skills, skill levels and accreditations of trades workers.

This is a particular problem for carpenters because certification for this trade is not mandatory. Workers with little knowledge and skill can work as a carpenter and be classified as such in official statistics. It is impossible to determine the proportion of highly skilled or journeymen carpenters by examining official government data based on the NOC system. This reality has important implications for studying the demand and supply of carpenters as shown in the following quote based on labour market reviews completed by PRAXIS in Prince Edward Island and Newfoundland & Labrador.⁷

These studies show that employers and carpenters both believe that the carpentry labour force is segmented based on skill levels and that demand and supply conditions are different for the skilled and unskilled segments of the workforce. The PRAXIS research indicates that skilled workers are in high demand and short supply whereas there is a surplus of unskilled workers. (p. 12)

⁷ See: (1) PRAXIS Research & Consulting Inc., A Human Resources Study of the Construction Industry on Prince Edward Island – Findings and Policy Considerations, August 2004; (2) PRAXIS Research & Consulting Inc., A Human Resources Study of the Home Building and Renovation Sector, Phase III, for Newfoundland & Labrador, Key Findings, January 2004; (3) PRAXIS Research & Consulting Inc., A Human Resources Study of the Home Building and Renovation Sector, Summary Findings and Policy Implications for Newfoundland & Labrador, May 2005.

2.4.2. Recruitment Problems

The October 2005 report prepared by PRAXIS concluded that the recruitment of carpenters into the labour force declined precipitously in Nova Scotia, Prince Edward Island and Newfoundland & Labrador since the early 1990s. The literature also indicates that significant problems exist with respect to the supply of apprentices. For example, the undated CSC Labour Requirements from 2007 to 2015 report provided the following data on the apprenticeship program in Nova Scotia.

The total number of registered apprentices in the system declined 3% in 2006, while completions declined 9%. These results reflect a large increase in cancellations. One positive sign was the large increase in new registrations. (p. 48)

2.4.3. Demographics

The March 2007 Nova Scotia Construction Sector Council report entitled “The 2007 Labour Market Assessment of the Industrial-Commercial-Institutional Construction Sector of Nova Scotia” notes that Nova Scotia has the oldest provincial population profile in Canada. It indicates that the supply of senior trades people in supervisory and foremen capacities could be a problem in the future.

The situation for both employers and workers is exacerbated by the period between the mid 1980s and mid 1990s which saw fewer “new entrants” to the labour market. The conventional thinking is that workers in the 35- to 45-year age range are relatively fewer than those they would otherwise replace as older workers retire – in other words, fewer workers will be in place to take over from those who retire. This has significant implications for succession in the labour market and for inter-generational transfer of skills accumulated via on-the-job experience. The implications for supervisory and foreman capacity could be significant. (p. 36)

The undated CSC Labour Requirements from 2007 to 2015 report noted that predictable demographic changes in the Canadian population will have a huge impact on the demand and supply of skilled trades in the residential construction industry as described in the following quote:

During this period an important structural shift in demographics limits the growth of the overall population across Canada, and the labour force available for employment. This new reality applies across business cycles, in all provinces and industries and is expected to grow more intense. Canadian economic growth may be restricted by a relatively smaller pool of workers seeking jobs, and by lower unemployment rates. (p. 39)

The CSC report also uses the concept of replacement demand, which it defines as follows:

The calculation of replacement demand estimates the number and proportion of the workforce in each trade that is expected to leave the labour force (retire) and must be replaced between 2006 and 2015 to sustain the workforce present in 2005. (p. 48)

The report notes that replacement demand becomes an increasingly important factor affecting the balance of demand and supply for trades workers over the forecast period.

As the expected number of exits grows later in the forecast period, it is common for replacement demand to actually exceed the demand for new workers related to additional building activity. These demographic trends will gradually erode the available workforce and will create labour shortages in the face of what might now be considered moderate demands. (p. 49)

Retirements are expected to significantly reduce the supply of trades workers in the latter part of the 2007-15 period. The CSC report predicts that housing demand will revive after 2011 and that the resulting increase in demand, combined with the decrease in supply due to retirements, will contribute to an excess of demand for the skilled trades.

2.4.4. Mobility by Industry Sector

The October 2005 PRAXIS report provided evidence that there were limitations to the degree of mobility between home building and renovation sector of the construction industry and other sectors of the economy (pp. 5-6). These limitations affect the balance of demand and supply for carpenters in home building and renovation and in other sectors of the economy.

The PRAXIS report also presented the following findings from a study completed by PRISM Economics:⁸

A mobility study completed by PRISM Economics reported that 34.6% of carpenters in a national survey worked in both residential and non-residential building. The PRISM study indicates that this percentage was

⁸ PRISM Economics and Analysis, The Mobility of Construction Workers, July 2001.

somewhat higher than the 28.5% reported by the Commission de la construction du Québec (CCQ) for carpenters in Quebec. (p. 10)

The PRAXIS report also reviewed the findings related to labour mobility from a 2004 PRAXIS study⁹ prepared for CMHC. The 2004 PRAXIS study examined industry mobility data from two PRAXIS surveys of carpenters who drew Employment Insurance in Prince Edward Island (PEI) and Nova Scotia in 2002. The data show that 37% of the carpenters surveyed worked exclusively in residential construction in PEI and Nova Scotia in 2002. Twelve percent worked exclusively non-residential construction and 45% worked in both sectors.

The PRAXIS study concluded that:

... there is evidence of a distinct labour market for residential construction. (p. 11)

Key barriers to mobility between sectors were differing wage levels and unionization.

The Nova Scotia Construction Sector Council, March 2007 study noted that there was some degree of mobility between the ICI and residential construction sector, at least in times of low ICI activity.

The data (and convention) suggests that some of the swings in ICI construction demand are mitigated by available work in residential building and renovation... (p. 34)

2.4.5. The Implication of Changes in Consumer Preferences for Skills and Training

Section 2.2.2 of this report cited the CMHC, June 2003 Socio-Economic Trends study as showing that renovation activity was increasing as a proportion of total residential construction spending. Given that this increase is projected to continue, renovation-related skills will become increasingly important in the future. One area of renovation where new skills and training will be required is in the installation of universal design products to accommodate an aging population with decreased mobility (Gardner Pinfold and Collins Management, March 2004). The Gardner Pinfold and Collins Management, March 2004 report noted the increased incidence

⁹ PRAXIS Research & Consulting Inc., Report on Skilled Construction Labour Segmentation, October 2004.

of home entertainment centres with appropriate electrical infrastructure, acoustical insulation, sound barriers and full security systems. These innovations require specialized skills and training.

The increased importance of energy-saving and environmental aspects of housing (June 2003 CMHC Socio-Economic Trends study) suggests increased emphasis should be placed on training to provide these skills to trades workers. The Gardner Pinfold and Collins Management, March 2004 report noted that skills involved in energy retrofitting to upgrade the energy performance of a home were expected to become more important in the future. This report also noted that there would be a demand for specialists involved in assessing air quality and implementing methods to improve it.

The June 2003 CMHC Challenges and Opportunities study identified rapid changes in technology in the home building industry in the 1990s notably in energy-efficiency measures, foundation systems, roofing and the building envelope. These changes would require new skills and changes in training to provide these skills. The report also noted that the objectives-based building code will encourage technological innovation in the future and training would have to respond to the changes in the building code and its implications for the building process.

The growth in installed sales programs by manufacturers, lumberyards and home centres in the U.S. was documented by Gardner Pinfold and Collins Management, March 2004. The Clayton Research, October 2005 report documented an increase in modular housing where discrete components of a home are constructed off-site. These trends suggest that home building and renovation could occur more “off-site” and the skills involved in these processes could become narrower and more specific to the construction process utilized used by employers.

The U.S. review completed by Gardner Pinfold and Collins Management, March 2004 also noted an increase in the incidence of financing and credit provision by contractors in the home building and renovation industry. This trend could have significant implications for home building and renovators in Canada where the industry is dominated by small, independent firms. It also would imply that increased sophistication in business and financing aspects of the business could become important to contractors.

2.4.6. The Impact of the Underground Economy

The June 2003 CMHC Socio-Economic Trends report identifies the introduction of the Goods & Services Tax (GST) as a particularly serious issue in increasing housing costs and promoting the expansion of underground activity, especially in the residential renovation sector. The existence of a significant underground economy limits the profits of legitimate home builders and renovators and consequently reduces the wages they can pay to trades workers. This negatively affects the recruitment and retention of trades workers. The existence of a significant underground economy also negatively affects the professional image of the trades.

2.5. The Balance of Demand and Supply for Residential Construction Trades

2.5.1. Quantitative Information

The undated CSC Labour Requirements from 2007 to 2015 report drew the following conclusions regarding employment in Nova Scotia in trades linked closely to residential construction:¹⁰

... trades linked to new residential building show (more) modest growth in 2007 and 2008 and then limited declines until 2012.

The larger trades, including plumbers, carpenters and electricians are employed in most sectors, and their employment profile often conceals shifts among sectors. Other trades (e.g., roofers and shinglers) find significant work in maintenance and repair activity that is less cyclical.
(p. 46)

The CSC study projected negative employment growth in 2009 and 2010 for the important carpentry trade in Nova Scotia followed by growth of 3% over the 2011-15 period.

The report also presents the following outlook for the demand and supply of trades from 2009-15.

¹⁰ These trades are: Bricklayers, Carpenters, Electricians, Elevator Constructors and Mechanics, Glaziers, Painters and Decorators, Plasterers and Drywall Installers, Plumbers, Refrigeration and Air Conditioning Mechanics, Roofers and Shinglers, Sheet Metal Workers and Tilesetters.

Conditions shift in 2009 and 2010, with unemployment rising quickly back to levels above recent historical values.

Over the long-term, from 2011 to 2015:

- *Residential construction resumes growth in response to rising immigration, and non-residential construction follows the trend with more limited increases.*
- *As construction activity regains momentum, the provincial labour force also expands moderately.*
- *Demographic trends begin to play a major role as more workers retire.*
- *Required additions to the workforce to replace retiring workers combine with new jobs related to building in most sectors so that:*
 - *Recruiting and additions to training programs continue to be a priority.*
- *Depending on the age profile of the trades, a relatively large number of older workers will consider retirement ... (p. 46)*

Highlights of the forecast made in the CSC report include:

The surge in construction in 2006 drove the unemployment rate to a record low level.

Historically low unemployment rates will persist in 2007, as the current cycle peaks.

A significant drop in employment in 2009 and 2010, as the cycle reverses, sends unemployment upwards, but it stops rising short of 16%, below traditional levels for weak markets.

As construction activity regains momentum after 2012, especially in the residential sector, unemployment drops rapidly, reflecting the very slow growth in the overall provincial workforce later in the forecast period.

The natural or historical unemployment rate in construction, which averaged around 16%, provides a long-term perspective on the forecast. Over the forecast period, the cyclical drop in employment in 2009 and 2011 drives the rate up to just above 15%. Historically, a cycle of this magnitude would have raised unemployment far higher. (p. 51)

The CSC study sums up the impact of residential and non-residential construction spending on the demand for trades workers as follows:

Commercial building and renovation and maintenance work show more regular growth and will offer jobs for some workers displaced from new housing. (p. 44)

The report comments as follows on the balance of demand and supply of carpenters over the forecast period.

Residential, commercial and renovation demands are all declining or growing moderately until 2011. Housing strengthens after 2012 and replacement demand rises for this trade. Markets tighten later in the forecast. (p. 52)

2.5.2. Labour Shortages

The CMHC, June 2003 Socio-Economic Trends report contends that skilled labour shortages in residential construction trades are decreasing the ability of home builders to meet the demand for housing. Skilled labour shortages may result in higher prices for home building and renovations and act as a constraint on the number of houses built and renovations undertaken.

The Nova Scotia Construction Sector Council, March 2007 Labour Market Assessment study reported the results of a survey of trades workers in the ICI sector of the construction industry. The survey found that approximately 30% of survey respondents were unemployed at the time the survey was undertaken. The authors concluded that ... *the 64% employment rate suggests strongly that some slack exists within the construction labour force.* (p. 15)

The report noted in a footnote, however, that apprentices were over-represented in the study. Employment conditions for apprentices are likely more difficult than for more experienced trades workers. If this were the case, the unemployment rate for the population of trades workers could be lower than that reported above.

The report also included findings from interviews with union Business Managers who summed up the current labour market situation, and the outlook for the future, as follows:

There is no [current] shortage [of workers]. We have 20% of our membership unemployed and we have had up to 30% unemployed from time to time. Over the next 20 years we will see fewer peaks and valleys, so that the construction trades will be a better career choice and competitive with other industries, even though there will still be some need to be mobile. (p. 27)

The report also noted that there is a direct connection between the skills shortages reported by employers in the construction industry and the level of wages paid by these employers:

The issue of skills shortages is one where those people who are experiencing a shortage are unwilling to pay high enough wages to attract skilled workers. (p. 27)

The report identified emerging shortages for foremen and supervisors and explained the lack of a significant wage premium for these positions and liability concerns were the primary reasons for the emerging shortages.

2.5.3. Mobility, Migration and Immigration

The Nova Scotia Construction Sector Council, March 2007 report found that out-migration from the province was tipping the balance of the demand and supply of trades workers more towards shortages in some instances.

In at least one circumstance, we found that out-migration has so outpaced the work shortage problem that completing currently available work with the reduced workforce is itself a challenge. (p. 37)

The report also found that just over three-quarters of ICI workers surveyed did not plan to move for work but noted that: the "... survey process was not able to reach those who have already moved" (ES, p. v). The survey found that ICI workers were less willing to travel than in recent years but once again cautioned that the survey did not include workers who were working out of the province.

The undated CSC Labour Requirements from 2007 to 2015 report indicates that the demand for skilled trades people in Western Canada will continue to reduce the supply of workers in Nova Scotia up until 2011.

... demand for skilled trades in the West continues until 2011, so the province will still be required to compete to retain some trades on local job sites. (p. 39)

2.5.4. Implications of the Changes in Housing Demand for the Demand for Skilled Trades Workers

A number of reports reviewed for this study showed that the size of houses was increasing as was the time taken to construct them. This trend may result in an increase in labour input per unit of housing.

The Clayton Research, 2005 report documented an increase in modular housing while the Gardner Pinfold and Collins Management, March 2004 report identified a growth in installed sales programs by manufacturers, lumberyards and home centres. Increases in off-site construction of components of a home could decrease the demand for carpentry trades workers and increase demand for workers with specific skills applied to a limited range of activities.

The prospective decrease in Do-It-Yourselfer activity discussed in the Gardner Pinfold and Collins Management, March 2004 report may increase the demand for trades workers involved in renovations.

2.5.5. Regional Differences

The March 2007 Nova Scotia Construction Sector Council report notes that unemployment was more prevalent in rural areas and in Cape Breton than in other parts of the province. It concludes that:

... sufficient labour supply is not typically perceived as an issue in Cape Breton, for example. (p. 37)

The report indicates that the lack of work in rural areas and in Cape Breton may influence the retirement age of trades workers outside the Halifax area. As stated in the report:

We do not have a manpower shortage on Cape Breton Island – the economics speak for themselves with 80 to 85% unemployed trades workers in some locals.

The situation is not the same across Nova Scotia – rural areas and less buoyant economies face an even greater challenge. For example, between Cape Breton and Mainland Nova Scotia there is a difference where workers will work longer (more years) in Cape Breton because the spotty employment track has left them in a position where their pensions are insufficient to support them in their retirement years. As a result, these workers will remain employed for as long as possible. (p. 24)

2.6. Key Policy Variables that Affect the Supply of Skilled Trades in the Residential Construction Industry

2.6.1. Training and Apprenticeship

An October 2005 report prepared by PRAXIS concluded that the trades training and apprenticeship programs in Nova Scotia, PEI and Newfoundland & Labrador (NL) contributed to the recruitment and labour supply problems for carpenters in a number of ways:

- *... lack of familiarity and exposure to the trades in high schools limits the number of young people who choose carpentry as a career option and also may reduce apprenticeship completion rates for those who choose to take this program. Data from PEI and NL show that a small minority of apprentices in these provinces enter the program directly out of high school. (p. 4)*
- *Low apprenticeship completion rates limit the supply of carpenters across the entire country. (p. 5)*
- *Research completed by PRAXIS in NL and PEI shows that graduates from institutional carpentry training had difficulty finding employment upon graduation for two reasons: (1) employers felt that graduates often lacked practical carpentry skills and were not “job ready” and (2) graduates of training institutions did not have the industry contacts and “track record” that enabled them succeed in the job market.*
The lack of job readiness among graduates of training institutions was attributed by employers to an inadequate integration of classroom training and work on job sites. Findings from consultations held by the Co-chairs of the Apprenticeship Public Consultations to the Nova Scotia Provincial Apprenticeship Board indicate that the integration of classroom training and work on job sites also is perceived to be an issue in Nova Scotia. (p. 5)
- *Surveys in PEI and NL completed by PRAXIS indicate that employers do not look to the institutional training system as a source for new (carpentry) workers. (p. 6)*
- *Employers in PEI and NL provided very specific advice on how to improve carpentry training to better suit the requirements of the residential construction industry. The most important improvements suggested by employers were more effective industry input into the training system, more effective linkages of training with on-the-job experience and the use of short training modules to provide specific skills required by workers. (p. 6)*

The October 2005 PRAXIS report quoted from a 2002 report on the apprenticeship program to sum up the situation in Nova Scotia as follows:

The need to expand the number of apprentices entering the system, successfully completing the program, and achieving certification within as short a time as possible is critical to responding to anticipated labour market conditions. It is anticipated that we will need to double the number of new apprentices registering with the system by 2007. To achieve the objective of qualified journeypersons in Recommendation 1, the completion rate and the average time to complete will both have to improve.¹¹ (pp. 6-7)

The March 2007 Nova Scotia Construction Sector Council report indicates that the lack of training capacity negatively affected the supply of skilled trades workers in some trades.

Currently, there is not enough capacity within the NSCC and private training providers to fill the demand for apprentices and journeymen in the electrical trades and to a lesser extent, in carpentry, CAD and some smaller trades. (p. 35)

The October 2005 PRAXIS report provides a detailed description of the training and certification system and requirements for carpenters in Nova Scotia. Institutions, structures, processes and authorities within the training and apprenticeship system in Nova Scotia are outlined in Section 5.1 of that report. Section 5.3 of that report presents the recommendations of the AHB&RSC for changes to the system. These are:

Recognition of trades specializations and the provision of industry approved credentials for individuals completing the requirements of each trade specialty. (p. 20)

Trade specialties include finish carpentry and framing.

The initiation of Sector Council leadership in working with apprentice employers, to ensure: professional employers, safe work sites and qualified journeypersons as mentors. (p. 21)

Increased Sector Council involvement in the delivery of industry training, particularly overseeing the administration and required documentation where 'brokering' is required between employers to ensure that students are exposed to the full range of required skills. (p. 21)

¹¹ Report of the Co-chairs of the Apprenticeship Public Consultations to the Nova Scotia Provincial Apprenticeship Board, Apprenticeship – Achieving Excellence through Partnership, December 2002; p. 19.

The Gardner Pinfold and Collins Management, March 2004 report notes that trades-related training across Canada is not incorporating any specific elements to differentiate between new home construction and renovation. It notes that business management skills are becoming part of the certification process in British Columbia and notes:

Nova Scotia's interest in examining the functional differences in trades training for new home construction and renovation is leading edge. (p. 56)

The October 2005 PRAXIS report includes recommendations of a 2003 report produced by PRAXIS:¹²

- Recognition of Home Building and Renovation (HB&R) as a separate sector within the construction industry for the purposes of human resource management and training.
- Training and certification for trades specializations. As noted in the PRAXIS report:

Employers, and many students and apprentices, are interested in shorter-term, modularized training to provide advanced competencies as framers, drywallers, finish carpenters, roofing specialists, etc. (p. 39)

The PRAXIS report recommends the adoption of a competency-based training system that is defined as follows:

'Competency-based assessment' is an alternative approach to certification that focuses on the actual ability to carry out workplace tasks and responsibilities rather than on the traditional training 'credentials'. It does not matter how the individual acquired the competency – the challenge is simply to determine whether s/he has it. (p. 41)

The PRAXIS report identifies a Competency-based Assessment Grid that was reviewed and revised by industry.

The grid contains five levels of competencies as identified by employers in various sectors of the residential construction industry: (1) Entrant Helper, (2) Apprentice, (3) Journeyman, (4) Master and (5) General Manager/Owner Operator. (p. 42)

¹² PRAXIS Research & Consulting Inc., Report on Research and Consultations – Competency-based Assessment Framework for the Residential Construction Sector, March 23, 2003.

2.6.2. Alternative Approaches to Training and Certification in Western Canada

Training systems for trades in the home building and renovation industry in Saskatchewan, Alberta and British Columbia were reviewed in the October 2005 PRAXIS report. The report includes a detailed presentation of the emerging systems for trades training in this industry in each province. The three provinces all are developing training programs that are based on modularized training for trades specialities in home building and renovation.

The benefits of this type of training are that:

- Individuals are trained faster as a result of a shorter curriculum.
- There is less attrition and students are taught in a more focused way.
- Courses are more easily changed in response to changes in techniques and materials in the industry.
- Trainees do not have to travel to the same degree as under the previous training system and their training costs are lower.

3. FINDINGS FROM INTERVIEWS

3.1. Introduction

The interview research carried out for this project addressed seven tasks identified in the Request for Proposals for this project:

1. A projection of demand for housing and renovations in Nova Scotia over the long-term (Task 1).
2. A projection of the demand for skilled trades that results from the demand for housing and renovations (Task 2).
3. A projection of the balance of supply and demand for skilled trades in the housing and renovations sectors in Nova Scotia (Task 3).
4. An analysis of expected changes in factors influencing the type of homes built in Nova Scotia and the type of renovation activity undertaken in the future. These changes include: changes in building methods and materials, energy efficiency practices, consumer tastes and preferences, changing demographics and migration, and changes in the size and value of homes and renovations completed in future (Task 4).
5. An assessment of the implications of the changes described in Task 4 on the demand for specific skills and specialties within key trades (Task 5).
6. Identification of specific skills that are projected to be in shortage or surplus (Task 6).
7. An identification of key policy variables that affect the supply of skilled trades people and specific skills and specialties within the trades (Task 7).

In this research component, structured interviews were conducted with the following individuals:

- Mr. Trent Soholt, Executive Director, Nova Scotia Construction Sector Council
- Ms. Carol MacCulloch, President, Construction Council of Nova Scotia

- Mr. Jeremy Neily, Economist, Labour Market Partnerships Division, Nova Scotia Department of Education
- Mr. Barry J. Soper, Economist, Service Canada
- Ms. Suzanne Drapeau, Manager, Institutional Research & Analysis, Nova Scotia Community College (NSCC)
- Mr. Thomas McGuire, T.M. McGuire Ltd., a Halifax-based consultant who recently completed a study for the AHB&RSC on training needs in the manufactured housing sector in Nova Scotia
- Mr. Alex MacDonald, Regional Economist, CMHC – Atlantic Business Centre
- Mr. Ronald Farrell, Dean of Trades & Technology, NSCC
- Mr. Grant Wanzel, Dean, Faculty of Architecture and Planning, Dalhousie University
- Mr. Kevin Quinlan, Principal, Truro Campus, NSCC
- A small number of home building contractors

3.2. The Demand for New Home Construction and Home Renovation

3.2.1. Housing Development in Urban Areas

An interview with a representative of a housing development company in the HRM area indicates that many homes are being built by companies that develop entire neighbourhoods on land developed by themselves or by another company that specializes in land development. These companies design and build homes that are purchased by buyers in a completed or nearly completed state (“turn-key houses”). According to the representative, this method of building and purchasing new homes has become the norm in HRM. As noted by the representative: “*We build and people buy what we build.*” The representative noted that it was challenging to pre-design homes that would appeal to the buying public and that they “*beat themselves up*” to design the best, most appealing house possible.

The housing development companies sub-contract virtually all of the tasks involved in building a house. They are responsible for housing design, financing, management of sub-contractors, advertising, consumer relations and quality control. Many of the components of the homes built by housing development companies are

completed off-site, including roof trusses and cabinetry. The installation of granite counter tops was one of the few activities completed on-site.

The housing development companies develop long-term relationships with sub-contractors and endeavour to provide sub-contractors with year round work to ensure that exclusive arrangements are made with the most productive and highly qualified sub-contractors. The greatest difficulties are experienced in dealing with sub-contractors involved in siding, roofing and formwork.

3.2.2. Energy-saving and Environmental Changes to Housing

A representative of the NSCC indicated that environmental sustainability has become crucial in construction, but to date this trend has been more apparent in industrial construction than in the residential sector.

3.2.3. Changes in Housing Design and Features

The interview with the representative of a housing development company in HRM indicates that oil heating systems have not been installed in their new homes for the last four to five years. The reasons for this include the cost of oil, the cost of furnaces, and the liability and insurance costs associated with oil tanks. Electric heating has replaced oil as the primary way to heat homes but natural gas will be used when it becomes available.

The representative of a housing development company indicated that air conditioning has become a standard feature in new homes in HRM.

The Executive Director of the Construction Sector Council indicated that technology will have a significant impact on how houses are constructed and renovated. He noted that in Europe and California builders are experimenting with a machine that will build houses and demonstrated changes in electrical and wiring technology that will revolutionize building and renovation.

3.2.4. Manufactured Housing

A small rural contractor interviewed for the study indicated that the share of the home building market in his area taken by modular homes increased by 35% to 45% in recent years. The contractor indicated that modular homes will account for at

least 50% of “starter homes” in rural areas within five years. He also indicated that the manufactured housing industry used to focus on small, entry-level housing but is now building larger homes than in the past.

The interview with a representative of the housing development company in HRM indicates that factory-built housing is not significant in the HRM new home market. New homes are primarily built by developers using sub-contractors but, as is the case with factory-built housing, a great deal of the construction of homes occurs off-site. Specialized sub-contractors are used to complete each component of the house.

An interview with an expert on the manufactured housing industry indicates that the production of modular components and manufactured homes has the following advantages:

- Manufacturing is completed in a controlled environment and can take advantage of economies of scale arising from the manufacture of large numbers of units.
- Manufacturers may have significant buying power due to their size leading to lower costs for materials and services. The expert interviewed for the study indicated that material costs could be cut by approximately 18% compared to on-site construction processes.

The manufactured housing expert indicated that 90% of factory-built homes are entry-level homes although no data exist to support this assertion. He did not see the industry moving into the market for large custom-built houses but felt that it had potential to expand its market share in the manufacture of condominiums in urban areas and housing for seniors who are downsizing.

The expert indicated that factory-built homes have suffered from the stigma of low quality and that this has limited the introduction of manufactured homes into higher-end housing markets. Another disadvantage faced by the manufactured housing industry is that it can be difficult to secure an adequate workforce in the rural areas where manufacturing facilities usually are located. The expert noted, however, that manufactured housing could contribute to the resolution of the labour shortage problem that is predicted to emerge for skilled trades in the home building and renovation industry.

The manufactured housing expert indicated that no institutional training exists for workers in the manufactured housing industry. The expert noted that there is a connection between the manufactured housing industry and traditional homebuilders as the latter group puts the modules together when they arrive at the site of the home.

The manufactured housing expert indicated that most factory-built homes are purchased by buyers from rural areas. He confirmed information obtained from other interviews that there is a trend towards off-site construction with manufactured housing being the ultimate end point.

3.2.5. Demand for New Skills

The Dean of Trades & Technology for the NSCC felt that there will be a shift to “bigger construction” – more larger buildings including condos and other multi-unit housing in higher density areas – because of rising land and energy costs. He also felt that there will be a shift to restoration and retrofitting in built up urban areas and away from low-density green-field developments in the suburbs. He predicted that there will be more and more concern about living where people have access to public transportation and that there will be a reduced dependence on cars. These changes will demand new skill sets for renovators particularly.

For new home construction, the Dean felt that there will be less stick built housing – a lot more manufactured and semi-manufactured housing. He noted that it is much more efficient to build houses in a controlled environment and that only larger companies can do this.

He also felt that there may be less demand for fully skilled journeypersons in the future.

The Dean noted that colleges in Ontario have developed new training programs to serve new construction processes.

3.2.6. Housing Trends

The most important trends in the kinds of houses that will be built, and how they will be built, were identified by the Dean of the Faculty of Architecture and Planning, Dalhousie University as follows:

- Energy costs will have a huge impact on where, what and how we build. People will simply not be able to afford to live in widely dispersed, low-density housing. The way we build will have to change because we will have no choice. We will have to end the waste of energy and materials. There will be much more recycling of building materials to avoid landfill costs and to reduce construction costs.
- Today's houses have much better insulation and that air exchangers are required in highly insulated, tight buildings. Houses must perform at a much higher level from an energy and environmental point of view. As building standards increase, the costs of housing also rise. Homeowners will not be able to afford to build to increasingly higher standards.
- The other area of change is housing density. There are no longer the resources to support low-density development in terms of land and energy costs. This will change the province and HRM a lot. The form of housing will have to change to support higher densities.
- We have to see the home in the wider context in terms of infrastructure (sewage, fire/police protection, garbage, police, highways, snow removal, etc.), public transportation and services (schools, hospitals, retail, etc.).
- Transit will have to be more broadly used – we cannot afford to subsidize transit to a widely dispersed population.
- Taxes will have to go up to support infrastructure renewal. At present the political process is working against reality. This is a sharp contrast to European models where these issues are being addressed now, not waiting until it is a crisis.
- HRM will continue to grow and many parts of the province will decline. There will be greater concentration of population in HRM, and within the urban core of HRM.

3.3. Key Influences Affecting Housing and Renovation Demand

3.3.1. Demographic Changes and Household Formation

Interviews indicate that the rapid growth of the Aboriginal population in Nova Scotia stands in contrast to the very limited growth of the general population in the province.

3.3.2. Migration and Immigration

Interviews with government officials indicate that the high level of out-migration from the province that has occurred in recent years should decrease for a variety of reasons:

- Many workers have already left the province and the labour demand and supply imbalance that precipitated the out-migration have been mitigated.
- Some of the workers who left Nova Scotia are returning to retire here. Others work temporarily in Western Canada and return to the province between work assignments.
- Governments are making significant efforts to increase the number of immigrants in the province. It is anticipated that most of the immigration will occur in the HRM.

Immigration and the return of workers from Western provinces will increase the demand for home building in the province. Many immigrant and returning workers are affluent with substantial amounts of equity. As a result, their move to the province will add substantially to housing demand. The Executive Director of the Construction Sector Council noted that the coastal location of Nova Scotia, and its proximity to the New England states and Europe, will add to the demand for housing in the province in the future. He also noted that migration within the province will substantially affect housing demand with growth in demand in the HRM and decline in Cape Breton and rural areas.

3.3.3. Housing Prices and Builder Profitability

The representative of a housing development company in HRM indicated that the prices of houses have increased significantly in recent years driven by a rapid

escalation of land prices. The prices of wood products used in house building have decreased as an overall percentage of the cost of a home.

The rise in prices in recent years has not, in the opinion of the representative of the housing development company, deterred home buyers who are willing to take on significant debt and allocate an increasing share of their disposable income to housing costs.

Covenants implemented by land developers have also added to housing price increases in HRM in recent years.

3.4. The Supply of Skilled Trades Workers in the Residential Construction Industry

3.4.1. Succession and the Future of Owner-operator Contractors

The small rural contractor indicated that independent owner-operators in the home building industry are a “dying breed”. One factor driving the demise of independent owner-operators is the lending policies of banks that increasingly want to know with certainty the total value of a mortgage before they agree to lend money. They are increasingly unwilling to be exposed to cost overruns on custom built houses. The contractor indicated that 98% of homes go over budget when the owner acts as the general contractor.

The rural contractor indicated that banks favour customers who purchase “turn-key” or manufactured houses that are already built and/or where prices are known with certainty. Owner-operators are responding to this reality by increasingly buying land and building homes that they sell to buyers upon completion. This requires the contractor to have significant financial resources and the ability to absorb significant financial risks. It also places small contractors at a disadvantage compared to larger firms such as manufactured housing companies and building supply chains that are moving into the “turn-key” housing business.

3.4.2. The Impact of the Underground Economy

The rural contractor felt that owner-operators were having difficulty running viable, profitable businesses because their ability to raise wages was constrained by the existence of a significant underground economy at a time when workers were demanding high wages. He indicated that many small contractors were “*one roof away from bankruptcy.*”

3.4.3. Succession Issues

The rural contractor was worried for the next generation of owner-operators in the home building business. He did not see many young people entering the business and felt that the financial requirements of entry were increasing rapidly making it increasingly difficult for young people to become contractors.

3.4.4. Training by the Nova Scotia Community College

3.4.4.1. Increasing Demand for Key Trades

The NSCC provides certificate and diploma programs for many of the construction trades included in this study. Data provided by the NSCC indicate that demand for training in some key trades increased significantly in the last five years. For example the number of individuals who applied for the trades training, and indicated that the Carpentry Diploma program as their first choice, almost doubled from 233 in 2002-03 to 424 in 2007-08. The data indicate that the diploma program had the capacity to accommodate only 40% of those who chose the Carpentry Diploma program as their first choice in 2007-08.

Over the same period, the number who applied for the trades training, and indicated that the Electrical Construction and Industrial Certificate program was their first choice, rose by 70% from 371 in 2002-03 to 629 in 2007-08. This program had the capacity to accommodate just over 30% of those who made it their first choice in 2007-08.

For plumbing, the number of individuals who applied for the trades training, and indicated that plumbing was their first choice, increased by 74% from 98 in 2002-03 to 171 in 2007-08 and the Plumbing Program had the capacity to accommodate 45% of those who made the program their first choice in that year.

3.4.4.2. Increasing Enrollment for Key Trades

The NSCC data show that the number of individuals enrolled in the Carpentry Diploma program rose by 77% from 160 in 2002-03 to 283 in 2007-08. Enrollment in the Electrical Construction and Industrial Certificate program increased by 37% from 142 in 2002-03 to 194 in 2007-08. Enrollment in the Plumbing Program dropped slightly from 88 in 2002-03 to 79 in 2007-08.

3.4.4.3. The Number of Graduates in Key Trades

The number of graduates from the Carpentry Diploma course rose from a low of 20 in 2002-03 to 96 in 2006-07. The low starting point in the Carpentry Diploma was because there was a shift in 2001-02 from a one-year certificate program to a two-year diploma program in response to industry's expressed need for graduates with two years of training. The number of graduates from the Electrical Construction and Industrial Certificate program rose from 120 in 2002-03 to 173 in 2006-07 while the number of graduates from the Plumbing Program dropped from 72 in 2002-03 to 58 in 2006-07.

3.4.4.4. Success of NSCC Graduates in the Labour Market

Data provided by the NSCC indicates that 81% to 83% of graduates who responded to surveys over the 2005-07 period were employed in work related to their field of study. Between 12% and 13% of survey respondents were unemployed or not seeking employment over the 2005-07 period.

3.5. Labour Productivity

The President of the Construction Council of Nova Scotia indicated the increase in off-site construction in the residential construction industry may be a reason for the apparent lack of productivity increases in the sector. Off-site construction is completed by specialized sub-contractors who are not often classified in the residential construction industry. The residential construction work done on-site tends to be the difficult and time consuming. As a result, these tasks have the lowest output per unit of labour.

3.6. Recruitment Problems and Labour Shortages

3.6.1. Findings from an Interview with a Rural Home Building Contractor

The small rural contractor indicated that the labour force in the home building sector was “going sour”. By this he meant that it was increasingly difficult to hire trades workers with the skills and work ethic needed to run a profitable business. The contractor felt that a shortage of highly skilled carpenters had shifted the balance of power to the workers and that they “call the shots” now. He has had to look increasingly further a field, and set job conditions to suit workers, in order to acquire the workforce he needs to run his business.

The rural contractor had to charge carpenters out for at least \$35 per hour to break-even. He indicated that it was difficult to charge journeymen carpenters out for this wage because they do not have to be certified and are not viewed by customers as professionals in the same way as electricians and plumbers are. He felt that mandatory certification for carpenters was required to resolve this problem and to create a professional image for carpenters. He also noted that mandatory certification was required to eliminate the underground economy which added to the unprofessional image of carpenters. The contractor predicted that carpenter wages would increase from current levels of \$18 to \$20 per hour to \$50 per hour in five years.

The rural contractor felt that the “out West” factor was having a significant affect on the supply of trades workers and on wage expectations. He believed that a lot of trades workers had moved out West to work on a temporary and permanent basis and that the wage expectations of those remaining were high.

A representative of the NSCC indicated that students typically entered community college around the age of 25 but that the NSCC is increasingly receiving applications from high school students.

The NSCC representative also indicated that the organization has the ability to respond to short-term shortages of specific skills. For example, a survey by employers in HRM identified a need for drywallers and the NSCC responded by

providing a six-week course to meet this need. Such short-term, targeted training represents about 10% of the training done at the NSCC.

The NSCC representative indicated that the organization could not keep up with the demand for training in electrical construction and industrial training. The representative indicated that applications for trades training are increasing as is the college's capacity to provide training. The representative noted, however, that demand for training in the health sector is providing strong competition for classroom space.

The NSCC projects training needs five years into the future and has an aggressive enrollment planning and development process. The organization works with the Construction Association that is deeply involved in the planning process and provides scholarship funds for students. A Program Advisory Committee also exists to facilitate input from industry. Industry interviewees were pleased with advances made at the NSCC but noted that priority should be placed on increasing completions and ensuring that the maximum percentage of enrollees become journeymen and achieve the Red Seal designation.

The NSCC rationalized trades training some years ago and cut programs offered at various campuses around the province. For example, bricklaying was taught at five campuses but is now only done on a custom basis. Bricklayer training is driven by the ICI sector and graduates of the custom one-year program at the NSCC are basically guaranteed jobs. Another factor that decreased the number of graduates for some time was the change from one year to two years for trades training programs.

3.6.2. Migration and Immigration

Interviews with government officials with expertise in the labour market indicate that Nova Scotia is a net loser of young people who are migrating primarily to Western and Central Canada.

A representative of the NSCC indicates that traditional graduates in their mid-twenties are not going out West to work although some of the younger graduates are doing so. The representative also pointed out that there is a trend towards 45 to 50 year old trades workers coming back to the NSCC for retraining and then going out

West to work. These workers are taking specific courses that supplement skills and certifications that they already possess.

The Executive Director of the Construction Sector Council of Nova Scotia indicated that certification recognition across countries is required for immigration to be an effective solution to labour shortages. This point was reiterated by the President of the Construction Council of Nova Scotia.

The President of the Construction Council of Nova Scotia indicated that the situation in Alberta is having a major impact on the labour market for trades workers in Nova Scotia. The President indicated that trades workers have become more mobile and employers have gotten very good at moving people in and out of job sites from distant locations. She also indicated that high wage rates for trades workers in Alberta have drawn trades workers out West and increased the wage expectations of workers in Nova Scotia.

3.6.3. Worker Realities in Rural and Urban Areas

The President of the Construction Council of Nova Scotia indicated that workers in rural areas required multiple jobs to survive financially. This implies that training strategies for these workers should aim at providing them with multiple skill sets to optimize their success in the labour market. The President noted that in urban areas workers want full-time work and that this reality limited the growth in the labour force in the construction industry.

3.7. The Balance of Demand and Supply for Residential Construction Trades

3.7.1. Labour Shortages

The interview with the Executive Director of the NS Construction Sector Council indicates that the unionized trades sector did not feel that there was a shortage of skilled trades workers at the time this report was prepared. The Executive Director indicated that some of the available workers may not have the skills required to fill job openings, and the lack of skills was a more significant problem than a lack of individuals available to work. He also indicated that there could be significant

shortages of skilled workers in the future but at the present time there is a shortage of work not workers.

The President of the Construction Council of Nova Scotia indicated that there is a serious shortage of skilled trades workers now. She also noted that she expected the labour market to become tighter in the future with competition for workers becoming more intense. One indicator of increased competition is that non-union employers were offering benefits to compensate for lower wages.

The President felt that the most serious shortages are being experienced in Managerial and Supervisory occupations. This shortage is especially problematic because the construction industry lacks the capacity to develop these skills in its workforce.

The representative of a housing development company in HRM identified bricklayers and roofers as trades that experienced shortages. He felt that these shortages were due to the tedious nature of bricklaying and dangers involved in roofing.

3.7.2. Mobility, Migration and Immigration

The President of the Construction Council of Nova Scotia indicated that the construction industry's ability to handle an in-flow of immigrants was constrained by its limited human resource capacity.

3.8. Training and Apprenticeship

3.8.1. Specialization

The rural contractor interviewed for the study felt that carpentry was a specialized trade and that workers performed specific tasks such as framing, drywalling, finish carpentry and forming rather than a variety of these specialties. He urged government to listen to industry and turn out specialists rather than general carpenters. One major advantage of this approach is that specialists could be trained to journeyman status more quickly than general carpenters.

3.8.2. Financial Management

The rural contractor also recommended that training in financial management become an important component of trades training programs. He argued that such training is important to equip future contractors to operate in a world where contractors will be required to finance home building and absorb the risks associated with supporting financing.

3.8.3. Increased Demand for Trades Training

Interviews with government officials indicate that the educational pendulum is swinging back towards the trades relative to university training. Many students must now attend university for six years or more to obtain the training and certifications required for high paying, specialist jobs. Trades training is moving towards the provision of specialized skills in a short period of time which makes investments in trades training increasingly attractive relative to university training. The increasing tendency for young people to choose trades training was confirmed in an interview with the representative of the NSCC. The representative indicated that this tendency was less prevalent in Halifax and Cape Breton.

3.8.4. The Importance of Employer Participation

The representative of the NSCC indicated that the organization was working with employers and the apprenticeship program to develop a Pilot and Collaborative Apprenticeship Model. This program brings employers on board during pre-apprenticeship training with some of the training taking place in employers' shops. This model resulted in more committed employers and apprentices and has the potential to improve pre-apprenticeship trades training.

3.8.5. The Training Bottleneck

The President of the Construction Council of Nova Scotia noted felt that the capacity and output of the NSCC and the apprenticeship system have acted as bottlenecks in meeting the needs of industry for skilled trades workers. She recognized that the NSCC has come a long way in improving the quantity and quality of trades training but felt that more money and instructors were required to address the current bottleneck. She indicated that employers preferred to hire

graduates of community colleges and the inability of the system to produce the required number represented a binding constraint on supply.

3.8.6. The Importance of Technological Change

The President of the Construction Council of Nova Scotia stated that the equipment and processes now being used in the construction industry were highly sophisticated and changing rapidly. This reality presents a challenge for the NSCC to keep up with the rapid evolution of the industry and produce an adequate number of highly trained students with the skills needed in the industry.

3.9. The Challenge of Low Completion Rates

The Dean of Trades & Technology for the NSCC indicated that the biggest challenge for the organization has never been to market the trades, to get more or better young people into NSCC trades training courses. He indicated that the NSCC has been more than successful in attracting applicants for carpentry and related trades and that their programs have been “saturated” beyond the ability of the College to handle the numbers and of industry to absorb them. The real issue is the transition from training to employment/apprenticeship in industry. The Dean indicated that the NSCC needed more investment in infrastructure to expand capacity and build the partnerships with industry organizations and employers who are willing to take apprentices. The bottom line stated by the Dean is that recruitment of trainees is not the problem – it is the completion rates.

The Dean indicated that the NSCC is bringing in a lot of new trades trainees but they are not getting jobs. He felt that a long-term strategy and a partnership with industry were needed. He also felt that while the College was ready to take this step, he was not sure about the industry.

Several interviewees indicated that greater completion rates could be achieved if industry was involved in screening applicants. This would ensure the selection of applicants with an aptitude and interest in the trade for which they were applying. The interviewees also suggested that high schools needed to be targeted for recruitment and guidance counsellors were lacking information and a focus on

trades. The Youth Apprenticeship program was noted as a positive initiative in this regard.

The Dean identified the following practical changes needed to make system work better:

- The mentor ratio issue required review. The Dean felt that the Apprenticeship Board has to be more flexible and that the College can adjust to different approaches. He felt that the NSCC could build a “Full Journey” program to support changes to ratios. He also felt that a collaborative approach could provide different bridges for mentorship. The key issue is that apprentices are supervised and get meaningful work. He indicated that a “strength-based” apprenticeship model was needed that was based on the strengths of the training system and the industry. This model would have to be tailored to each sector and employer situation and would have to be more innovative and creative than the current system. He indicated a willingness to do what is necessary within regulatory limits.
- The Dean stated that the residential construction sector industry is not hiring graduates of the NSCC. There is a need for a fundamental change in thinking in the industry. Employers need to look for and advertise for apprentices. We should not have to recruit employers – they should be looking for young people to mentor and train.
- Government has to put money into assisting employers to carry the costs of hiring and mentoring apprentices. In the residential sector there are a lot of small businesses that do not have a lot of room to take on people who are not productive right away. This needs to be compensated and industry needs financial incentives. Cash flow is a big problem for the small businesses that characterize residential construction and training can be a big cost. Under the current system, the businesses have to carry the front-end costs until the apprentices become productive.
- The Dean indicated that the NSCC could solve problems around time release from work and the costs of travel but there is a need for training allowances to solve the overhead cost problems of employers.
- The Dean felt that EI is not an efficient or acceptable way to fund apprentices. In Ireland apprentices keep their salaries and benefits from employers and employers get full compensation. Something like this is required in Nova Scotia – a completely different funding model as part of a comprehensive training strategy for government to provide meaningful support for employers.
- In terms of training programs, the NSCC can be flexible in terms of times, places and scheduling. It supports a “collaborative apprenticeship” model –

known as the “Full Journey” model. It is a partnership with the College, the Apprenticeship Board and industry. The NSCC is committed to providing four years of training. Government provides the dollars and industry must provide the mentors and job placements. Once this is in place, the NSCC will do whatever it has to do to deliver the training and will tailor the whole program to fit the employers’ and apprentices’ needs and realities.

Specific observations and suggested changes for training in the residential construction sector identified by the Dean of Trades & Technology were:

- The NSCC has set up partnerships in other sectors but not in residential construction. This sector has not requested such partnerships although the NSCC has completed projects with the ICI sector (e.g., Dexter Construction). The Dean noted that it is easier to work with larger employers and that there are many small operators in residential construction who do not work together and do not have a strong industry organization to speak for them.
- The NSCC and Apprenticeship Training and Standards Division (ATSD) are ready to enter into partnerships with the residential construction sector. They are waiting for industry to get its side together and come to them with a proposal to train a certain number of people. They will build the program if the industry provides the placements and mentors.
- Residential construction needs a strong association to speak for the industry. The industry has to coordinate itself, come to the table as a group, be able to accept larger numbers of apprentices, and help the NSCC to develop a strategy and training format to meet industry conditions. If this occurs, the NSCC can build a training plan around identifying and meeting the needs of industry.
- The NSCC is “neutral” on issues of the traditional carpenter model versus new specializations. Their focus is on meaningful training to meet labour market demand. They believe in a “pathways” approach and try to avoid having people getting dead-ended in narrow trades categories that can become obsolete. They have no problem with the trades specialization model for carpenters if it allows pathways – not dead-ends.
- The NSCC has no bias towards ICI construction training, but they do see a lot of the program going towards residential now. They are committed to a generic approach but are willing to look at a residential “front end” for training carpenters and other trades workers in the residential sector. They have no difficulty with the idea of a pathway to journeyperson status with four stages through specializations.

The Dean was asked to identify the action priorities to address skill shortages issues in the residential construction sector. He identified the following priorities:

- The number one priority is the focus on partnership – industry has to be organized and capable of partnering with the NSCC and the ATSD.
- Regulatory issues and constraints particular to the sector (e.g., ratios) have to be identified.
- Solution-driven strategies have to be developed for each sector.
- Key issues in the residential sector are who training institutions partner with and who can deliver the trainees and the job placements.
- There is a need to get beyond general policy issues and focus on the jobs, mentors and the investments that are needed.
- The actual numbers of apprentices and journeypersons needed in the sector have to be identified and a strategy must be developed to train them.

3.10. Pilot Project for Industry Participation

An interview with the Principal of the Truro Campus of the NSCC provided a model of how to incorporate industry input into training. The NSCC completed a pilot program to train automobile mechanics. They first did a community survey on skills/training needs and found there was a shortage of mechanics in the heavy equipment, auto service and truck transportation sectors. They worked with the municipal government to meet the employers' needs identified in the survey. They asked industry to do a partnership with them with the following features:

- The NSCC developed and delivered a tailor-made training program;
- Employers provided shop floor training and mentoring; and
- Employers agreed to hire the trainees.

The Principal of the Truro Campus explained that the NSCC designed a generic curriculum to cover the basics in all three areas of mechanics work, merging existing NSCC curricula. The program was equivalent to year-one of pre-employment training in all three trades – it was approved as such by the Apprenticeship Board.

The program started with 18 trainees placed in 18 different workplaces. Fourteen students completed the program; four students left, largely because they could not get by without earning incomes.

The NSCC did the theory and WHMIS training on campus and then assigned students to individual workplaces. ATSD staff helped to iron out some human resource issues in workplaces.

In addition to classroom training, the NSCC assigned a student counsellor to help the student through the typical three stages of training – “moving in”, “moving through” and “moving out”.

It was a seamless program that worked very well. NSCC instructors did site visits to shops and the College provided essential skills upgrading where needed. The program ran from June 1st, 2007 to April 30th, 2008. All 14 participants who finished are now first-year apprentices.

Key features of the program were:

- The program was aimed at people already committed to being mechanics. NSCC policy is “first come, first served”, but a different approach was taken here. The Auto Service Sector Council did the selection based on interviews and aptitude testing. Employers were represented on the interview committee. Future programs should do more media advertising to attract a larger pool of applicants, and then do screening.
- The ATSD had funding for innovative pilot projects and provided financial support for the project.
- Students were treated as regular college students. There was no financial support during the classroom training period. Some participants had student loans. That was an issue for some students.
- Employers did not pay students during their year of training. Employers only had to commit to providing meaningful work and mentoring, and they had to check off an apprenticeship log. ATSD may give credit for work experience during the year of training that will help the trainees if they stay on to complete a journey person certificate program.
- The Truro NSCC project did this without having a mechanics training program or a shop on campus. The Pictou campus, that does have mechanics

programs, provided the instructors and the employers provided the worksites and equipment. This is very efficient – companies are much more up-to-date with technology while the NSCC has great difficulty getting the resources to keep up – they cannot afford the constant renewal of equipment. This is the new partnership model; instead of building a new shop on campus, shops around town are used for training.

- Next time the Truro NSCC would not ask employers to hire trainees as apprentices within the one-on-one restriction for mentors/trainees. Some participating firms might take three or four out of a pool. Companies should self-select in terms of mentoring ratios.
- It might have been better if employers did the selection of trainees themselves. Canadian Tire is an example of a company that selected its own trainee and paid their way.
- Future programs should consider rotating trainees across different sectors rather than staying in one worksite the whole time.

One problem that could hinder the effectiveness of a program such as this pilot is the seasonal slow down of work in residential construction. This occurs right in middle of the training period. Another problem faced by the residential construction industry is that there are no big companies – just a lot of smaller firms.

The Principal of the Truro Campus suggested that a pilot project be undertaken with the AHB&RSC to combine three trades (e.g., carpenter, painting and masonry). The Sector Council would have to come up with enough employers willing to participate in the project. The program would have students complete a base year and then move on to apprentice in one of the three trades identified above. The Sector Council could be involved in the selection of trainees. The NSCC is willing to try the project at the Truro campus. Truro does not have a trades program but would do the same as with mechanics pilot project if employers could be convinced to provide enough workplace training sites.

4. FINDINGS FROM FOCUS GROUPS

4.1. Introduction

The focus group research and consultations included the following activities:

1. A 2-hour focus group session organized by AHB&RSC Board Member in Stellarton and attended by four well-established builder-renovators from the area.
2. A 1-hour discussion with the Board of the Annapolis Valley Home Builders' Association, attended by nine independent builder/renovator-members of the Association.
3. A 1-hour discussion with the provincial Board of the Nova Scotia Home Builders' Association, attended by 15 Board Members including builders from the South Shore and Southwest Nova Scotia, the Valley and Central Nova Scotia. These participants included renovators, sub-contractors, small builders and some large-scale major home building companies.
4. A 1.5-hour focus group with three independent smaller builders/renovators from HRM and the South Shore and one larger residential construction company representative from Metro.

Each session included a brief presentation of project findings centred on evidence of looming skills shortages and tightening labour markets. The participants were then asked respond to a set of prepared questions that were consistent for all groups with some adjustments according to the time available.

The following is a summary of the responses for each focus group question.

4.2. Demand for New Homes

The general view among HRM participants is that number of new builds is down from 5% to 10% in different regions over the past year, but revenues are up overall. However, several participants agreed with the statement that: *“Labour costs are up so we are not much further ahead.”*

Some participants in rural areas disagreed, stating that they are not seeing any decline in demand and that they expect new starts to remain strong for the foreseeable future. They expect to be building more smaller homes to accommodate seniors and in response to higher energy and materials costs.

Rural builders described two markets in their areas – “come-from-aways” who want larger, higher-end homes, and local people who want smaller, more cost effective homes. It was observed that “come-from-aways” account for about 5% of new starts in the area but a much higher proportion of economic value of production, but local people “moving up” to better quality homes are the dominant market sector.

A rural-based builder reported that he is now building high-end seasonal homes – he is fully booked for the next two years on these projects.

Most participants were in agreement with the third, more optimistic scenario – cottages, renovations and new emigrants wanting homes will keep demand strong for the foreseeable future.

A rural builder felt that demand for higher-end homes will remain strong but that many builders of average homes may “*be out of business in two years*” – not because of lack of demand but because banks will not finance jobs that are “turn-key.” There are too many jobs over budget and customers cannot pay. Builders are being forced to finance the whole project themselves and the average guy cannot do it. Another builder from the area disagreed, saying that reputable builders will have no trouble getting financing from banks to build “turn-key” houses.

A rural builder observed that a lot of people in their area are moving from rental to home ownership because of low interest rates and the ability to finance up to 100% of the home. There has been very little construction of rental properties in the area for some time.

4.3. Demand for Renovation/Repair

The renovation business is up, some participants saying up dramatically. Some participants observed that homeowners believe it is a better investment to renovate because home values have not appreciated relative to rising cost of a new house. It

was stated that land costs are up so much in HRM that it is better to buy an older house and upgrade than start from scratch.

Participants from rural communities said that small towns and rural regions are experiencing a “boom” in renovation work. There is more money in it than new home construction, but a lot of the work is done underground.

Rural renovators agreed with the third “optimistic” scenario. They described strong demand from external customers who are very discerning in their expectations for quality work. They also expect there will be a lot of retrofitting to address rising heating costs.

Rural renovators described a pattern in their areas where middle-aged people are selling older homes to realize major capital gains, building smaller “dream homes” for retirement, while buyers of first houses are renovating them to bring them up to standard.

4.4. Short, Medium and Longer-term Labour Supply Trends

Most participants felt that there currently are increasing shortages in every aspect of construction, and that this is already impacting significantly on business conditions and enterprise viability. One participant observed that they used to build more in the winter to solve this problem, but that no longer works (i.e., tight labour supply all year around). HRM participants agreed that the problem is greatest in the sub-trades where they cannot find people to do new work.

It was observed that skills shortages are making it extremely difficult for new entrants to get into the industry as builder-contractors. If you already have a skilled workforce that has been with you for a while, you can do OK, but new operators have great difficulty getting reliable crews.

It is critically important to have built up strong relationships with sub-trade contractors so you can get your work done. If you do not have contractors who stay with you, you are in trouble – you cannot guarantee your deadlines because you will have to wait in line for sub-contractors.

HRM participants described a current situation where certain sub-trades contractors were calling builders with whom they had worked for a long time and telling them they can no longer take their business – they cannot get the workers and have to cut back.

Larger companies doing larger numbers of houses are able to keep their sub-contractors lined up because of the volume of business they offer and being able to make long-term commitments. It is hardest for smaller guys building less than 20 houses a year.

Participants in one group agreed with the statement that: *“You have to have carpenters. You pay what you have to get them. But we are paying more to get less. They are in the driver’s seat. The skills and the work ethic are often not there.”*

A renovator from the South Shore commented that his company is taking mainly small jobs because they cannot find enough skilled people to build homes or do bigger projects. *“Skilled workers are moving to Halifax to get higher wages.”* (An HRM builder concurred that they are pulling in workers from all around the province.) An HRM builder observed that they are seeing skilled workers coming back now from out West. They feel it may be a new trend.

The biggest challenge is meeting customer expectation for getting jobs done on time. *“We are already telling customers to expect longer wait times. It will take longer to build homes and costs will go up.”* Using more unskilled workers (*“because that is all we can get”*) slows down production and increases relative labour costs.

It was generally agreed that there is upward pressure on wages, although participants commented that they really do not know what the current levels are, or what other builders are paying. There were suggestions that this information should be available to builders.

Participants expressed concerns about the extent to which higher labour costs can be passed on to customers. It was felt that there is not much room to manoeuvre there.

Rural builders in one area agreed that they were losing people constantly. One stated, *“It’s all our own fault, paying low wages and not hiring available workers from disadvantaged groups – women, Blacks, Native people.”*

One rural builder stated, *“Right now, I could hire eight more people to do the projects I have on the books, but I can’t find them.”* Another rural builder stated: *“I train my people and pay them so that they stay. Guys stay a long time if you train them and pay competitive rates. Every one of my guys is a licensed carpenter – I helped pay for the training. I don’t have any problems keeping my crew. I don’t want to get bigger – just want a small group of really skilled, committed guys that I can rely on.”*

Another rural builder stated: *“If I lost my two top guys I would be in big trouble. I did lose one before – he went out West. I have apprentices now and expect to be able to replace retirees. I tailor my business to the labour force I have – I don’t try to tailor my labour force to the available business. That’s why the manufactured housing comes in – they fill the gap in terms of work builders like me won’t take on.”*

Participants in all groups made reference to the notion that young people coming into the industry have *“unrealistic wage expectations”* and to the idea that the training system should correct these misapprehensions. However a few participants argued that the problem is that builders have unrealistic expectations of current labour markets and are not used to the idea that they will have to compete to attract and retain workers. Young people, in this view, are making realistic and rational market decisions about the prospects for different career paths, and at present the home building sector is not competitive.

4.5. Impacts on Particular Trades

There was general agreement that the problem cuts cross all trades, with emphasis again on difficulties faced by sub-trades contractors. The majority of trades in new home construction are increasingly hard to find. It was observed that the population of plumbers is older generally and that there are accelerating numbers of retirees in that sector.

It was observed that plumbers and electrician contractors have 20 to 30 guys on their crews and cannot keep up with demand. It was observed that the unions have been allowing drywall contractors to hire non-union workers because they recognize the shortage. Labour costs for drywallers have gone up a lot in the past two years.

There was general agreement that builders/contractors are mainly meeting their needs for skilled workers by stealing from each other – going out to recruit already employed workers by offering them higher pay/benefits. HRM participants agreed with following statement from one builder: *“We are paying more and getting less productivity. Trades workers now understand that they can call the shots.”*

In one rural region the biggest need is for framers and bricklayers. As well, *“cement finishers are ‘non-existent’. Roofers and shinglers are generally OK and there are lots of plumbers and electricians.”*

4.6. Impacts on the Way Homes are Built/Renovated

The participants generally felt that renovations work will remain pretty much the same.

They also agreed that there will be more factory-built homes and panelized construction and that the quality and attractiveness of manufactured homes and components will steadily improve.

Participants in one group felt that they would be building a lot more semi-detached and multi-unit homes to address land and energy costs, and to get more production from the available labour supply. Most participants felt there would be ever-greater use of pre-manufactured components.

A number of participants in different groups expressed the view that home building would more and more be dominated by larger companies, and that independent operators would shift more and more to renovation with occasional high-end home projects.

Bigger companies expressed confidence that they can adjust to changing labour market conditions and other factors. One participant observed that he expects to see a few big companies emerging in the renovations field to dominate the market, as

has already happened with new home construction. Smaller guys cannot compete for labour supply. There was some disagreement on this point, some participants feeling that *“a really skilled small guy will always find lots of work.”*

It was observed that independent small builders might make better profit margins on smaller homes if the land costs were reasonable. If land costs are controlled, builders can build more low cost homes and still make good margins.

Some participants agreed with the idea that there will be a reduction in perceived quality of houses to offset raising production costs. People will accept lower quality standards and build smaller houses to maintain affordability.

There was some agreement in an HRM group that Home Depot and Kent are not immune to these pressures. They still have to rely on the same sub-contractors as everyone else. *“Installed sales operators are struggling – they can’t get skilled renovators to work for them. They call up established renovators to do jobs for them, but everyone is too busy and making more money on their own.”*

Regarding building materials, there was a general agreement that materials costs would rise significantly in the near future due to increases in petroleum-based products generally and in processing, energy and transportation costs. Steel products will go up for these reasons.

Participants in one group generally agreed that changes in technology (tools and materials) and methods are constant and gradual. The industry was described as being very responsive to technical advances, but not nearly as quick to invest in upgrading worker skills.

Most participants felt that they cannot automate any more – they have every new tool available, everything now is power tooled. There is constant change in the industry. One builder stated: *“If you were to leave the industry for two years and come back you would be lost.”* The participants generally agreed that crews adapt to new tools and materials all the time, on the job and do not need specialized training. They are able to mentor each other and they get some training from building suppliers, home shows, etc.

They are seeing a lot more pre-wiring for security systems, communications, entertainment systems, remote control heating/ventilation, etc. Rural builder groups identified a trend to move to hardboard insulation on exteriors because it is quicker to put up and gives better energy conservation. They are seeing a wider range of roofing materials, more options on how to do roofs for style and conservation. Some builders described the need for more specialists to do insulation and wiring and tech systems.

Some builders felt that customers still think of housing quality and value in terms of square foot size, and are resistant to suggestions to invest more in energy conservation rather than “perks”. *“People will spend \$15,000 to add a Jacuzzi and then say that government should subsidize expenditures on energy saving options.”*

4.7. Implications for Job Skill Requirements

One group of participants agreed on the need for builder-contractors to enhance their financial management skills as they are building higher-end homes, getting involved in more complex financing arrangements with banks, and needing to play a greater role in capitalizing their operations.

One point of agreement among builders was the need for constant upgrading on building code issues, energy conservation methods and regulations, public health and environmental protection issues, and workplace safety. Many felt that such training should be part of licensing obligations for both carpenters and contractors.

4.8. Changes Needed to Address these Issues

It was stated that there is no point putting pressure on the training system – the NSCC programs are filled up, they cannot take more trades trainees. The problem is that those people do not end up staying in our industry or in our province. One participant pointed out that the local NSCC has 60 applicants for the carpentry program and only 20 places. As well, there are not enough training spaces for all the apprentices when it is time for their block release.

It was observed, *“too many seats in carpentry program are filled by people who won’t stay in the industry.”*

There was some agreement that in the age group 16 to 20, new entrants have no job skills and no employability skills. Too many of them go to NSCC without knowing what they want to do and then get on the job and find it too hard. There is a need to get young people started on learning trades in high school. (Some participants disagreed, saying that kids in rural areas still acquire these skills growing up and know how to work hard.) There was general interest in reintroducing substantive trades training at the high school level. There is also a perceived need to educate parents on positive career prospects in trades.

One participant stated that he anticipates that they will soon have to start working to attract labour from outside the province and to bring Nova Scotia workers back home by offering better incentives.

There was general agreement that the inflexibility of the apprenticeship program on the mentor/trainee ratio is a real problem. A change there is a high priority.

It was pointed out that NSCC uses a “first come, first served” policy. Applicants to programs identify their first, second and third choices, and then get bumped. Many people may not have real aptitudes for the field they end up in. There was wide agreement that there should be some effective testing to see who is really suited to each trade.

A point of consensus across all groups was the need to move forward with mandatory licensing of contractors and carpenters. Another related point of agreement was that it will not be possible in the industry to move to more reasonable wage levels to attract and hold skilled workers until the underground economy is substantially cut back. Price competition from underground operators puts too much pressure on legitimate builders to hold down costs and therefore wages. Some underground operators compete effectively both for workers and for customers because they do not pay EI/CPP/WCB or HST. One group agreed that WCB should be made mandatory for all builders, no matter how small or how few employees.

Participants in one group supported the idea that the government should subsidize wages when employers hire and train unskilled people. It is hard for small operators to take apprentices because of the high front-end costs before workers acquire sufficient skills to be productive, and these costs should be offset by government supports or tax incentives.

4.9. Impacts of Manufactured Housing

Most participants felt that the industry will see a lot more sub-trading and manufactured components, as well as more manufactured homes generally.

One rural builder felt that in five years, 75% of homes built outside HRM would be modular (currently it is around 50%). It was observed that the penetration of manufactured housing is not even across the province. Builders in the Valley felt it is not such a big factor there.

Another rural builder felt that manufactured homes could not compete with good builders locally on price or quality. It is just that good builders are too busy on higher value home projects. The main reason for the growth of modular is that good builders are too busy to have time to do smaller, lower-end housing.

It was observed that manufactured homes are no longer low-end products exclusively. The industry will move to tailor-made components, panels and framing for all sizes of construction. Contractors will be able to order components from blueprints.

One participant observed that it would be devastating for communities to have more manufactured housing. Communities will not be able to retain highly skilled builder/renovators. Only very limited local labour, mainly unskilled, will be used.

5. SUMMARY OF KEY FINDINGS

This chapter presents a synthesis of findings from the literature review, interviews and focus groups together with a summary of findings from a separate report entitled “Nova Scotia Residential Construction Sector Base Case Supply and Demand” that was carried out for this project by Canmac Economics Ltd.

5.1. Demand/Supply Projections for Trades Workers in Residential Construction

The objective of the Canmac Economics study was to provide a base case analysis and projections of the demand for and supply of skilled trades in the Nova Scotia residential construction sector over the period 2007 to 2026. The demand for skilled trades is derived from the demand for new homes and renovations in the residential construction industry.

5.1.1. The Model and Key Assumptions

This research involved development of a Nova Scotia residential construction sector economic model linked to the Nova Scotia macro environment. Alternative assumptions about trends in the macro environment (population, income, etc.) were used to generate alternative demand outlooks for the residential construction sector. The Canmac report presents a base case scenario and a sensitivity analysis around the base case. The base case is presented as the most likely scenario given certain operational assumptions and a conservative interpretation of the trends apparent in the data. The alternative scenarios include a pessimistic case (Scenario C) that follows the lead of the Conference Board of Canada in relying solely on a rather negative demographic outlook, and an intermediate case (Scenario B) that assumes no growth in the real value of the residential construction industry over the forecast period.

The demand for labour by trades occupations¹³ is derived from the demand for housing and renovations using equations comprised of ratios of employment to

¹³ Four digit occupations of the National Occupation Classification system.

output using 2006 Census estimates. All three scenarios in the report assume productivity growth equal to zero but the model has an equation for alternative productivity assumptions. All scenarios also use sector specific participation rates from the 2001 Census to estimate supply for each trades occupation covered in the study. Sector specific participation rates are defined as the employed labour force divided by the population.

An outlook common to Scenarios A and B is that the Nova Scotia economy is expected to enter a period in which overall economic growth will be constrained by labour shortages. The major challenge is to determine how serious the impacts on the performance of the economy will be. The projected decline in the key new entrant labour force cohort aged 20 to 24 is an indicator of this constrained labour supply as is the increase in the key labour force retirement cohort aged 60 to 64. These outlooks are based on a Statistics Canada population projection for the 2006-26 period that shows that the retirement population will exceed the new entrant population after 2010 and will be 50% higher than the new entrant population by 2026.

These demographic projections imply a declining labour force and negative unemployment rates by 2016 if the economy continues to grow at its historic 2.5% rate. This is, of course, not feasible. Hence the econometric projection model used in the Canmac study assumes that the economy will contract to a potential output growth of 1.0%. This assumption, in turn, implies employment growth of 1.0% over the projection period with the unemployment rate falling to 2% by 2026.

It is important to note that the projected balance of supply and demand in the trades labour market for the residential construction sector is a conservative estimate. We have provided projections using actual labour supply demand balances. In fact, a full employment balance would also make allowance for a normal unemployment rate of 3% to reflect workers moving between jobs and other factors. Allowance for this would move the labour shortage issue even earlier than 2016. Also, the projected residential construction labour market tightness will be a characteristic of the macro-economy and is not unique to the residential construction sector. In this environment, there will be a stronger tendency to bid away residential construction workers to other sectors resulting in a larger contraction in supply than predicted in the base case projections.

5.1.2. Base Case Projections – The Most Likely Case

The base case projection of Nova Scotia residential construction sector demand links the sector's output indicators (housing starts, repair and renovation and residential construction) to the macro environment via a set of econometric equations. The key drivers for housing starts over the long run are personal income and demographics. Repair and renovation expenditures are a function of the housing stock and personal income. Total residential construction expenditures are the sum of the projected value of housing starts and repair and renovation expenditures.

The base case projections for sector demand assume slow growth of the Nova Scotia economy coupled with a decline in the population segment (ages 25 to 44) that has a high propensity to purchase new homes. The result is sluggish growth in new housing starts. The base case projects an increase in renovation expenditures in the residential construction sector due to rising incomes and an ageing population.

The base case model uses findings from the Literature Review to project that, as the population ages and incomes rise, vacation homes will become a viable option for an increasing proportion of Nova Scotia households and for non-residents who are drawn to Nova Scotia by its coastal location and lifestyle advantages. Recent announcements of over 400 vacation homes being built in the Louisburg area are an example of this emerging market.

Finally, ageing trends will generate an increase in demand for seniors' housing. CMHC counts these facilities as residential housing starts if they have a separate entrance and facilities; otherwise they are included as institutional housing and not counted as part of the residential sector. In any case, both of these segments will see increased demand in the future.

The overall result of the assumptions used in the base case is that residential construction will increase at an annual growth rate of just over 1% over the 2007-26 period.

5.1.3. Base Case Labour Supply

The supply of labour in each trades occupation is based on sector specific participation rates as described above. The base case scenario reveals that, despite a projected slowing in residential construction demand in Nova Scotia over the study period, trades occupations in the industry will exhibit significant shortages. While a tighter labour market will pertain over the entire forecast period, there is a window of opportunity before significant labour shortages materialize. Tightening will become critical (demand exceeding supply) after 2015 for many of the occupations considered.

For each occupation we observe that labour demand will exceed labour supply for key trades during the forecast period as follows:

- Carpenters by 2019;
- Construction trades and helpers and labourers by 2016;
- Electricians by 2025;
- Plumbers by 2017; and
- Other trades by 2017.

It is anticipated that the shortages resulting from the excess of demand over supply, combined with strong labour market conditions and high wages in other parts of Canada, will exert strong upward pressure on wages for trades in the residential construction industry.

5.1.4. Scenario B – No Growth in Housing Demand

Scenario B is an intermediate case between the base case, which is relatively optimistic, and the most pessimistic Scenario C. It shows the impact of keeping residential construction demand at its 2006 levels for the entire forecast period. Under this no growth scenario we find that demand for labour exceeds supply but later in the forecast period than in the base case.

In Scenario B labour demand exceeds labour supply two to five years after the base case and demand for electricians does not exceed supply at all:

- Carpenter demand exceeds supply by 2021;
- Construction trades and helpers demand exceeds supply by 2012;

- Demand for electricians does not exceed supply;
- Plumber demand exceeds supply by 2012; and
- Other trades demand exceeds supply by 2017.

5.1.5. Scenario C – Declining Housing Demand

Scenario C is considered the most likely scenario by forecasters such as the Conference Board of Canada. This scenario assumes that housing starts are primarily driven by demographics over the long run, and that population growth in Nova Scotia will be negative over the period. As the overall population ages, it moves out of those age groups that have the highest propensity to demand new housing. Under this assumption, housing starts drop from almost 5,000 in 2006 to under 1,000 by 2026. This represents a significant decrease in residential construction demand. The Scenario C assumption is that residential construction will decrease by 1% per year over the forecast period after 2011.

Under Scenario C an excess supply of labour will persist for all occupations over the forecast period. The demographic impact of lower supply is outweighed by the economic and labour demand impacts of reduced housing demand.

5.1.6. Regional Variations in Demand and Supply

5.1.6.1. HRM and Immediate Environs

Research evidence generated by the Canmac study shows a clear trend towards more concentration of population and therefore of residential construction activity in the Halifax Region. The overall population of the province is projected to exhibit rather flat growth, rising from 913,450 in 2006 to 916,221 by 2026. The share of population growth by economic region shows a moderate shift to the Halifax Region. HRM is projected to have 44.4% of the Nova Scotia population by 2026 compared to 41.1% in 2007. In 1987 the Halifax Region's percent of provincial construction employment was 39.3%, and by 2007 this climbed to 46.7%.

The econometric projections completed for this project show that the HRM will be most impacted by projected labour shortages largely because it will see the greatest increases in demand. The Canmac report came to the following conclusions about the projected balance of demand and supply of trades in HRM:

The Halifax Region will experience increased demand for residential construction workers. This will result in a significant supply/demand constraint as the supply side contracts. (p. 29)

The economic region likely to be most impacted by projected shortages is the Halifax Region since this region is projected to have the greatest increases in demand. (p. 3)

This is consistent with findings from the interviews and focus groups that indicate that the following trends could characterize the housing market in HRM in the next 20 years:

- Existing skills shortages will intensify.
- There will be a trend to more multi-unit, higher density housing in response to energy costs, land costs and people wanting access to public transit.
- There will be a high level of renovation and retrofit activity as older housing stock is maintained and upgraded.
- There will be a decline in ex-urban development (e.g., 3000 square foot homes on multi-acre lots outside city).

5.1.6.2. Towns and Rural Regions

The other regions of Nova Scotia are projected to show reductions in their share of the Nova Scotia population. The Annapolis Valley and North Shore are projected to experience small population drops while a more significant 1.6% decline in population share is projected for Cape Breton.

From 1987-2007 regions other than HRM experienced decline in their shares of provincial construction employment, with the Cape Breton Region and the Southern Region experiencing the greatest changes. Cape Breton was down from 14.5% in 1987 to 11.8% in 2007 while the Southern Region was down from 14.1% to 11.0% over the same period.

Canmac's conclusions about the demand for skilled trades workers in regions outside of HRM are summarized in the following statements:

The Annapolis Valley Region will exhibit a modest increase in demand for residential construction occupations over the forecast period. This demand coupled with a declining labour force due to retirements will see a tight labour market over the forecast period. (p. 32)

The Cape Breton Region is projected to exhibit a modest decline in occupational demand over the forecast period. This will result in a

lessening of supply constraints than would otherwise be the case but supply will remain tight given the ageing of the labour force. (p. 28)

The North Shore Region demand for residential construction occupations will remain essentially flat over the forecast horizon. With a contracting labour force supply, the region will see a tight labour market relative to other regions with the exception of the Halifax Region. (p. 30)

The Southern Region will exhibit flat growth over the forecast horizon. Nonetheless, the labour market will also tighten given our projected declines in the labour force supply. (p. 31)

Although not explicitly stated in the Canmac report, it is assumed that the projections referenced in the above quotes apply to the base case projection. Although some reports indicate that out-migration and population decline in urban areas will devastate housing activity, the base case model projects a moderate level of activity driven partly by return migration and senior baby boomers from Canada and elsewhere building retirement and vacation homes in the coastal and rural areas of the province.

5.2. Industry Impacts and Policy Implications

The Canmac econometric projections support other research findings from this project in predicting a tighter labour market in the future, increased shortages of skilled trades workers and rising wages. The shortages will become acute in HRM in the near future and will evolve over a slightly longer time period in the rural and small town areas of the province.

The overall research findings indicate that the residential housing industry will experience a number of trends that will significantly change the industry over the next 20 years. Most important among these are:

- There will be upward pressure on housing costs due to rising labour, energy and land costs (the latter most pronounced in Metro Halifax) and increasing difficulties in accessing capital.
- The industry is addressing rising cost pressures by pushing for productivity gains through:
 - Expanded reliance on off-site construction and manufacturing of housing components accompanied by increased labour specialization, particularly within the carpentry trade. Considered by some to be a form of “de-skilling”, this trend will narrow the range of skills

- required by workers in this sector of the home building and renovation industry;
- The expanding role in new home construction and (to a lesser extent) renovation of larger companies including housing development companies (partnering with larger sub-contracting firms), producers of manufactured housing and building supply companies providing housing components and manufactured houses; and
 - A trend to “just in time” delivery of new housing through more developed linkages between architectural design and engineering processes, off-site manufacture of components and partnerships between developers, sub-contractors and suppliers of building materials, appliances and fixtures.
- Many smaller owner-operator companies that rely on new home construction will face much more difficult business conditions generated by:
 - An intensifying cost/price squeeze resulting from rising costs for labour, energy and materials and product price competition from larger builder companies and the underground sector of the industry;
 - Succession constraints (i.e., reduced numbers of skilled and motivated individuals to take over successful enterprises from retiring builders-contractors);
 - More intense competition for skilled and semi-skilled workers from larger construction companies, from out-of-province labour markets and from other industry sectors;
 - More intense competition from larger developer companies for access to the services of sub-contractors; and
 - A more complex and challenging financial environment with more limited access to credit and more pressures on smaller builders to self-finance or leverage their activities.
 - Nevertheless the surviving independent builder/contractors will continue to play a critically important role in the residential home building and renovation industry centred on:
 - Construction of higher-end architect-designed houses;
 - Construction of low to medium-cost housing and vacation homes in towns and rural areas that do not attract investment by the larger housing development companies; and

- Renovations and retrofit projects to maintain and upgrade the existing housing stock in all regions of the province.
- The evidence clearly suggests that the renovations sector will remain strong in all regions of the province.
 - There are indications from industry leaders that the smaller owner-operator builders are shifting more to renovations and away from new home construction because of the strong demand and the less onerous labour requirement and financial constraints; and
 - Retrofitting and upgrading of housing is expected to “boom” in response to rising energy costs, the need to accommodate an aging population and a shift in settlement patterns favouring higher density towns and inner city areas. Labour shortages and rising land and materials costs will constrain new home construction and encourage investment in upgrading of the existing housing stock.
- Without tighter controls certain aspects of underground construction activity may expand:
 - In the context of rising wage levels and other cost pressures, more builders may give in to temptations to avoid payments of taxes, Workers’ Compensation and EI premiums;
 - Underground activity has generally been more prevalent in the renovations sector, and the continued expansion of this sector will provide more opportunities for these operators;
 - With growing shortages of skilled labour and rising labour, energy and materials costs, underground operators may compete on price by avoiding certain building code requirements; and
 - Again in response to shortages of skilled labour and rising costs there may be an increase in self-building activity with potential for negative impacts on housing quality and safety.

5.3. The Industry/Training Disconnect

An important finding of this study, as well as of other studies considered in the literature, is the apparent disconnect between the training system and industry in the residential construction sector.

There are two aspects of this problem:

- The currently insufficient numbers of new recruits who complete their apprenticeship programs and become licensed journeypersons committed to careers in the residential construction industry; and
- The large numbers of long-time trades workers in the industry who do not participate in formal training and lack formal qualifications.

5.3.1. Recruitment through Training and Apprenticeship

On the first point, the challenges facing training and apprenticeship systems are not unique to the residential construction industry or to Nova Scotia. There is mounting evidence that the problem is not one of insufficient numbers entering trades training but rather one of completion and transitions to employment. A major 2005 report on apprenticeship in Canada by the Centre for the Study of Livings Standards generated the following findings about the entire system across the country:

While apprenticeship registration has grown substantially, the number of apprentices completing their programs has not grown proportionally. From 1977 to 2002 apprenticeship registration increased by 90.8% but apprenticeship completion actually decreased by 5.3%.¹⁴

The study found that the completion rate for all trades was 47% in 2001, down from 63% in 1982. For building and construction trades the completion rate was 25% in 2002, down from 34% in 1996.¹⁵

The study identified two major factors that generate these negative trends across many sectors of the economy:

1. The general reluctance of employers, especially in small and medium-sized enterprises, to take on the often onerous costs of training their employees when the “graduates” may leave for higher paying jobs or be “poached” by other employers; and
2. Periods of unemployment due to wider economic downturns mean that many apprentices lose their positions and can be out of the labour market for periods of time, thus interrupting their training and weakening their attachments to the trade or occupation.

¹⁴ Andrew Sharp and James Gibson, *The Apprenticeship System in Canada: Trends and Issues*, Centre for the Study of Livings Standards, Ottawa, 2005; p. 9.

¹⁵ *Ibid*, p. 49.

In Nova Scotia a 2002 government report on the apprenticeship program indicates that 65% of new apprenticeship registrations in 2000-01 were graduates of pre-employment training offered at the NSCC.¹⁶ The 2005 Annual Report of the ATSD Branch, then part of the Nova Scotia Department of Education, provides the following information on the carpentry program in 2004/05:

TABLE 2: CARPENTRY APPRENTICE PROGRAM, 2004/05	
New registered carpenter apprentices	104
Number of active carpenter apprentices	575
Number of completions (i.e., certified as journeyman carpenters)	17
Number of carpenter completions as % of active apprentices	3%
Number of trades qualified carpenters (i.e., those who successfully challenge the examination without having done the formal classroom training)	7
Average age of carpenter-apprentices	28

A survey of residential construction employers, carpenter employees and apprentice carpenters carried out for the ATSD in late 2007 produced some interesting insights on factors that impact on the rate of completions.¹⁷ Principal findings were:

- Apprentices and employers (both those who had apprentices and those who did not) expressed high levels of approval for the carpenter training program provided by the NSCC. The apprentices were very positive as well about the training they received on the job and about their mentors.
- The major concerns or criticisms among apprentices had to do with exogenous factors not related to the actual training, such as wage levels, program travel costs and time away from work.
- In answer to questions about why so many apprentices do not complete their programs to become journeymen, and why so few unlicensed carpenters in the industry enter into apprenticeships, no clear, dominant reasons emerged.
 - Apprentices and unlicensed carpenters tended to emphasize wage issues and the costs of doing training.

¹⁶ Report of the Co-chairs of the Apprenticeship Public Consultations to the Nova Scotia Provincial Apprenticeship Board, Apprenticeship – Achieving Excellence through Partnership, December 2002; p. 14.

¹⁷ The survey was carried out by the AHB&RSC on behalf of the Apprenticeship Training and Skills Development Division. The final report will be available from the Sector Council in August 2008.

- Employers emphasized lack of good mentors and placements and competitive labour market conditions and also talked about selection issues (i.e., too many people starting carpentry programs who are not well-suited for the occupation).
- When asked about ways to improve the apprenticeship program and to enhance completion rates, the following factors were most often mentioned by all respondent groups:
 - Expand tax incentives for employers and financial supports for apprentices;
 - Expand trades training at the high school level;
 - Better selection of appropriate carpenter candidates; and
 - Employers pay higher wages.

A general theme across the surveys, interviews and focus groups regarding apprenticeship incompleteness is that apprentice trades workers become highly productive after about two years of training and hit the higher wage levels at that stage as employers seek to retain them in their crews. At that point, in a labour market characterized by increasing skills shortages, the incentives for apprentices to carry on with their training become more marginal and their employers may be less supportive of their continued participation given busy work schedules and fears of losing carpenters who become journeypersons.

The interviews and focus group research for this current project support the view that in Nova Scotia many employers do not look to the training system as a source of new recruits, and graduates of training programs often have difficulty finding employment that uses their newly acquired skills and allows them to augment these skills on the job. In this respect the more effective integration of employers into the training system is essential to improving the ability of new recruits to complete apprenticeship once they graduate from their pre-employment training programs.

The evidence also indicates that there is a strong demand for trades training, and enrollment in key trades has in fact increased significantly in recent years. The NSCC has been very responsive to this situation and has designed and delivered new trades training programs to meet industry needs. More of this kind of flexibility may be needed within the apprenticeship program to optimize the production of journeyperson carpenters and other trades workers for the residential construction

industry. For its part the industry must develop greater organizational capacity to participate effectively in the trades training process and to provide the NSCC and the apprenticeship system with a strong partner to make trades training work more effectively.

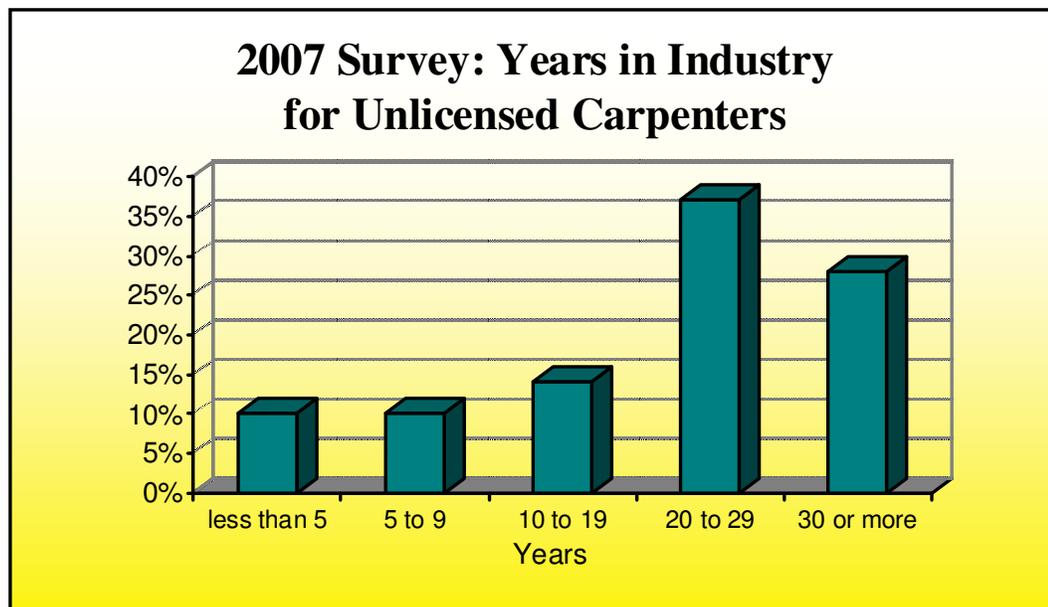
5.3.1.1. Untrained Trades Workers in the Industry

The second major disconnect between industry and the training system has to do with the need for training and licensing of people already employed in the industry. While these factors are generally true across construction trades occupations (except for electricians and plumbers where mandatory licensing is in place), here we focus specifically on carpenters because they are the largest trades category in the industry and the group for whom the most information is available.

According to Canada 2006 Census data there are over 4,000 working people in Nova Scotia who identified their primary occupation as carpenter in the residential construction sector.¹⁸ We do not know what proportion of these workers is comprised of licensed journeypersons.¹⁹ In 2007 the AHB&RSC/ATSD apprenticeship study surveyed a random sample population of unlicensed carpenters in the province, and we can extrapolate from it some findings that may have relevance to the wider carpenter population. One of the most startling findings had to do with the age profile of this population. The following graph describes the number of years spent in the industry by the survey respondents:

¹⁸ See the Canmac Economic report, op cit; Appendix A, p. 34.

¹⁹ Since carpenter is not a compulsory trade the ATSD does not keep records of licensed carpenters working in the province and there is no continuing requirement for journeypersons to renew licenses or register.



The survey found that two-thirds of non-licensed carpenters had been working 20 years or more in the industry (more than a quarter of them for 30 years or more) while the number of new entrants was very limited.²⁰ On the positive side this speaks to the fact that the residential construction sector is able to hold many trades people for long-term careers. With regard to the future supply of skilled workers in residential construction, however, two important issues emerge from these data:

1. The findings reinforce serious concerns about the likelihood of a rapid loss of skilled workers through retirement in the near future.
2. A major constraint currently in the training system is the limited number of trades people in the sector who are qualified to mentor apprentices, and this problem can only get worse as the rate of retirements accelerates. There are many highly skilled workers in the sector who could now be mentoring their future replacements if they had the proper qualifications. There is currently no formal mechanism for them to pass on knowledge and skills that will leave the industry with them.

²⁰ In focus groups industry representatives commented that the low number of people in the industry for less than 10 years is perhaps the result of the industry downturn in the mid-90s combined with the fact that trades training was “out of fashion” for a period as schools and parents pushed young people towards university education and white collar technical and service careers.

At present there is very limited data available on the characteristics of this population of unlicensed carpenters, and this knowledge gap is a problem in itself. We can however suggest six possible categories of trades workers in this population, each of which might require a unique training and certification approach:

TABLE 3: CATEGORIES OF UNLICENSED CARPENTERS AND POSSIBLE TRAINING & CERTIFICATION PATHS	
Category	“Solution”
Trades workers with sufficient knowledge, skill and experience to challenge and pass the carpentry examination to become journeypersons	Information, counselling and financial support to encourage them to challenge the examination
Trades workers with sufficient knowledge, skill and experience to challenge and pass the carpentry examination to become journeypersons, but who are unwilling to face a written exam due essential skills limitations and other “psycho-social” constraints	Information, counselling and financial support to encourage them to take the examination, and provision of an alternative examination process using proven methods from the prior learning assessment and recognition (PLAR) field such as intensive interviews and practical demonstrations
Trades workers with nearly sufficient knowledge, skill and experience to challenge and pass the carpentry examination to become journeypersons	Information, counselling and financial support to help them identify their skills gaps and to encourage them to take upgrading training to prepare them to pass the examination, possibly using PLAR methods to recognize their acquired knowledge and skills and to give them advanced standing
Trades workers with significant knowledge, skill and experience, but with significant gaps in identifiable skills areas	Information, counselling and financial support to help them to identify their knowledge and skills gaps and to encourage them to take training to prepare them to pass the examination, again making use of PLAR approaches to motivate and guide them
Trades workers who are committed to careers in the sector but who are limited in their acquisition of knowledge and skills because of essential skills deficits and other education and training gaps	Information, counselling and financial support to help them get started in essential skills upgrading and trades training, again making use of PLAR approaches to motivate and guide them
Trades workers who are committed to careers in sub-trades within the sector and who are not acquiring, and do not need, the full range of knowledge and skills to become journeyperson carpenters	Establishment of certification standards and procedures for trades specializations, and information, counselling and financial support to encourage them to pursue these options making use of PLAR approaches

Obviously the first challenge is to know how many of the thousands of unlicensed carpenters in the industry fall into each of these different categories. With this

information in hand it would be possible for the ATSD Branch, the NSCC and the industry to work together on an overall strategy, focusing on the categories of workers where the greatest gains are to be made in training and certification.

6. CONCLUSIONS AND RECOMMENDATIONS

6.1. Conclusions

6.1.1. The Public Interest

The Canmac Economic report derives the following conclusions from the econometric analysis of labour demand/supply trends in the residential construction industry in Nova Scotia:

.... it is likely that human resource management will become the number one strategic issue facing the residential construction sector. There are three (3) main ways to solve this problem, 1) productivity, 2) increase labour supply from migration, and 3) increase labour supply by increasing participation rates particularly older workers. Increasing labour supply will work through a combination of these channels. It will likely require increased training, wages or profit sharing and innovative ways of more effectively using the workforce if it is to be successful. (p. 33)

This statement speaks to the complexity of the labour and skills shortages issues in the residential construction industry and to the challenges involved in finding solutions. These are not problems that the industry alone can tackle without effective collaboration with the training system and other human resource development partners. The situation may also justify wider public policy commitments to support needed changes.

It is important therefore to define more clearly the public interest in relation to the maintenance of stability and business viability in the residential construction industry. Four main points emerge from the literature and from consultations with stakeholders:

1. Residential construction is a critical component of the Nova Scotia economy, currently employing directly over 16,000 people in a wide range of occupations and trades, and generating socially useful products in every community of the province. The industry has been a growth sector and a major stabilizing influence in the provincial and national economy over the past decade.

2. The continuing health of the sector is essential to the availability of affordable, safe and good quality housing throughout the province. Instability in the sector will contribute to rising housing costs with the potential to impact negatively on community sustainability and the general standard of living. Other economic sectors will suffer if access to safe and attractive housing is constrained and if the built environment deteriorates in our cities and towns.
3. In every community the residential construction industry attracts and sustains a skilled workforce, including trades workers, artisans and entrepreneurs, which contributes to local capacities in important areas both within and beyond residential construction.
4. Residential construction is somewhat unique among goods producing industries in Nova Scotia in the extent to which it supports local production of a wide array of building materials and drives other manufacturing and service activities within the province. We can easily imagine some point in the future when we will be as dependent on imported housing products as we now are on imported cars, electronic goods and even food products. But at the present time this is not the case, and steps can be taken to maintain optimal local production capacity and backward linkages, and even to expand housing related export activities.

Residential construction is, in short, a strategic sector whose continuing viability and expanding productivity should be a focus of concern in public policy.

6.1.2. A Diverse Sector

The evidence generated in this project confirms our understating that residential construction is not a homogenous sector. The productivity and sustainability of the industry depends to a large extent on healthy competition and some degree of interdependence among at least six different sub-sectors:

- Real estate and housing development companies with capacities to marshal large scale investments in the land, materials and professional, technical and trades workers required for multi-unit building projects;
- Sub-contractor companies that provide specialized products and services to building projects of all sizes and types;

- Manufacturers of houses and of housing components who operate in factory facilities and work in concert with developers and contractors on building sites as well as marketing directly to the public;
- Independent artisanal builders with highly developed knowledge and skills and unique capacities to build architect-designed and higher-end housing as well as homes of more average value in towns and rural regions where the major development firms typically do not operate;
- Multi-skilled builders, often in towns and rural areas, who undertake a wide range of renovation, new home construction and ICI projects in response to demand within local economies; and
- Carpenter builders who concentrate exclusively on renovation and repair and who play a crucial role in maintaining the quality and durability of the existing housing stock.

To this list we might add a number of other smaller sub-sectors occupying particular niches in the industry, such as restoration carpenters, masons, landscape developers, painting and decoration contractors, cabinet builders, etc.

The evidence suggests that in a relatively strong market environment, as we have had for most of the past decade in Nova Scotia, these different sectors do cooperate and can recognize and support each others' interests. Leaving aside widely shared concerns about the impacts of underground operators, stakeholders in the industry do not describe any situations of conflict where one sub-sector is perceived as trying to put others out of business. Leaders in these groups work well together through the Home Builders' Association and the Sector Council. These positive relationships provide a foundation for more ambitious efforts in future to address the labour supply challenges facing the industry.

6.1.3. The Training Economy

The need to expand workplace training to meet current and future productivity challenges is evident across virtually all sectors of the Canadian economy and in all regions of the country. Similarly the inadequate levels of employer investment in training, particularly in the small business sector, and low completion rates for apprentices are problems that are in no way unique to residential construction or to Nova Scotia.

In the public discourse on training there is much wringing of hands, pointing of fingers and passing of bucks. However to this point in time none of this has seemed to generate effective, far-reaching solutions.

The research and policy literature is clear on the basic problem. Two fundamental points emerge when these issues are studied in many different sectors:

1. Employers in small and medium-sized enterprises (SMEs) perceive training to be expensive and they fear that once they train their employees they will lose them to other employers who did not make these investments.
2. Training and apprenticeship can also be expensive for employees, and in many settings, particularly in the context of a strong labour market and rising wage rates, there is no perceived financial incentive to continue on once a maximum wage rate is achieved without program completion.

These two factors together create a kind of training economy in which both employers and employees see no major reasons to invest their time and money beyond a minimal point of practical necessity.

The research literature provides evidence of two well-established approaches to overcoming this negative training economy:

1. Regulatory interventions that create a level playing field in which all employers and/or all employees in a particular occupation have to invest in training and certification to be able to work in the sector.
 - In these situations employers are less inclined to fear that their employees will be “poached” by competitor firms that do not invest in training workers.
 - The most obvious example of this type of intervention is the designation of a compulsory trade.
 - Another important example is legislation that requires all employers to invest in training their employees such as the “One Percent Rule” in Quebec and similar systems in Europe.
2. Financial supports by government to offset the disincentives for investments in training by both employers and employees. Key examples are:
 - The federal government’s tax incentives for employer support of apprenticeship and for purchase of tools by apprentices; and

- The Ontario government's much richer tax rebate to employers who take apprentices.

These basic tools have been proven effective in creating a more positive incentives environment for training in other sectors and other jurisdictions, and need to be explored in terms of their potential relevance to the residential construction industry in Nova Scotia.

6.1.4. The Need to Control the Underground Economy

Research carried out in the past by the AHB&RSC has confirmed that underground operators account for more than a quarter of all building activity in Nova Scotia. This activity is fundamentally antithetical to the development of a stable, well-managed industry in that it seriously distorts both labour and product markets. As well, underground builders usually operate outside the rules in terms of health and safety protections for employees, and building code requirements and product safety guarantees for consumers.

Over the past five years the AHB&RSC has carried out extensive research and consulted widely with industry stakeholders to come up with a comprehensive plan to control the behaviour and to mitigate the influence of the underground sector. That plan, validated by industry through two Pro Spec conferences, centres on three basic elements:

1. The establishment of a Residential Construction Commission to lead in the development of a financially sustainable self-regulation system for the industry.
2. The introduction by the Commission of mandatory licensing of builder-contractors with requirements for training and product warranties and enforcement through the building permit system.
3. The subsequent introduction by the Apprenticeship Board of mandatory licensing of carpenters parallel to the existing rules for residential electricians and plumbers.

The details of this plan, including draft legislation for the establishment of the Commission, have been presented to the Government of Nova Scotia and are currently under review.

6.1.5. Industry Capacity

Representatives of the NSCC who were interviewed for this study stated emphatically that they are prepared to partner with industry to develop innovative and flexible training programs to meet industry needs and to overcome current bottlenecks. They observed, however, that they have had much more success to date in working with the ICI sector because companies are larger in that sector and better able to work together to develop and implement new programs. They identified the need for the residential sector to build new organizational capacity to be able to enter into such partnerships.

Industry stakeholders expressed a willingness to work more closely with the College but agreed that they do not currently have the ability to mobilize much higher levels of employer and employee participation in new program initiatives. They are looking to the Sector Council as well as to the Home Builders' Association to provide new leadership in this direction.

6.1.6. Innovation in Training and Certification

Every aspect of the research carried out for this project has produced findings centred on the need for a more flexible, responsive and accessible training system for residential construction in Nova Scotia. Spokespersons for the NSCC have expressed a strong interest in moving in this direction.

Four particular points have emerged in this consideration:

1. The need for a concerted strategy centred on prior learning assessment and recognition approaches to encourage and support significant numbers of experienced and highly skilled trades workers in the industry to take the necessary steps to qualify as journeypersons in their trades.
2. The introduction by the Apprenticeship Board of greater flexibility in the rules on ratios of apprentices to journeypersons in workplace training settings. Suggestions from industry include the option for one journeyperson to mentor second- or third-year apprentices in addition to a first- or second-year apprentice on the assumption that more senior apprentices are self-directed and able to work independently.

3. The introduction of training and certification for trades specializations both as a means to address the needs of sub-contractor firms for skilled new entrants and as an alternative route to journeyperson status. Four possible specializations have been identified, and some of these are currently being developed in other jurisdictions:
 - Framers;
 - Foundations specialists;
 - Roofers and exterior specialists; and
 - Finish carpenters.

Along with the development of these specializations would be a PLAR certification approach to allow well-established specialists in sub-trades and other industry settings to become qualified to serve as mentors for new apprentices.

4. New research and consultation work needs to be undertaken to identify and address training needs in the manufactured housing and components manufacturing sub-sectors.

6.2. Recommendations

Based on the key findings and conclusions presented above, the following recommendations for follow-up action are proposed:

6.2.1. Working Group on the Future of Residential Construction in Nova Scotia

We are reluctant to use the over-worked term “crisis”, but the findings generated by this project confirm that the residential construction sector in Nova Scotia is entering an entirely new set of circumstances in which critical shortages of skilled and semi-skilled labour will very soon become a major constraint on industry productivity and business viability across the sector. The evidence suggests that this situation calls for extraordinary measures.

We therefore recommend that the AHB&RSC take the leadership in establishing a Working Group on the Future of Residential Construction in Nova Scotia. The

group should include representatives of the following stakeholder groups and partner agencies:

- The AHB&RSC Board;
- The Home Builders' Association, including its regional branches;
- Producers of manufactured housing;
- The Nova Scotia Community College;
- The Apprenticeship Board;
- Atlantic Home Warranty;
- HRSDC/Service Canada; and
- The building trades unions.

The primary task of the Working Group should be to develop within six months a comprehensive strategy to address the short-medium and longer-term skills and labour needs of the residential sector. This work should include the following elements:

- Communication with industry, with other industry sectors, with the general public and with government concerning the findings of this study and the seriousness of the labour shortages challenge;
- Communications with the Department of Education regarding trades training at the high school level;
- Communications with the federal and provincial agencies responsible for immigration policy and programming to develop options for facilitating access to human resources from other countries;
- Communications with the Nova Scotia Community College on a strategy to develop locally delivered training tailored to the specific needs of employers in local communities around the province and focusing both on the recruitment of new entrants to the sector and the upgrading of experienced workers in the industry;
- Communications with the Apprenticeship Board on innovations and greater flexibility in the apprenticeship system;
- Communications with other industry sectors and with the government of Nova Scotia regarding regulatory options and financial incentives for employer and employee investments in training;
- Introduction of trades specializations;

- The development and implementation of a PLAR program to certify as many workers in the industry as possible, in as short a time as possible, to expand the numbers of qualified apprenticeship mentors in the industry; and
- Building an effective multi-agency, multi-stakeholder partnership to implement the strategy.

6.2.2. Training and Certification Needs Assessment

In terms of new research and consultation initiatives, the AHB&RSC should place the highest priority on knowing more about the training needs and certification potential of the thousands of career workers in the industry who are not qualified journeypersons in their trades. This knowledge is needed to support the Working Group in its development of a comprehensive strategy.

The objective should be to determine what proportions of the unqualified labour force fall into the various categories discussed above, i.e., trades workers with sufficient knowledge, skill and experience to challenge and pass the carpentry examination to become journeypersons, workers needing some training to fill skills gaps prior to challenging for journeyperson status, etc.

6.2.3. Implementation of Professionalization Strategy

It is not necessary to review the details here, but the AHB&RSC together with its industry and training sector partners should press forward aggressively with advocating the full implementation of the professionalization strategy developed through prior research and industry consultations.

Professionalization needs to be presented and fully understood by industry, government and the general public as an essential step to overcome two fundamental barriers to stability and productivity in the sector – the underground economy and skills and labour shortages.