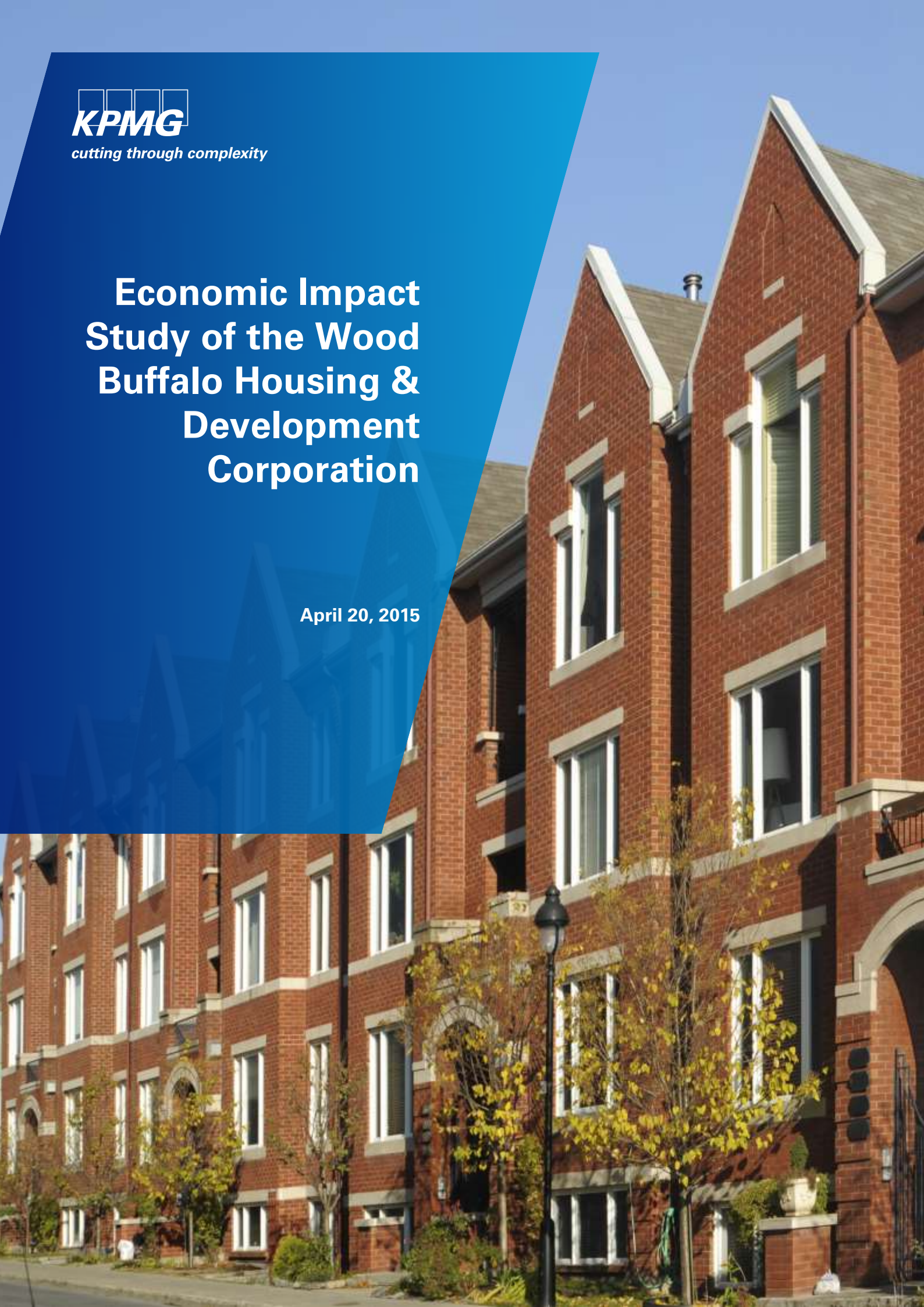




cutting through complexity

Economic Impact Study of the Wood Buffalo Housing & Development Corporation

April 20, 2015



Contents

1	Executive Summary	3
2	The Wood Buffalo Housing Context	4
2.1	Introduction to the Wood Buffalo Region	4
2.2	Housing Demand Trends	5
2.3	Housing Supply Trends	7
2.4	Housing Prices and Affordability	9
2.5	The Importance of Housing Support in Wood Buffalo	11
3	Economic Impact of the Wood Buffalo Housing & Development Corporation	12
3.1	Economic Benefits Studied	12
3.2	Types of Economic Impacts Studied	13
3.3	Economic Impact Analysis Summary	15
3.4	Economic Impact Detail	18
4	Introduction to the Socio-Economic Benefits of WBHDC's Programs and Activities	26
5	Conclusion	28
Appendix 1	WBHDC Projects Studied	29
Appendix 2	Methodology Detail	34
Appendix 3	Economic Model Detail	37
Appendix 4	Data Analysis Detail	39
Appendix 5	List of Tables	42

1 Executive Summary

The region of Wood Buffalo has experienced a rapid growth in population and burgeoning average incomes in recent years, driving rising demand for housing that has outpaced supply. Average housing and rental prices in Wood Buffalo have become among the highest in the country today, which creates significant hardship for vulnerable social groups, such as low-income families, individuals with disabilities, and seniors. In this context, providing affordable housing solutions plays an important social and economic role in the community.

The Wood Buffalo Housing & Development Corporation (WBHDC) engaged KPMG to assess the economic impact that the organization is having by studying its capital investments and operating expenditures over a 10 year period. The scope of our study includes quantifying the GDP, Employment, Labour Income, and Government Revenue contributions of WBHDC to the economy of Alberta. We have estimated the direct impacts (economic value created directly by WBHDC's expenditures), indirect impacts (incorporating impacts from suppliers to WBHDC's), as well as induced impacts (the impact of spending of salaries and wages earned at WBHDC or its suppliers).

We find that over the last 10 years, WBHDC's capital expenditures on developing affordable housing infrastructure created a direct and indirect impact of \$243 million in GDP contribution, 2,560 FTE person-years in employment, \$197 million in labour income, and at least \$ 30 million in government revenue in Alberta. In addition, over the same time period, WBHDC's operating expenditures created a direct and indirect impact of \$155 million in GDP contribution, 1,119 FTE person-years of employment, \$95 million in labour income, and at least \$22 million in government revenue in Alberta. Using 2013 as a base year, we find that WBHDC's direct and indirect annual operating impact amounts to \$20.6 million in GDP contribution, 149 FTE person-years of employment, \$12.7 million in labour income, and at least \$3 million in government revenue in Alberta. This annual impact is based on operating expenditures only and does not include the impact of any capital investments in a given year.

Several factors make our economic impact estimates conservative. First, the above totals do not include our estimate of induced impact, which accounts for the spending of wages and salaries earned by employees of WBHDC and its contractors. We have chosen not to include these estimates to avoid concerns that are sometimes expressed with determining what fraction of the spending would have occurred even in the absence of the projects studied. Second, our estimates do not account for the economic impact of the sale of land developed by WBHDC and the potential impact of investing the incurred surplus. Third, our estimates of government revenue contributions do not account for revenue generated via corporate income tax from WBHDC's suppliers and their sub-contractors. Also, our impact estimates do not include the economic benefits created in other provinces or territories as a result of economic activity in Alberta, and federal government revenue generated by economic activities in Alberta and other provinces or territories.

Beyond the economic benefits in scope of this study, there are a number of additional socio-economic benefits usually associated with affordable housing programs, such as value-added through urban development, increased discretionary income and wealth accumulation, improved job proximity, improved health outcomes, better educational attainment for children, lower crime rates, and improved settlement and integration of immigrants. Section 4 of this document introduces these potential benefits and describes the mechanism via which they typically occur. An analysis of the presence and quantification of these benefits has not been completed and would be a potential subject for a follow-on study.

2 The Wood Buffalo Housing Context

2.1 Introduction to the Wood Buffalo Region

The Regional Municipality of Wood Buffalo is located in north-eastern Alberta. It came into being in 1995, following the amalgamation of the City of Fort McMurray and Improvement District No. 143.

Over 66,000 km² in land area, Wood Buffalo is divided into ten regional communities, namely: Fort Fitzgerald, Fort Chipewyan, Fort McKay, Fort McMurray, Draper, Sapræ Creek Estates, Gregoire Lake Estates, Anzac, Janvier, and Conklin.

Wood Buffalo is home to vast oil sands deposits, also known as the Athabasca Oil Sands. These deposits make Canada the third largest source of recoverable oil in the world, after Venezuela and Saudi Arabia.¹ Over the last decade, the growth in the oil sands industry has made the Wood Buffalo region one of the fastest growing industrial areas in Canada. As a result, the vast majority of the residents of Wood Buffalo live in Fort McMurray, or in Oil Sands Project Accommodations that are distributed across the Wood Buffalo region.

The Wood Buffalo Housing & Development Corporation

Given the dynamic nature of the oil sands industry, the housing market has also experienced significant changes over the last decade. In this context, the Wood Buffalo Housing & Development Corporation (WBHDC) is engaged in the construction and operation of affordable housing alternatives throughout the vast region of Wood Buffalo, with projects in Fort McMurray, as well as in the rural communities of Conklin, and Janvier.

The following sections provide a summary of the key housing demand and supply trends in Wood Buffalo, and their implications to the local economy and residents.



Figure 1. Map of Regional Municipality of Wood Buffalo.
Source: Regional Municipality of Wood Buffalo

¹ Economic Profile, Regional Municipality of Wood Buffalo

2.2 Housing Demand Trends

The demographic characteristics of a region have a significant impact on the demand for housing. The growth in population fuels demand, while at the same time, the labour force participation and income level of the population influences the type of accommodation that is demanded, as well as the price that home seekers are willing to pay.

Over the last decade, the demographic characteristics of Wood Buffalo have been very dynamic, which has significantly impacted the demand for housing. A rapidly expanding population, together with a low unemployment rate, and average income that is amongst the highest in the country, has meant that there has been significant growth in the demand for housing.

Population Growth

The growth in the oil sands in northern Alberta has led to the rapid expansion of the population of Wood Buffalo. According to Statistics Canada's census estimates, in 2011 the population of the regional municipality of Wood Buffalo was 65,565 people, having grown by 86% since 1996. According to growth projections, the population is expected to grow to 84,694 people by 2017.²

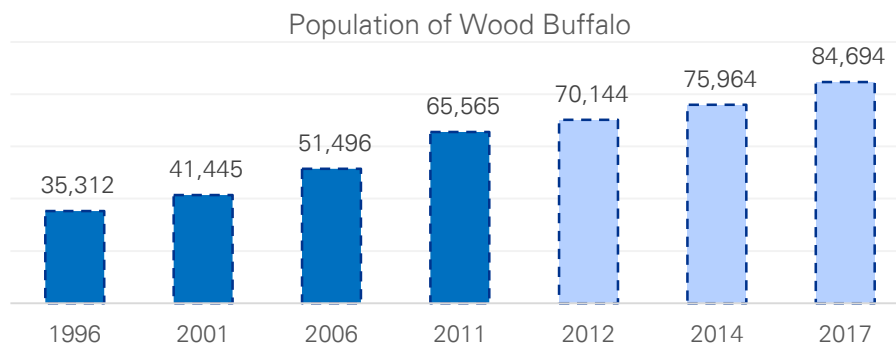


Figure 2. Population of Wood Buffalo

Source: Years 1996 – 2011 from Statistics Canada. 2012. Wood Buffalo, Alberta (Code 4816037) and Division No. 16, Alberta (Code 4816) (table). Census Profile. 2011 Census. Statistics Canada Catalogue no. 98-316-XWE. Ottawa 2012. Census Profile. 2011 Census; Years 2012 – 2017 are estimated figures from FP Markets

The population of Wood Buffalo has grown at roughly double the rate of that in Alberta since 2001; in the last five years, it grew at 2.5 times the rate in Alberta. The speed with which the population of Wood Buffalo has expanded over the last decade has put considerable pressure on the land resources in the region,.

² The Municipality of Wood Buffalo conducts a municipal census of population on an annual basis, independent of the federally commissioned Statistics Canada census which is conducted every 5 years. The municipal census estimates of population are significantly higher than Statistics Canada estimates, at 104,338 people in 2010, and 119,496 people in 2012. Since the municipal census achieves a variable coverage and completion rate each year, our analysis relied on Statistics Canada's estimates to chart the long term trend in population growth.

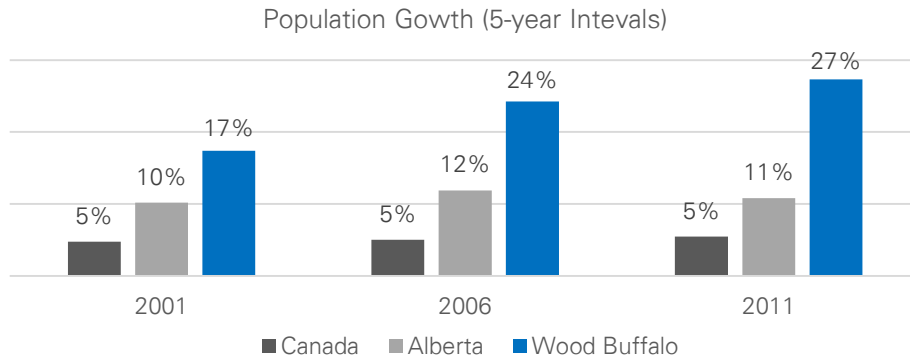


Figure 3. Population Growth in Wood Buffalo

Source: Years 1996 – 2011 from Statistics Canada. 2012. Wood Buffalo, Alberta (Code 4816037) and Division No. 16, Alberta (Code 4816) (table). Census Profile. 2011 Census. Statistics Canada Catalogue no. 98-316-XWE. Ottawa 2012. Census Profile. 2011 Census

Labour Force Participation

The demand for shelter is also dependent on the demographic characteristics of the population, such as age and employment status. Over 55% of Wood Buffalo’s population is under the age of 35.³ In 2012, the total labour force in the municipality of Wood Buffalo was 47,162 people, and the unemployment rate was 5%. The unemployment rate in Wood Buffalo is significantly lower than the national average, as well as the average for Alberta. All of these characteristics imply that the Wood Buffalo region is increasingly comprised of a young, working population which would exert an upward pressure on the demand for housing.

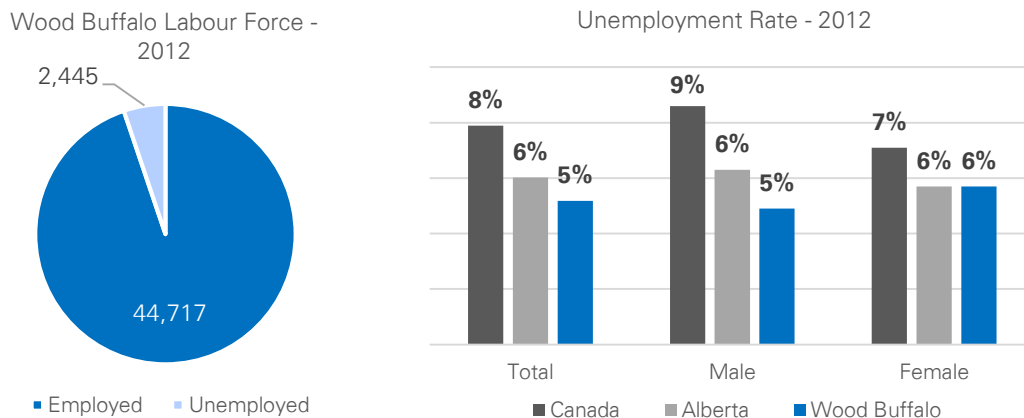


Figure 4. Wood Buffalo Labour Force and Unemployment Rate

Source: FP Markets, KPMG Analysis

Income

The overall income level of a population influences the price that workers are willing to pay for housing. With the average and per-capita income in Wood Buffalo being over 50% greater than that in Alberta, there is significant pressure on housing prices as illustrated in Section 4.4.

³ Economic Profile, Regional Municipality of Wood Buffalo

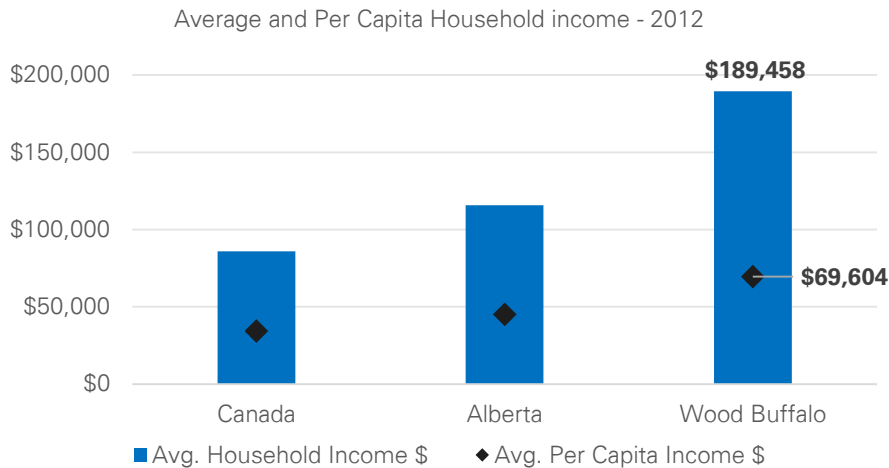


Figure 5. Jurisdictional Comparison of Household Income
 Source: FP Markets, KPMG Analysis

While average income in Wood Buffalo is very high relative to other jurisdictions, income level is not balanced across family type. Lone parent families, and individuals living alone (i.e. “one-person” households), or with other people who are not part of their census family (i.e. “other” households), together made up roughly 35% percent of the population in 2010, but earned between \$65,000 and \$85,000, which is well below the average income in Wood Buffalo. Therefore, housing affordability differs for different segments of the population, such that lone parent families and those living alone are more vulnerable to the rising price of homes.

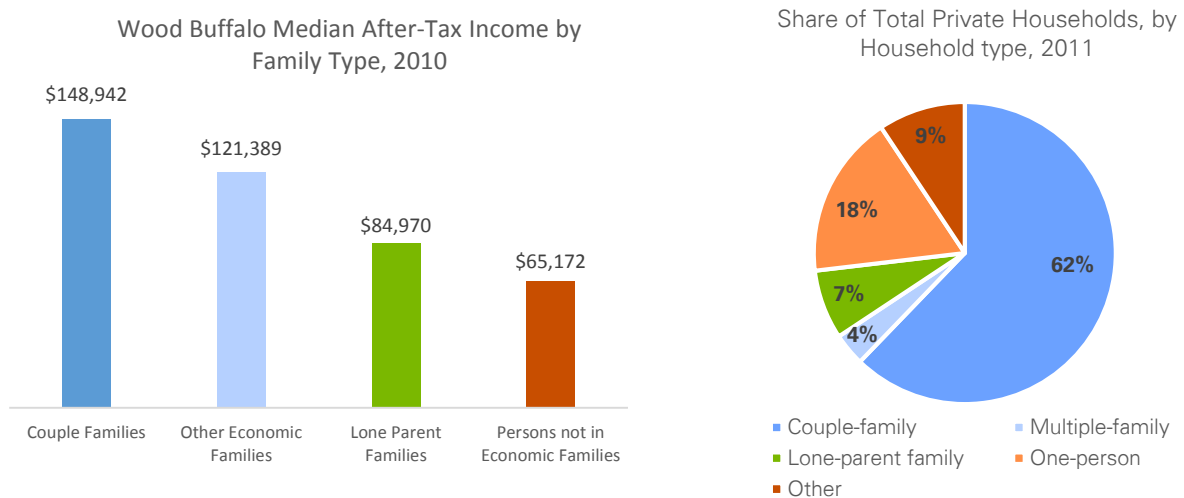


Figure 6. Wood Buffalo Income and Population Distribution by Family/ Household Type
 Source: Statistics Canada. 2012. Focus on Geography Series, 2011 Census. Statistics Canada Catalogue no. 98-310-XWE2011004. Ottawa, Ontario. Analytical products, 2011 Census. Last updated October 24, 2012.

2.3 Housing Supply Trends

The housing market supply response has been highly volatile based on data on housing starts. Until 2007, there was net growth in new construction of all types of dwellings like detached homes, condominiums and rental properties. However, over the last six years, new construction has consistently declined, even though population has continued to rise and average household income has remained high.

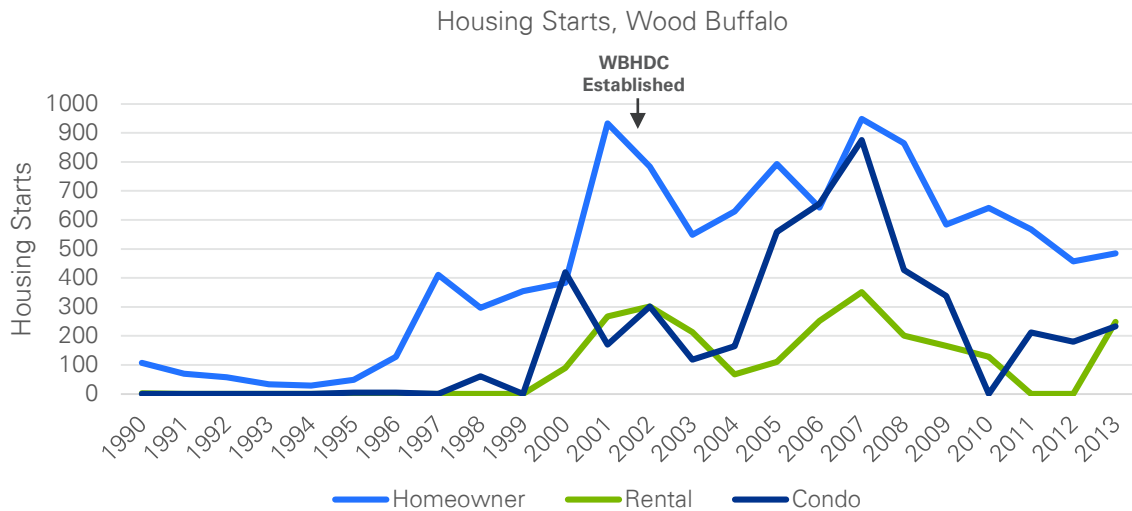


Figure 7. Private Housing Starts in Wood Buffalo
 Source: CMHC Starts and Completions Survey

At the same time, there has been a 400% rise in the population living in project accommodations over the last eight years, which indicates a growth in the supply of temporary housing units, designed to meet the needs of migrant project workers.⁴

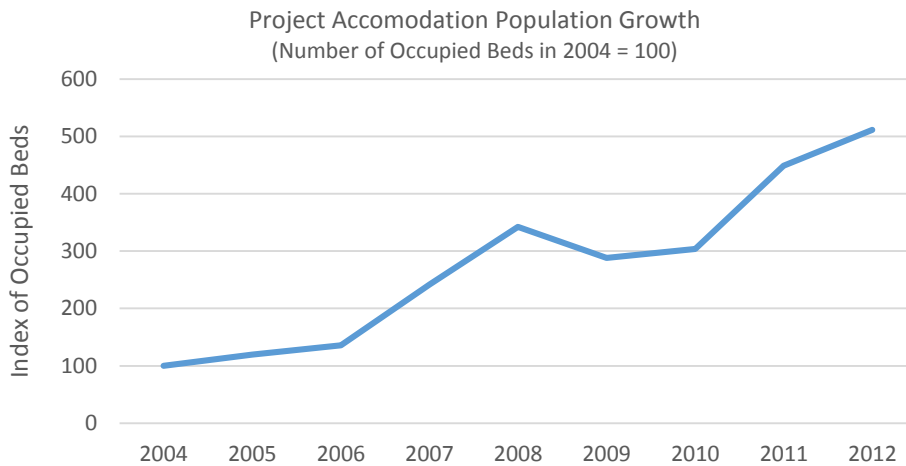


Figure 8. Index of Occupied Beds, Project Accommodations in Wood Buffalo
 Source: KPMG Analysis of data from 2012 Municipal Census (Preliminary Results), Accessed from Backgrounder on Housing: Jackpine Mine Expansion and Pierre River Mine, Regional Municipality of Wood Buffalo Joint Panel Review

⁴ Project accommodation population estimates from the Municipal Census of Wood Buffalo are preliminary figures, and do not align with the Statistics Canada population figures. Since project accommodation data was not available from Statistics Canada, Figure 8 is based on data from the municipal census, and intends to highlight the growth trend rather than the absolute number of occupants. As such, the absolute number of project accommodation occupants has been indexed, using 2004 as the base year. That is, the project population in 2004 (7,678 occupied beds) was assigned a value of 100, and the time series following that date was rescaled to reflect year-over-year growth since 2004.

2.4 Housing Prices and Affordability

Housing prices are a function of the demand and supply of shelter in the market. Demand growth, together with a lagging supply response has driven the average price of single family homes to nearly double their value since 2005. In 2007, as a consequence of the lack of planning, a shortage of accommodations made housing unaffordable for low-income earners. Shortages drove up house prices to the extent that even individuals with \$72,000 annual earnings (more than double the national average) required housing assistance from the Province in order to rent property.^{5,6}

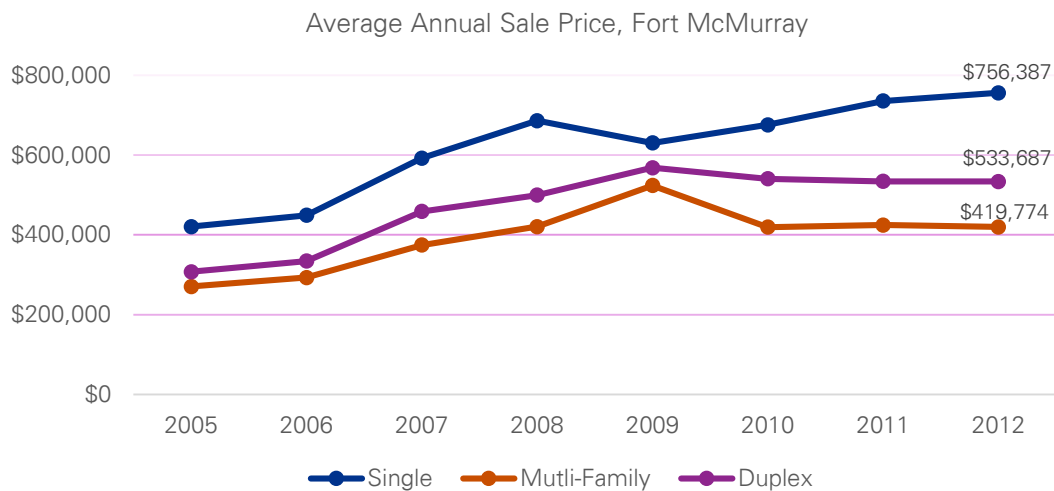
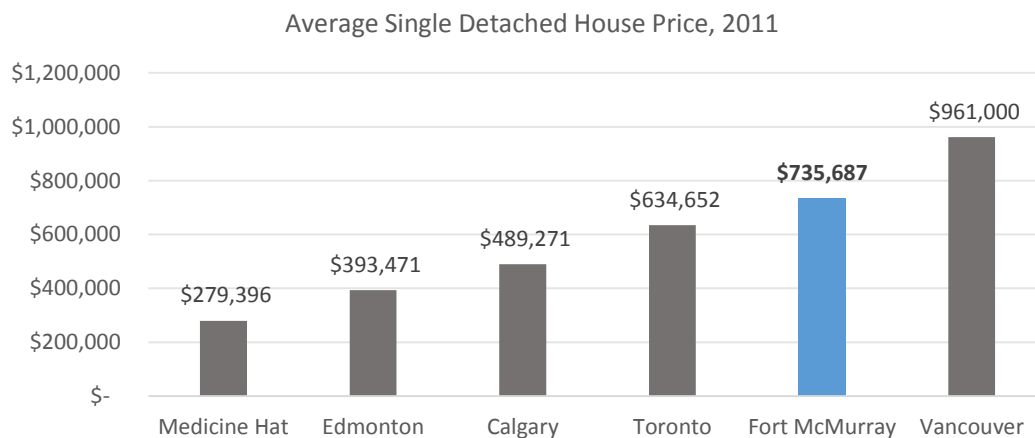


Figure 9. Average Annual House Sale Price in Fort McMurray

Source: KPMG Analysis of data from Fort McMurray Real Estate Board, Accessed from Backgrounder on Housing: Jackpine Mine Expansion and Pierre River Mine, Regional Municipality of Wood Buffalo Joint Panel Review

In fact, in 2011, the average price of a single detached house in Fort McMurray was among the highest in the country, second only to that in Vancouver.



⁵ Ministry of Alberta, "Managing Growth Pressures" February 26, 2007.

⁶ The price of multi-family and duplex homes have stabilized, likely as a consequence of lower sustained demand from families, which are moving out of Wood Buffalo due to the various social impacts of the oil sands boom in the region.

Figure 10. Comparison of House Prices in Wood Buffalo to Other Canadian Cities

Source: KPMG Analysis of MLS data from various local Real Estate Boards, Accessed from Backgrounder on Housing: Jackpine Mine Expansion and Pierre River Mine, Regional Municipality of Wood Buffalo Joint Panel Review

High housing prices exert pressure on the rental market as well, as many individuals and families that are priced out of the housing market seek rented accommodation instead. As a result, rental prices have also risen dramatically over the same time period.

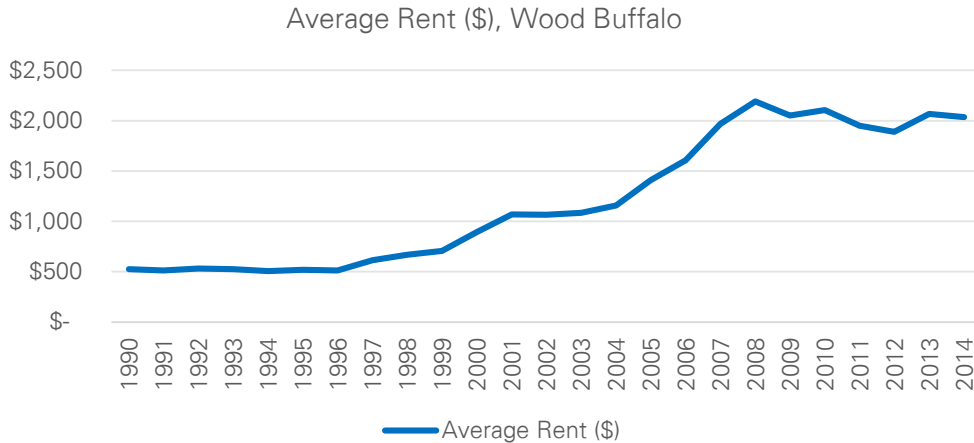


Figure 11. Rental Price Trends in Wood Buffalo

Source: CMHC Rental Market Survey

Since the economic downturn in 2008, rental rates have remained relatively stable. At \$2,031, the two-bedroom unit rental rate in Fort McMurray is highest in the country – 68% higher than the second most expensive rental market – Vancouver.

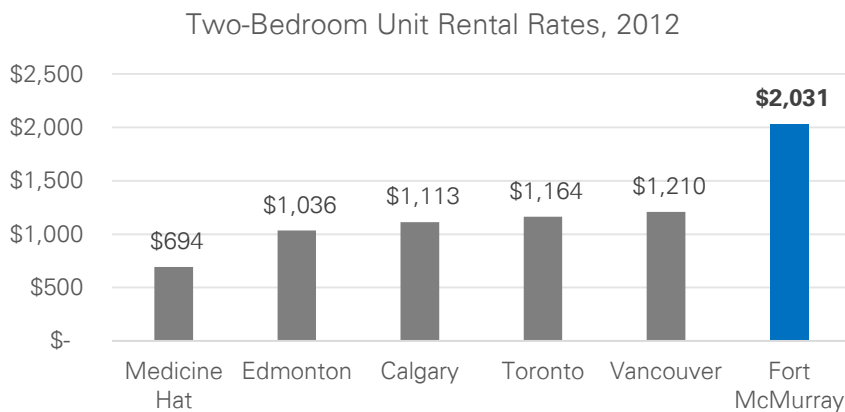


Figure 12. Comparison of Rental Prices in Wood Buffalo to Other Canadian Cities

Source: KPMG Analysis of MLS data from various local Real Estate Boards, Accessed from Backgrounder on Housing: Jackpine Mine Expansion and Pierre River Mine, Regional Municipality of Wood Buffalo Joint Panel Review

Previous studies have found that the primary impact of consistently high rental rates is that it makes housing unaffordable for people who are interested in moving to Fort McMurray, who do not have

the salaries supported by the oil-sands industry.⁷ This has been argued to in turn lead to labour force shortage in non-oil sands related jobs, such as in the service sector that has been attributed to the rising cost of accommodation.⁸

2.5 The Importance of Housing Support in Wood Buffalo

The high price of rental and other housing units makes it challenging for some households to be able to find affordable housing. This challenge is particularly pronounced for vulnerable segments of society, such as low-income families, people living with disabilities and the elderly. Previous studies have found that the lack of affordable housing not only creates a financial burden for families and individuals, but can also lead to poorer health outcomes, lower educational attainment for children, and higher incidence of crime, among other factors.⁹

By constructing and maintaining affordable housing units, the Wood Buffalo Housing & Development Corporation (WBHDC) creates tangible economic benefits in terms of jobs created and sustained, economic value-added (i.e. GDP contribution), labour income and government revenues, which are in turn invested in the community. These impacts are quantified in Section 3 of this report. Additionally, by providing support for low-income families, seniors, people with disabilities and working families who may otherwise be priced out of the market, WBHDC is potentially creating additional socio-economic benefits typically associated with such activities. These additional benefits are introduced in Section 4 of this report.

⁷ Submission of Intervention of Regional Municipality of Wood Buffalo, Joint Review Panel Hearing of Application No. 1554388, 2012

⁸ Alberta Energy Oil Sands Secretariat Publications, "investing in our Future: Responding to the Rapid Growth of Oil Sands Development" (The 2006 Radke Report), December 29, 2006, p. 92.

⁹ Housing is Good Social Policy, Tom Carter, CPRN, 2004

3 Economic Impact of the Wood Buffalo Housing & Development Corporation

3.1 Economic Benefits Studied

Through its investments and ongoing operations, WBHDC brings a range of socio-economic benefits to the province of Alberta and the local community. In this study we have focused on quantifying 4 dimensions of economic impact – Value-added (GDP), Jobs, Labour Income, and Government Revenue. Each of these benefits is defined and quantified in this section. Additionally, we have described eight dimensions of potential socio-economic impacts, including urban development, discretionary spending, job proximity, wealth accumulation, educational attainment, health outcomes, crime rate, and settlement of migrants.

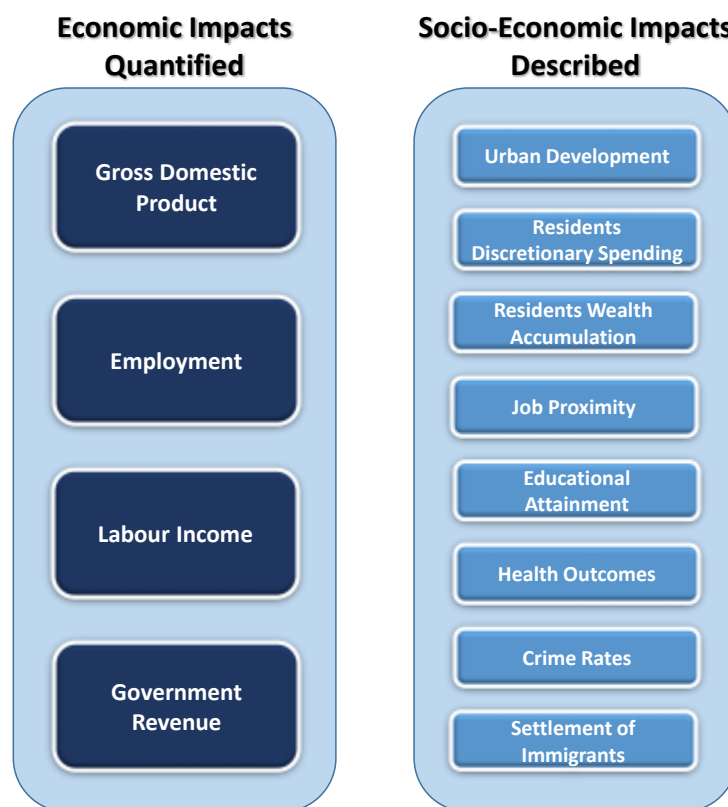


Figure 13. Economic Benefit Framework

Gross Domestic Product (GDP)

GDP is the “total unduplicated value of goods and services produced in the economic territory of a country or region during a given period”.¹⁰ GDP includes household income from current productive activities (wages, salaries and unincorporated business income) as well as profits and other income earned by corporations. In the context of our study, GDP serves as a measure of the total economic

¹⁰ Statistics Canada – Industry Accounts Division, System of National Accounts, 2009

value-added in Alberta resulting from the construction of WBHDC's housing project portfolio and WBHDC's operations.

Employment

In our study we measure the employment impact in terms of full-year equivalent positions for ongoing employment (i.e. employment impact associated with annual expenditures). Full-year equivalent positions are counted according to their duration and not according to whether they were employed on a full-time or part-time basis. That is, two part-time employees would be counted as one full-year equivalent if the total time they spent on the job adds up to one year. This approach is consistent with standard statistical terminology.

Labour Income

Labour income represents the total earnings of employees (including employees of suppliers to WBHDC), consisting of wages and salaries as well as supplementary labour income (such as employer's contributions to pension funds, employee welfare funds, the Unemployment Insurance Fund and Workers Compensation Fund).

Government Revenues

There are three main drivers of government revenues in the province: provincial and municipal product and production taxes like sales taxes, property tax, environment taxes etc.; provincial personal income tax; and provincial corporate income tax. This study quantified government revenues from the first two sources, namely product and production taxes, as well as personal income taxes.¹¹ Our government revenue estimates do not include corporate income tax paid by suppliers of WBHDC and their sub-contractors due to the confidential nature of this information.

3.2 Types of Economic Impacts Studied

WBHDC investments and operations impact the economy via three main economic mechanisms, commonly referred to as direct impact, indirect impact and induced impact. While our study quantified all 3 impacts, we have chosen to summarize our results by totalling the Direct and Indirect impacts only. This makes our results relatively conservative, and avoids concerns that are sometimes expressed with the attribution of Induced Impacts to specific projects, as explained further in this section. We present our working definition of each type of impact below.

Direct Economic Impact

Direct economic impacts represent the economic value added directly associated with WBHDC's project and operating expenditures. For example, they include the employment and income of WBHDC employees and contractors directly involved in the construction of a housing project, as well as the associated product, production and income taxes paid.¹²

¹¹ Specifically, provincial product and production taxes include the environment tax, gallon tax, trading profits, gas tax, amusement tax, and sales tax. Municipal product and production taxes include amusement tax, property tax and MST. Personal income tax includes provincial income tax only.

¹² For a technical definition of direct, indirect and induced economic impacts refer to Statistics Canada - Industry Accounts Division, System of National Accounts, 2009

Indirect Economic Impact

Indirect economic impacts represent the economic value added resulting from the demand for goods and services that the project activities generate for suppliers of the first-line agents. They represent, for example, economic activity generated in the manufacturing, wholesale trade, transportation and professional service sector as a result of demand for materials and services generated by a housing construction project.⁹

Induced Economic Impact

Induced economic impacts are an estimation of the production and imports associated with the spending of salaries and wages on consumption. An example of an induced economic impact are the employees or suppliers of WBHDC purchasing goods and services (at a household level) with their earnings.⁹ Induced economic impacts, while having a significant effect on the economy, are sometimes not considered when evaluating a specific activity's economic impact. This is due to the difficulties with establishing how much of the spending would have occurred in the absence of the activity. This impact is further complicated by the possibility that the earnings are spent in a different jurisdiction, which may be particularly relevant to the Wood Buffalo region where there is a relatively high number of transit workers. For those reasons, while we have developed estimates of the induced impacts, we have chosen not to include them in the total economic benefits reported. Our economic impact estimates, are therefore conservative.

		Levels of Economic Impact		
		Direct Impact	Indirect Impact	Induced Impact
Indicators of Economic Impact	GDP	Value-added directly associated with WBHDC's activities (ex. value created by the construction industry due to demand from WBHDC construction projects)	Value-added as a result of demand by WBHDC's suppliers (ex. value created by the manufacturing sector in transforming raw materials into appliances installed in a WBHDC project)	Value-added through the spending of direct and indirect labour income (ex. the value created by the retail industry due to spending by WBHDC staff or construction project team)
	Employment	Employment created or sustained directly by WBHDC's activities (ex. WBHDC staff, employees of construction contractor)	Employment created or sustained in industries that supply to WBHDC or first-line agents of a project (ex. employees in manufacturing, transportation, utilities, wholesale sectors)	Employment created or sustained through the spending of direct and indirect labour income (ex. employment created in the retail industry due to spending by WBHDC staff or construction project team)
	Labour Income	Labour income generated directly as a result of WBHDC's activities (ex. income earned by WBHDC staff, construction workers)	Labour income generated in industries that supply to WBHDC (ex. income earned by employees in manufacturing, transportation, utilities, wholesale sectors)	Labour income generated through the spending of direct and indirect labour income (ex. income earned by retail employees)
	Government Revenues	Product and Production taxes paid on goods and services purchased by WBHDC, and income tax paid by WBHDC employees	Product and Production taxes paid on goods and services purchased by WBHDC's suppliers, and income tax paid due to indirect employment impact	Government revenues generated through the spending of direct and indirect labour income (ex. income tax paid due to induced employment impact)

Figure 14. Economic Impact Descriptions

3.3 Economic Impact Analysis Summary

3.3.1 Summary of WBHDC's Capital and Operating Expenditures

Since its inception in 2003, WBHDC has invested \$323M (in 2013 dollars) in the construction of housing units, commercial units and in land development across Wood Buffalo. These investments include 16 rental housing projects, 7 affordable housing projects, 1 commercial project, and 3 land development projects.

The Rental Housing units are owned and operated by WBHDC. The capital expenditure on each project varies significantly, with the median project costing approximately \$10 million. These housing projects include one-, two-, and three-bedroom apartments, townhomes and single family homes, built in different regions in Wood Buffalo, including Fort McMurray, Conklin and Janvier. In total, WBHDC has built 1,258 rental housing units, which make up approximately 30% of all rental units in Wood Buffalo.¹³

The corporation has also developed 273 private affordable housing units in Fort McMurray, Conklin and Janvier, which were sold on the market. WBDHC has also undertaken land development projects and has subsequently sold land to third parties.

During the construction of these projects, over the period 2003-2013, WBHDC has procured goods and services from 291 vendors. At least 86% of these vendors were based in Alberta.

WBHDC's Housing Projects (2003-2013)

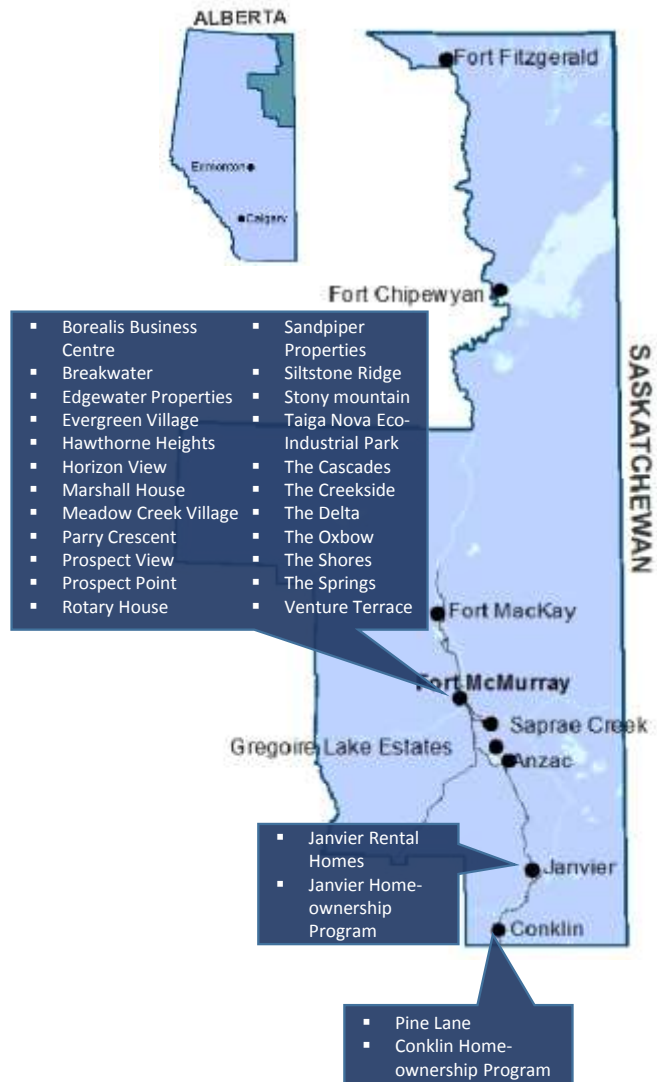


Figure 15. WBHDC's Housing Projects by Location
Source: WBHDC

In addition to these capital investments, WBHDC has spent \$192 million (in 2013 dollars) on maintenance of the housing infrastructure owned and operated by WBHDC, as well as the

¹³ As per the CMHC Rental Market Survey, there were a total of 2,865 privately built rental units in Wood Buffalo in 2013. WBHDC has built 1,258 rental units as of 2013. WBHDC's market share was calculated by dividing 1,258 units built by WBHDC, by the total rental units available in the market (4,135). Please see Appendix 1 for a detailed description of the types of housing projects developed by WBHDC and the number of units by type of dwelling (apartments, townhomes and single-family homes).

maintenance of the organization's office operations.

Over the period 2003-2013, WBHDC has procured goods and services from 774 vendors to support its operations. At least 76% of these vendors were based in Alberta.

The following section presents a summary of the economic impacts of WBHDC's capital investments and operating expenditure since inception, as well as the ongoing annual economic impact generated through operating expenditure.

3.3.2 Economic Impact to Alberta of WBHDC's Housing Infrastructure Investments

Based on expenditure data provided by WBHDC, KPMG estimates that the **\$323 million** of capital investments have had a direct and indirect economic impact of approximately **\$243 million** in GDP contribution, **2,560** FTE Person-Years of employment created or sustained, **\$197 million** of labour income earned, and **\$30 million** in government revenues generated in Alberta.

We believe these economic impact estimates, as well as the operating impact estimates presented in section 3.3.2 to be conservative due to the following factors:

- The economic impact totals do not include our estimates of induced impact, which accounts for the spending of wages and salaries earned by employees of WBHDC and its contractors;
- Our estimates do not account for the economic impact of the sale of land developed by WBHDC and the potential impact of investing the incurred surplus
- The estimates of government revenue contributions do not account for revenue generated via corporate income tax from WBHDC's suppliers and their sub-contractors;
- The scope of our analysis does not include the socio-economic impacts potentially generated by WBHDC's social programs and activities (refer to Section 4)

The economic impact estimates presented are for the province of Alberta only and exclude any direct, indirect and induced benefits that accrue to other provinces and territories in Canada as a result of economic activity in Alberta. Also the economic impact estimates do not include the federal government revenue generated by economic activities in Alberta and other provinces or territories.

Economic Impact to Alberta of WBHDC Capital Expenditures (2003 – 2013)	Direct Impact	Direct & Indirect Impact	Induced Impact
GDP (\$ CDN)	\$161 M	\$243 M	\$74 M
Employment (FTE Person-Years)	1,965	2,560	526
Labour Income (\$ CDN)	\$149 M	\$197 M	\$32 M
Government Revenue (Alberta) (\$ CDN)	\$22 M	\$30 M	\$12 M

Figure 16. Summary: Economic Impact to Alberta of WBHDC Capital Expenditures (2003 – 2013)

Source: KPMG Analysis, Statistics Canada I/O Model

3.3.3 Economic Impacts of WBHDC's Operating Expenditures

Since 2003, WBHDC has spent a total of **\$192 million** (in 2013 dollars), in operating expenditures. KPMG estimates that this expenditure resulted in direct and indirect benefits of **\$155 million** in GDP contribution, **1,119** FTE Person-Years of employment created or sustained, **\$95 million** of labour income earned, and **\$22 million** of government revenue created in Alberta. These figures exclude induced economic benefits to Alberta, and direct, indirect and induced benefits created in other provinces or territories as a result of expenditure in Alberta.

Economic Impact to Alberta of WBHDC Operating Expenditures (2003 – 2013)	Direct Impact	Direct & Indirect Impact	Induced Impact
GDP (\$ CDN)	\$110 M	\$155 M	\$34 M
Employment (FTE Person-Years)	706	1,119	238
Labour Income (\$ CDN)	\$67 M	\$95 M	\$14 M
Government Revenue (Alberta) (\$ CDN)	\$17 M	\$22 M	\$6 M

Figure 17. Summary: Economic Impact to Alberta of WBHDC Operating Expenditures (2003 – 2013)

Source: KPMG Analysis, Statistics Canada I/O Model

Using 2013 as a base year, KPMG estimates that annual operating expenditures in the order of **\$26 million** result in direct and indirect impacts of **\$20.6 million** in GDP contribution, employment of **149** FTE created or sustained, **\$12.7 million** in labour income earned, and **\$3 million** in government revenue generated annually in Alberta. This annual impact is based on operating expenditures only and does not include the impact of any capital investments in a given year.

Annual Economic Impact to Alberta of WBHDC Operating Expenditures (based on FY 2013)	Direct Impact	Direct & Indirect Impact	Induced Impact
GDP (\$ CDN)	\$14.7 M	\$20.6 M	\$4.5 M
Employment (FTEs)	94	149	32
Labour Income (\$ CDN)	\$8.9 M	\$12.7 M	\$1.9 M
Government Revenue (Alberta) (\$ CDN)	\$2.3 M	\$3 M	\$0.8 M

Figure 18. Annual Economic Impact to Alberta of WBHDC Operating Expenditures (based on FY 2013)

Source: KPMG Analysis, Statistics Canada I/O Model

A detailed breakdown and further analysis of the economic benefits from WBHDC's capital and operating expenditure on housing infrastructure is presented in the following section.

3.4 Economic Impact Detail

3.4.1 WBHDC Capital and Operating Expenditures Detail

Our estimates of economic impact are based on the following capital projects and capital expenditure categories. All figures have been inflation adjusted and expressed in 2013 dollars.

Capital Expenditure by Project (2003 – 2013)

Capital Expenses for the Construction of Rental Housing Projects and Commercial Projects		Year	Expenditure (2013 \$)
1.	Edge Water Properties	2003	\$21,736,016
2.	Horizon View	2005	\$15,592,667
3.	Breakwater	2007	\$10,175,394
4.	Marshall House	2007	\$4,332,249
5.	Rotary House	2007	\$2,727,474
6.	The Creekside	2007	\$9,968,245
7a.	Prospect View - A	2007	\$7,690,859
7b.	Prospect View - B	2008	\$7,456,844
8.	Delta	2008	\$11,667,226
9.	Conklin (Pine Lane)	2008	\$1,415,219
10.	The Shores	2009	\$11,515,809
11.	Venture Terrace	2009	\$5,918,308
12.	Janvier	2009	\$1,675,898
13.	Sandpiper Properties	2010	\$47,202,134
14.	The Cascades	2010	\$8,763,469
15.	Stony Mountain	2011	\$32,765,638
16.	Siltstone Ridge	2013	\$44,597,798
17.	Boreal Business Center	2013	\$7,097,444
Total Rental Housing and Commercial Project Expenditures			\$252,298,692
Capital Expenses Incurred for Homeownership Program & Land Development Program		Year	Expenditure (2013 \$)
Homeownership Projects: The Oxbow, The Springs, Hawthorne heights, Parry Crescent, Conklin, Janvier, Evergreen Village Land Development Projects: ¹⁴ Taiga Nova Eco-Industrial Park, Prospect Point, Meadow Creek Village		2006	\$2,982,767
		2007	\$8,109,786
		2008	\$6,838,534
		2009	\$9,515,417
		2010	\$20,804,534
		2011	\$10,803,905
		2012	\$7,976,601
		2013	\$3,290,383
Total Homeownership Program & Land Dev. Expenditure			\$70,321,927
TOTAL Capital Expenditure (2003-2013)			\$322,620,619

Figure 19. WBHDC Capital Expenditure by Project (2003 - 2013) in 2013\$

Source: Data from WBHDC; KPMG Analysis to convert nominal values to 2013\$ using Statistics Canada CPI data for Alberta

¹⁴ Approximately 50% of the total capital expenses incurred from 2006 to 2013 for homeownership and land development projects constituted land development expenses for the Taiga Nova Eco-Industrial Park.

Capital Expenditure by Category (2003 – 2013)

For each capital project we collected and analysed detailed expenditure information by category and expense item. Here, we present a summary of the main expenditure categories across all projects.

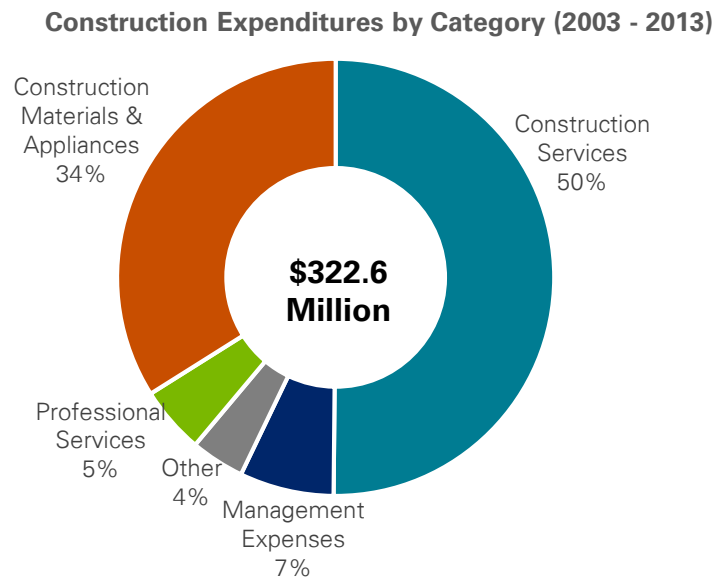


Figure 20. Construction Expenditures by Category (2003 - 2013)

Source: WBHDC Data, KPMG Analysis

Expenditure Category Descriptions

- **Construction Services** include expenses on services such as excavation, foundation building, framing, siding, plumbing, fencing, landscaping, painting, and so on. This category excludes expenses on construction materials and appliances;
- **Construction Materials & Appliances** include expenses on items such as building modules, concrete, structural metals, sand, gravel, tar, shingles, tiles, flooring, appliances, office furniture, and others;
- **Professional Services** include expenses on services such as legal, accounting, engineering, assessments, advertising, marketing, and others;
- **Management Expenses** include expenses related to project management, contract management, field management and others;
- **Other Expenses** include expenses on permits, various fees, commissions, disbursements and miscellaneous items.

Operating Expenditure by Category (2003 – 2013)

Our estimates of economic impact are based on the following operating expenditures by category. Further operating expenditure detail is available in the appendix. All figures have been inflation adjusted and expressed in 2013 dollars.

Operating Expenditure Categories	Expenditure (2013\$)
Compensation	\$67,166,862
Taxes	\$10,638,924
Utilities	\$12,762,455
Operating Expenses	\$21,366,648
Maintenance	\$25,934,776
Administration Expenses	\$21,011,269
Overhead Expenses	\$31,936,185
Cost of Sales	\$1,560,653
TOTAL	\$192,377,772

Figure 21. WBHDC Operating Expenditure by Category (2003 - 2013) in 2013 \$

Source: Data from WBHDC; KPMG Analysis to convert nominal values to 2013\$ using Statistics Canada CPI data for Alberta

* Further operating expenditure detail is available in Appendix 4

WBHDC's Vendors by Province (2003 – 2013)

Over the period studied, WBHDC has procured goods and services from a number of vendors to support construction projects, ongoing maintenance and operations. The vast majority of these vendors are based out of Alberta. A count of vendors by location and activity is provided below.

Jurisdiction	Number of Vendors used for Capital Projects	Number of Vendors used in Operations
Alberta	249	592
British Columbia	12	20
Ontario	24	120
Quebec	1	12
Manitoba	2	9
Saskatchewan	2	3
Newfoundland		1
New Brunswick		1
Nova Scotia		2
Northwest Territories		1
United States		9
Unknown	1	4
Total	291	774

Figure 22. WBHDC's Vendors by Province (2003 - 2013)

Source: WBHDC Data

3.4.2 Economic Impact of WBHDC's Housing Infrastructure Investment

We estimate that over the period 2003 – 2013, WBHDC's capital expenditure on housing infrastructure resulted in:

- Approximately **\$161 million** in GDP contribution directly within the residential construction industry. In addition, by creating a demand for upstream industries such as manufacturing, retail trade, and transportation, WBHDC's capital expenditure created an additional **\$82 million** in GDP, through indirect impacts on supplier industries.
- Approximately **\$149 million** in labour income for workers employed in the construction of WBHDC's housing projects, and an additional **\$48 million** in labour income for workers in supporting industries.
- Over **1,900 FTE** person-years of employment, created or sustained directly in the construction of WBHDC's housing projects, and an additional **600 FTE** person-years of employment in supporting industries as described below.
- Approximately **\$22 million** in direct government revenues to Alberta through provincial and municipal production taxes incurred during the construction of WBHDC's housing units, and provincial personal income tax paid by WBHDC project employees and contractors. In addition, **\$8 million** in government revenues were generated indirectly through product, production and personal income taxes paid by other impacted sectors. Our estimates of government revenue do not include corporate income tax paid by WBHDC's suppliers and their sum-contractors due to the confidential nature of this information.

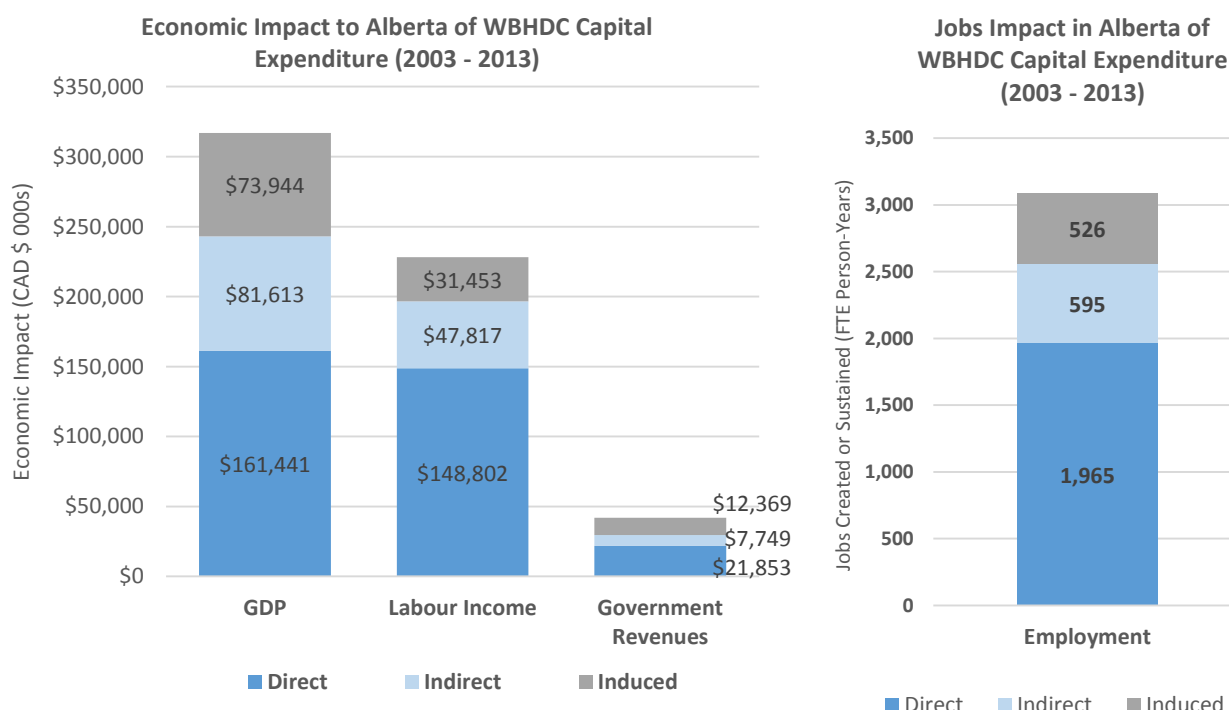


Figure 23. Economic Impact to Alberta of WBHDC Capital Expenditure (2003 - 2013)
 Source: KPMG Analysis, Statistics Canada I/O Model

Employment

We estimate that the vast majority of direct and indirect jobs (80%) created or sustained as a result of WBHDC's construction projects are in the Residential Construction industry. WBHDC's construction activity also creates a demand for goods and services that are supplied from other industries such as raw materials from manufacturers, finished material from wholesalers and retailers, and engineering, procurement and consulting services. As a result, we estimate that 20% of direct and indirect FTEs created or sustained by WBHDC's capital expenditures are in industries outside the construction sector, as identified below.

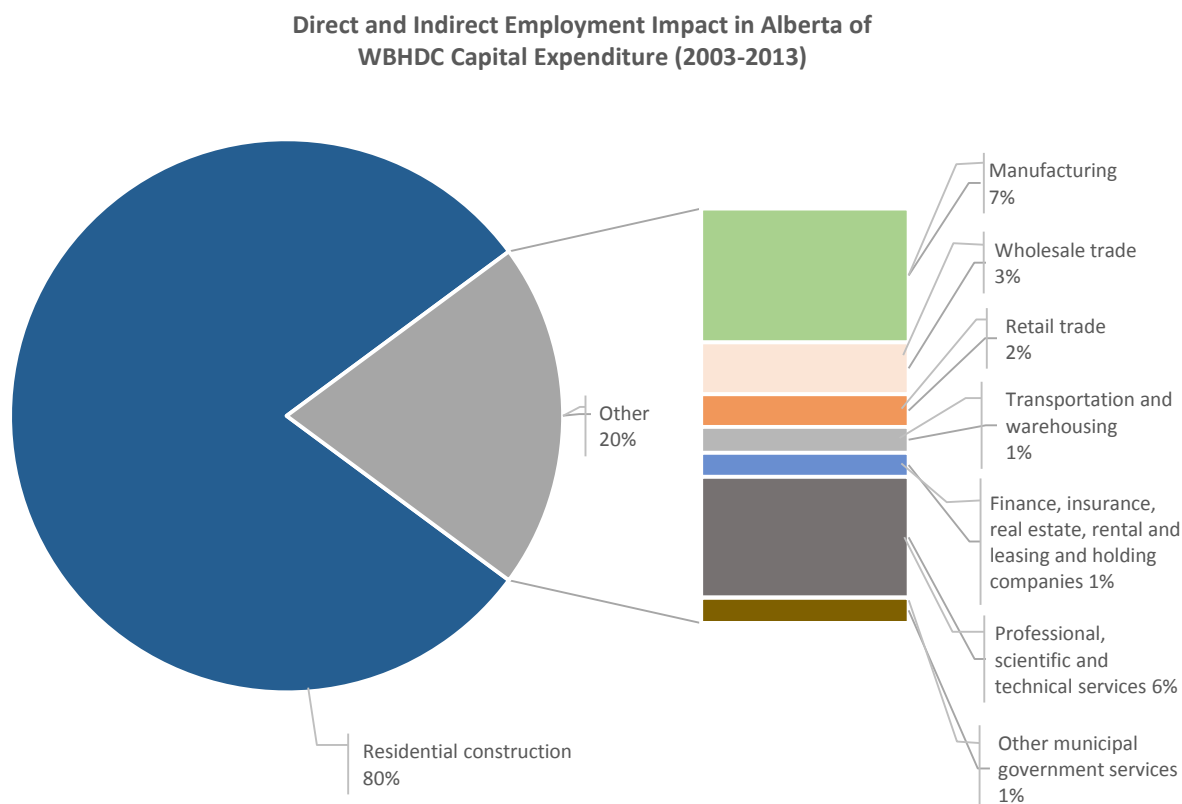


Figure 24. Direct and Indirect Employment Impact in Alberta of WBHDC Capital Expenditure (2003-2013)

Source: KPMG Analysis, Statistics Canada I/O Model

Government Revenues

Of the three drivers of government revenues in Alberta, namely provincial and municipal product and production taxes, provincial personal income taxes and provincial corporate income taxes, the first two have been the subject of this analysis. We estimate that the capital expenditure incurred by WBHDC over the last 10 years generated approximately **\$20 million** in direct and indirect government revenue through provincial personal income taxes paid by workers employed during the construction of WBHDC projects, and employees in supporting industries as identified above. Further, approximately **\$10 million** of government revenues were collected through provincial and municipal product and production taxes such as sales tax, transportation tax, gas tax, and miscellaneous municipal taxes.

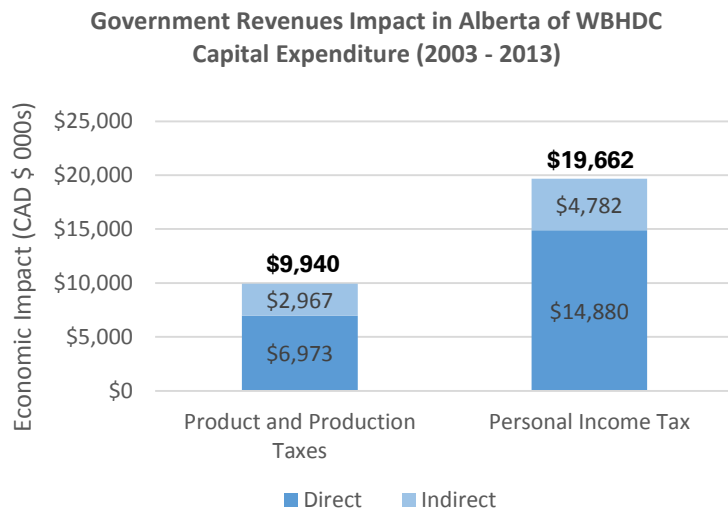


Figure 25. Government Revenues Impact in Alberta of WBHDC Capital Expenditure (2003 - 2013)¹⁵
 Source: KPMG Analysis, Federal and Provincial Tax Code, Statistics Canada I/O Model

3.4.3 Economic Benefits of WBHDC’s Operating Expenditures

We estimate that over the period 2003 – 2013, WBHDC’s operating expenditure on housing infrastructure resulted in:

- Approximately **\$110 million** in GDP contribution directly within the finance, insurance and real estate industry. In addition, by creating a demand for goods and services from other industries, WBHDC’s operating expenditure created an added benefit of **\$44 million** in GDP, through indirect impacts on supplier industries.
- Approximately **\$67 million** in labour income for workers employed directly by WBHDC, and an additional **\$28 million** in labour income for workers in supporting industries.
- Over **700 FTE** person-years of employment, created or sustained directly by WBHDC, and an additional **400 FTE** person-years of employment in supporting industries as described below.
- Approximately **\$17 million** in direct government revenues to Alberta through provincial and municipal production taxes incurred during the operations of WBHDC’s housing units, and provincial personal income tax paid by WBHDC project employees and contractors. In addition, **\$5 million** in government revenues were generated indirectly through product, production and personal income taxes paid by other impacted sectors. Our estimates of government revenue do not include corporate income tax paid by WBHDC’s suppliers and their sum-contractors due to the confidential nature of this information.

¹⁵ Both product and production taxes, and personal income taxes are for Alberta only i.e. they do not include federal taxes paid.

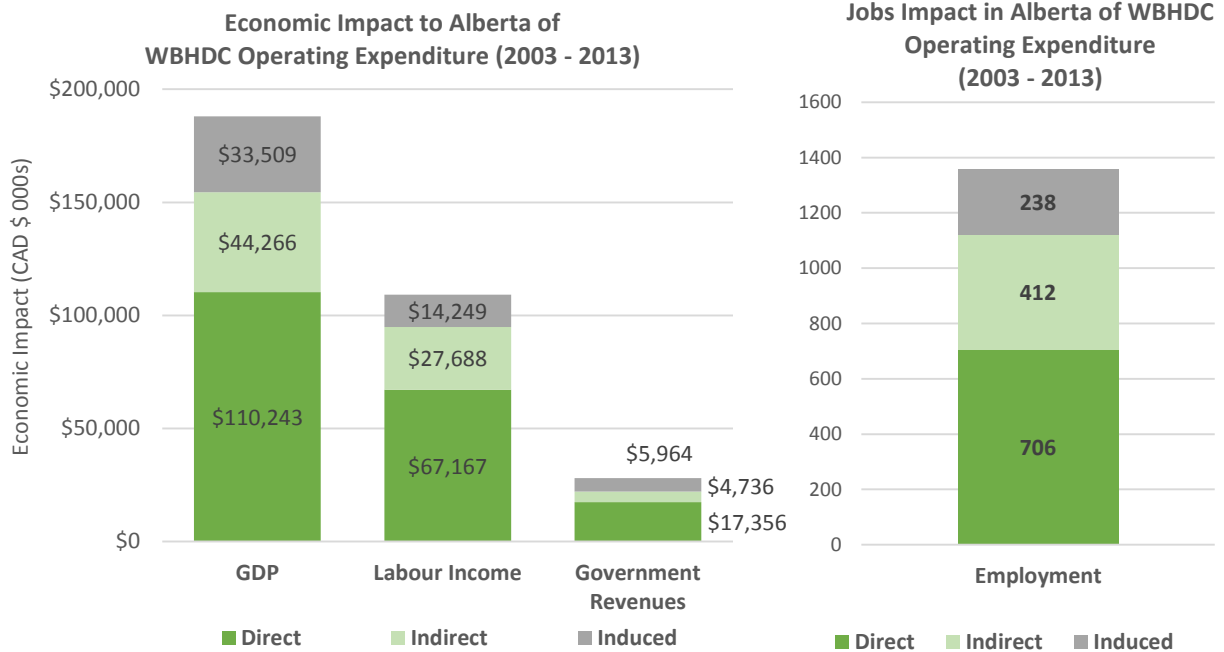


Figure 26. Economic Impact to Alberta of WBHDC Operating Expenditure (2003 - 2013)
 Source: KPMG Analysis, Statistics Canada I/O Model

Employment

We estimate that the majority of direct and indirect jobs (67%) created or sustained as a result of WBHDC's operations are in the Finance, Insurance, Real Estate, Rental and Leasing and Holding Companies Industry. Our direct employment estimates account for the actual employees of WBHDC, which is classified within the aforementioned sector. In addition, WBHDC's operations create demand for goods and services that are supplied from other industries. As such, 11% of WBHDC's direct and indirect jobs impact is in the Administrative & Support, Waste Management and Remediation Services sector, 5% is in trade (Wholesale and Retail combined), and 4% is in Professional, Scientific and Technical Services sector. A complete list of industries impacted by WBHDC operating expenditures are elaborated below.

Direct and Indirect Employment Impact in Alberta of WBHDC Operating Expenditure (2003 - 2013)

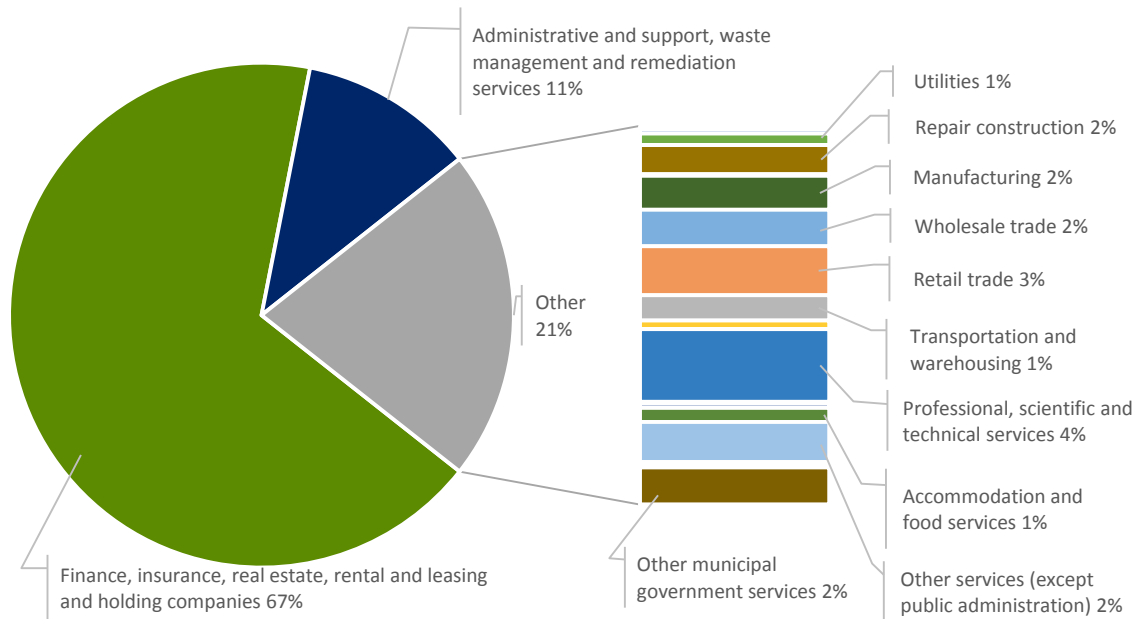


Figure 27. Direct and Indirect Employment Impact in Alberta of WBHDC Operating Expenditure (2003 - 2013)
Source: KPMG Analysis, Statistics Canada I/O Model

Government Revenues

We estimate that the operating expenditures incurred by WBHDC over the last 10 years generated **\$12 million** in direct and indirect government revenues through provincial and municipal product and production taxes such as property tax, sales tax, gas and environment-based taxes. Further, these expenditures generated approximately **\$10 million** in direct and indirect government revenues through provincial personal income taxes paid by WBHDC employees, as well as employees in other industries as identified above.

Government Revenues Impact in Alberta of WBHDC Operating Expenditure (2003 - 2013)

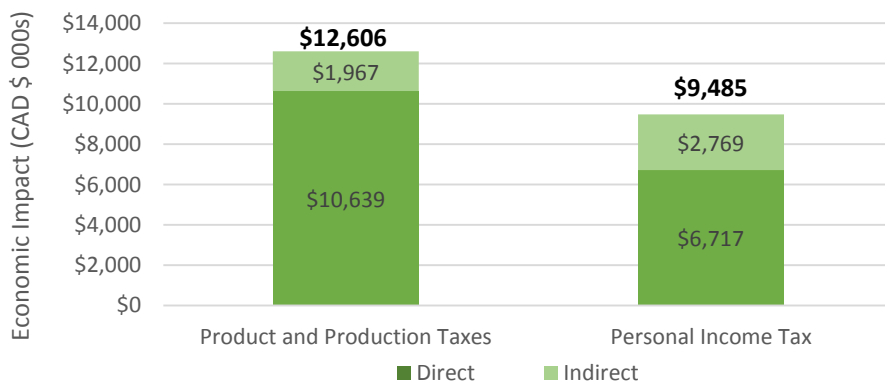


Figure 28. Government Revenues Impact in Alberta of WBHDC Operating Expenditure¹⁶
Source: KPMG Analysis, Statistics Canada I/O Model

¹⁶ Both product and production taxes, and personal income taxes are for Alberta only i.e. they do not include federal taxes paid.

4 Introduction to the Socio-Economic Benefits of WBHDC's Programs and Activities

In addition to the economic benefits in focus of this report, the social programs and activities of the Wood Buffalo Housing & Development Corporation bring additional benefits to the local community. This section introduces several types of potential socio-economic benefits usually related to affordable housing, and explains the mechanism via which they may occur. An analysis of the presence and quantification of these benefits has not been done, and would be a potential subject for a follow-on study.

Urban Development

Investments in the construction and maintenance of new buildings, renovation and transformation of old buildings, and land development improve the urban landscape and can have a positive effect on the value of local land, dwellings and businesses. This in turn may promote further investment and economic development in the region. Moreover, new construction creates opportunities to employ newer energy-saving technologies such as solar panels and geothermal heating, which enable efficient use of resources and promote sustainable development practices.

Discretionary Income

Programs that reduce the cost of housing can significantly reduce the financial burden for families and individuals. This leaves household with higher disposable income which could translate into higher spending on goods and services, thereby contributing to the economy and enhancing quality of life. The spending of this discretionary income brings additional second order benefits to the local economy and results in higher government revenue through taxation.

Job Proximity and Labour Market Impacts

Provision of housing in areas that are closer to employers (e.g. town centres) can improve the ability of residents to find and sustain a job, while also reducing travel costs. Previous studies have also found that permanent residency has a positive impact on the labour market in the region. Since resident workers are able live in a permanent home rather than in project accommodations or other temporary residences, the costs of temporary accommodation is reduced for the employers, and workers are able to live closer to their families, all of which help to boost employee retention.¹⁷

Wealth Accumulation

The provision of affordable housing can have a significant positive impact on homeownership rates among residents. Previous studies have found that homeownership is a key driver of wealth accumulation (particularly for young families).¹⁸ Equity in a residence can account for up to 40% of the net worth of homeowners.¹⁹ The net worth of homeowners is also 17 times the net worth of

¹⁷ Submission of Intervention of Regional Municipality of Wood Buffalo, Joint Review Panel Hearing of Application No. 1554388, 2012

¹⁸ Low-Income Households: Outcomes for Families and Communities; Jesse Hajer, 2009.

¹⁹ Housing is Good Social Policy, Tom Carter, CPRN, 2004

renters.¹⁹ As a result, programs and policies that increase homeownership can be vehicles of poverty reduction, and means of increasing financial stability for households and communities over the long term.

Educational Attainment

Affordable housing solutions support families in remaining in their homes longer and can reduce moves from one dwelling to another. Home location stability has been shown to have a positive impact on residents, particularly on children. For example, children who have to change schools through the course of their education are more likely to have grade repetitions, poor school achievement, and overall psychological and behavioural issues as a result.¹⁹ The quality of the household also has an impact on educational attainment, as overcrowding and poor household infrastructure has been shown to cause acute psychological symptoms and poor performance on educational tests among children.¹⁹ More spacious accommodations on the other hand, provide adequate space for children to study, and as such, have been shown to impact the educational levels attained. Healthy early childhood development can therefore be an important social outcome of housing tenure and stability for a community.

Health Outcomes

Housing tenure and housing conditions can also impact the wellbeing of the families and individuals residing there. The lack of adequate shelter – be it poor quality housing or the lack of housing altogether – can have a significant negative effect on the health and wellbeing of families. Poor housing has been shown to pose a higher risk of disease and mortality.¹⁹ Moreover, the physical conditions of the house such as the age of its structure, heating and ventilation can have a direct impact on the physical health of the individuals in that household. New, well maintained structures tend to emit a lesser amount of toxic substances from their bricks, carpets and paint, mitigating the risk of disease and respiratory illnesses that may be present in older dwellings.¹⁹ Well-maintained homes also prevent the illnesses that may be caused by rodents that infest older dwellings. Mental health status can also be impacted, not only by poor housing conditions, but also by the financial burden of housing-related costs. Improvements in health outcomes not only benefit residents directly but may have an indirect benefit to healthcare service providers through healthcare cost avoidance.

Crime Rates

Ownership of a home gives a resident the incentive to maintain their property and prevent crime, both against their own property, as well as that of other members of the community. Property crimes can have result in significant financial losses to the homeowner, while crimes in the area can lower the profile of the neighbourhood and bring down property values in the region.¹⁹ As a result, higher levels of homeownership are typically correlated with lower crime rates in a community, as property owners are more invested in the development and maintenance of their own homes, and of stable neighbourhoods. Any reduction in crime rates would not only benefit residents directly but may have an indirect benefit to local enforcement agencies through cost avoidance.

Settlement and Integration of Immigrants

In regions that feature significant immigrant populations, the effective settlement of immigrants is important for the stability of the labour market and for overall economic development. Housing tenure can play an important role in facilitating this settlement and integration process. Affordable housing can allow immigrants, who often have lower household incomes than residents of a region, to own a home earlier in their settlement cycle. Homeownership has been shown to bring significant benefits such as higher income security, better health and educational attainment and lower encounters with crime. This in turn can also reduce the economic burden on local government to provide welfare assistance and reduce spending on other public services such as health care and policing.¹⁹





5 Conclusion

The region of Wood Buffalo has witnessed a rapid rise in the price of housing in recent years, such that house prices and rental rates are among the highest in the country. In this context, providing affordable housing solutions plays an important social and economic role in the community.

We find that through its capital investments in housing infrastructure and through its operations, the Wood Buffalo Housing & Development Corporation has had, and is having, a significant economic impact in the region. Over the last 10 years, WBHDC's capital expenditures created a direct and indirect impact of \$243 million in GDP contribution, 2,560 FTE person-years in employment, \$197 million in labour income, and at least \$ 30 million in government revenue in Alberta. In addition, over the same time period, WBHDC's operating expenditures created a direct and indirect impact of \$155 million in GDP contribution, 1,119 FTE person-years of employment, \$95 million in labour income, and at least \$22 million in government revenue in Alberta. Using 2013 as a base year, we find that WBHDC's direct and indirect annual impact amounts to \$20.6 million in GDP contribution, 149 FTE person-years of employment, \$12.7 million in labour income, and at least \$3 million in government revenue in Alberta.

We also believe that the social programs and activities WBHDC undertakes potentially bring additional dimensions of socio-economic impact, typically associated with affordable housing programs. These may include value-added through urban development, increased discretionary income and wealth accumulation, improved job proximity, improved health outcomes, better educational attainment for children, lower crime rates, and improved settlement and integration of immigrants. An analysis of the presence and quantification of these benefits could be a potential subject for a follow-on study.

Appendix 1 WBHDC Projects Studied

Project	Image
<p>Edge Water Properties, Fort McMurray <u>Year:</u> 2003 <u>Description:</u></p> <ul style="list-style-type: none">• 17 three- and four-bedroom townhomes• 149 apartments	
<p>Horizon View, Fort McMurray <u>Year:</u> 2005 <u>Description:</u></p> <ul style="list-style-type: none">• 20 three- and four-bedroom townhomes• 109 apartments	
<p>Breakwater, Fort McMurray <u>Year:</u> 2007 <u>Description:</u></p> <ul style="list-style-type: none">• 105 apartments	
<p>Marshall House, Fort McMurray <u>Year:</u> 2007 <u>Description:</u></p> <ul style="list-style-type: none">• 26 one-, two-, and three-bedroom apartments	

Prospect View - A, Fort McMurray

Year: 2007

Description:

- 50 apartments



Rotary House, Fort McMurray

Year: 2007

Description:

- A seniors' accommodation project, including 39 lodge and self-contained units for 80 people.



The Creekside, Fort McMurray

Year: 2007

Description:

- 36 three-, and four-bedroom townhomes



The Delta, Fort McMurray

Year: 2008

Description:

- Includes 57 three- and four-bedroom townhouses.
- It is the first project in Fort McMurray to offer geothermal heating.



Prospect View - B, Fort McMurray

Year: 2008

Description:

- A 100-acre residential development which includes 40 two-, and three-bedroom townhomes.



Conklin (Pine Lane), Conklin

Year: 2008

Description:

- 12 townhomes



The Shores, Fort McMurray

Year: 2009

Description:

- 38 one- and two-bedroom rental units.
- Under an agreement with Alberta Health Services, 17 units are provided for essential hospital employees



Venture Terrace, Fort McMurray

Year: 2009

Description:

- 40 two-, and three-bedroom townhomes



Janvier, Janvier

Year: 2009

Description:

- 9 single-family homes



Sandpiper Properties, Fort McMurray

Year: 2010

Description:

- 152 one- and two-bedroom rental units
- 20 three-bedroom rental townhouses.



The Cascades, Fort McMurray

Year: 2010

Description:

- 40 two-, and three-bedroom townhomes



Stony Mountain, Fort McMurray

Year: 2011

Description:

- 124 affordable housing units
- Units feature the latest energy-saving technologies, including solar panels and geothermal heating.



Boreal Business Center, Fort McMurray

Year: 2013

Description:

- Commercial property with 5 bays



Siltstone Ridge, Fort McMurray

Year: 2013

Description:

- 156 one-, two- and three-bedroom apartments
- 19 townhomes.



Homeownership Projects and Land Development Projects, Fort McMurray, Conklin and Janvier

Years: 2006 – 2013

Homeownership Projects: The Oxbow, The Springs, Hawthorne heights, Parry Crescent, Conklin, Janvier, Evergreen Village

Land Development Projects: Taiga Nova Eco-Industrial Park, Prospect Point, Meadow Creek Village



Appendix 2 Methodology Detail

In order to assess the economic impacts of WBHDC's capital investments and ongoing operating expenditures, KPMG followed the following methodology:

1 Review of the Wood Buffalo Housing Context

To build an understanding of the housing market in Wood Buffalo, we analysed secondary data from publically available sources to study the trends in demand and supply of housing in the region. We analysed statistics in population, labour force, and income as key drivers of demand for housing, and compared our findings with supply-side trends, such as housing starts and project accommodations, ending with an assessment of sale and rental price of homes in the region.

2 Capital and Operating Expenditure Data Collection and Analysis

In order to accurately reflect the impact of WBHDC's housing projects, we have defined the impact period as the time since inception of the agency to present day i.e. 2003 - 2013. We recognised the following expenditure to have occurred during this time period:

- **CapEx:** expenditures incurred on the construction of 16 rental housing projects, such as Sandpiper Properties, Rotary House, and The Cascades, and 1 commercial project (Borealis Business Centre), which are all managed and operated by WBHDC after construction.²⁰ In addition, the costs of construction incurred as part of the Homeownership Program (under which housing units built by WBHDC are sold at below market rates) as well as Land Development projects have also been included in total CapEx.
- **OpEx:** expenditure on the maintenance and operations of all of WBHDC's capital assets, including its own office buildings and infrastructure, has been included.

In order to estimate economic impacts, data for capital expenditures by project and operating expenditures by year were obtained from WBHDC. Accuracy of the economic impact estimation is greatly enhanced if a detailed breakdown of CapEx and OpEx into individual cost categories is available. It was therefore our goal to collect expenditure information from WBHDC in as much detail as possible. However, due to changes in financial reporting procedures over the course of 10 years studied, the level of detail in the available CapEx and OpEx data varied across projects and years. For this reason, a number of adjustments had to be made to the raw data, as summarized below:²¹

- **CapEx:** A detailed breakdown of total CapEx into individual line items was only available for 6 of the 17 rental building projects; for the remaining 11 projects and the Homeownership projects, total CapEx was provided. In order to aggregate total expenditures, we first consolidated the expenditure data for the 6 projects for which detailed information was available. Next, we used the distribution of capital costs across the different expenditure categories in Sandpiper Properties as a reference project to pro-rate the total CapEx for each of the remaining projects. The detailed expenditure data was then aggregated, to obtain a detailed total CapEx schedule for the years 2003 – 2013.

²⁰ A detailed description of all capital projects studied is included in Appendix 1.

²¹ For a more detailed description of the data analysis methodology and assumptions, please refer to Appendix 4.

- **OpEx:** A detailed breakdown of total OpEx into individual cost categories was available for the years 2008 – 2013. The average distribution of costs across these years was then used to pro-rate total OpEx in the years 2003 – 2007 to individual line items. The detailed expenditure data was then aggregated, to obtain a detailed total OpEx schedule for the years 2003 – 2013.

3 Expenditure Types Categorization and alignment to Statistics Canada’s Input Output Model

The Statistics Canada Input-Output model was used in this engagement to estimate the impacts on GDP, employment, labour income and tax revenues that result from WBHDC’s capital expenditures and operations in the province. KPMG provided Statistics Canada with total CapEx and OpEx schedules as estimated in the previous step. The detailed expenses were allocated to Statistics Canada’s standardized industry input categories.

4 Economic Impact Simulation and Output Analysis

Once KPMG and Statistics Canada agreed on the allocation of expenses to standard industry input categories, Statistics Canada ran the economic shock through the Input-Output model. Statistics Canada ran the model separately for each of the following economic shocks:

- For WBHDC Capital Expenditures (i.e. expenditures on 17 rental building projects and on the construction costs of the Homeownership and land development projects, for the years 2003 – 2013), one model was run using a shock on intermediate inputs (accounting for roughly 95% of total CapEx), and another model was run using a shock on capital (GFCF) (accounting for roughly 5% of total CapEx).
- For WBHDC Operating Expenditures (i.e. expenditures for the years 2003 – 2013), the model was run once, using a shock on intermediate inputs

Upon receiving the results from the model, KPMG extracted, analyzed, and interpreted the raw data to determine the direct, indirect and induced impact of WBHDC projects, on GDP, employment, and labour income generated through construction and operations. Details on the Statistics Canada I-O model and the way it was used for the purposes of this study are available in Appendix 1.

5 Economic Benefits Aggregation and Assessment

After receiving the results of the I-O model run, KPMG assessed economic impact across four dimensions, as follows:

- Gross Domestic Product (GDP): the value-added from the economic activities undertaken by WBHDC.
- Employment: FTE person-years of employment created or sustained through WBHDC’s activities.
- Labour Income: the income earned through WBHDC’s expenditures
- Government Revenue: the product and production taxes, as well as personal income taxes generated through WBHDC’s expenditures.²²

²² Product and production taxes were estimated by the I-O model, whereas personal income taxes were estimated using data for the average salary per worker (as estimated by the model), and the income tax rate (from the Alberta tax code).

Each of these impacts were assessed at three distinct levels:

- Direct: impacts created directly within the industry that was shocked (i.e. construction industry for CapEx results, and Finance, Insurance, Real Estate, Rental, Leasing and Holding Companies industry for OpEx.
- Indirect: impacts created within supplier industries like Manufacturing, Retail Trade, Transportation, as WBHDC's expenditures create a demand for a goods and services from other sectors.
- Induced: impacts created by the spending of labour income, earned through direct and indirect impacts. While these impacts are reported in this study, the focus of the analysis is on direct and indirect impacts, since the intuition is that the labour income earned through WBHDC's activities does not necessarily get spent in Alberta, as the Wood Buffalo region is largely made up of migrant workers. For this reason, induced impact is not explored in further detail.

The scope of our impact assessment was the impact created within Alberta, and not that which accrues to other provinces.

Appendix 3 Economic Model Detail

Introduction

Input-output models (I-O models) are used to simulate the economic impact of an expenditure on a given basket of goods and services or the output of one of several industries. Input-output analysis is based on statistical information about the flow of goods and services among various sectors of the economy.

An I-O model divides the economy into a matrix of industries and commodities. Relationships within the model map the production of commodities onto industries, and identify the primary or intermediate commodities that are used in the production of each final commodity used by consumers or sold as an export. The model can then aggregate all of the employment and value-added impacts generated in the supply chain as commodities are produced. I-O models also consider the role of imports, which tie the supply chain to the global economy.

This data is combined into a single model of the economy which can be solved to determine how much additional production is generated by a change in the demand for one or more commodities or by a change in the output of an industry. The simulation results from a “shock” to an I-O model will show the direct and indirect impacts, which industries benefit the most, the number of jobs created, estimates of indirect taxes and subsidies generated, etc.²³

This information, presented in the form of tables, provides a comprehensive and detailed representation of the economy for a given year. An I-O model is essentially a database showing the relationship between commodity usage and industry output.

In Canada, the most authoritative and comprehensive I-O model is the Statistics Canada Interprovincial IO Model, and this is the model that has been used by KPMG for this analysis. As outlined in the Statistics Canada Guide to using the I-O model, the “model has been the greatest potential of all major economic models for capturing the flows of goods and service between industries and consumers at relatively detailed levels.” The I-O model used in this analysis is the most recent version produced by Statistics Canada. The Statistics Canada I-O model is independent to KPMG and is recognized by many as the benchmark by which economic modelling is undertaken in Canada.

Limitations of the Model

The Statistics Canada Input-Output model is the industry standard for estimating economic benefits, however it does present the following key limitations. The model “reflects a simplified macroeconomic structure, and does not include many variables of interest for macroeconomic analysis such as the price level (or its rate of change: inflation, interest rates and other financial variables. The model also lacks important labour market variables such as the labour force and unemployment rates”.²⁴

The model makes a basic underlying assumption that the number of jobs created maintains a linear relationship with short term gross output. “This approach can be considered sound if the value and quantity measures are for the same year and the analysis is focusing on the structure of the economy for that same year. When used for projecting beyond the IO model year, the relationship between values and quantities may be [impacted] by price variations.”²⁵

The model assumes that the Canadian economy has the capacity to produce the goods and services stimulated by the economic shock. The model is not able to forecast situations in which demand may

²³ (Statistics Canada, 2014)

²⁴ (Statistics Canada - Industry Accounts Division, System of National Accounts, 2009)

²⁵ (Statistics Canada - Industry Accounts Division, System of National Accounts, 2009)

outpace current capacity for goods and services. However, the model does estimate the portion of goods and services sourced from other provinces and internationally.

How the Model was used

Once KPMG had collected data from WBHDC on capital and operating expenditures by detailed line items, and the data was normalized to 2010 dollar values, KPMG worked with Statistics Canada to allocate the expenses from each line item to Statistics Canada's standard commodity and industry classifications.

The Statistics Canada I-O model allows for six different types of shocks to the economy:

- 1) A shock on industry output
- 2) A shock on commodity output
- 3) A shock on personal expenditures
- 4) A shock on capital (GFCF)
- 5) A shock on exports
- 6) A shock on intermediate inputs

For capital expenditures, the model was used as follows:

- 95% of total capital expenditures were available at a level of detail disaggregated enough to simulate a shock on intermediate inputs. This allows for a highly accurate estimation of the impact on the demand for goods and services resulting from expenditures on specific capital items.
- 5% of total capital expenditures were simulated as a shock on capital (GFCF), which assumes a production function that allocates the total expenditure to labour and materials.

For operating expenditures,

- 100% of total operating expenditures were available at a level of detail disaggregated enough to simulate a shock on intermediate inputs.

KPMG liaised with Statistics Canada representatives prior to each model run to ensure that the proper commodity and industry classifications were used. The model was then run twice for Capital Expenditures (one using a shock on intermediate inputs and one using a shock on capital), and once for Operating Expenditures. Once the results from all runs of the model were received, the impacts of the two capital expenditure shocks were aggregated to represent the complete results from the I-O model for the Capital Expenditure file. The Operating Expenditure model results were used as provided.

Appendix 4 Data Analysis Detail

Capital Expenditures (CapEx)

The scope of the economic impact assessment included all capital projects undertaken by WBHDC from 2003 to 2013. The estimation of impacts using Statistics Canada's Input-Output (I-O) model required:

- a) A detailed breakdown of capital expenditures undertaken for each project. This is required to accurately assign expenditures to the intermediate inputs coded into the I-O model.
- b) The year in which the capital project was completed (or the majority of the expenditures took place). This is required to deflate or inflate expenditures to 2010 values, which is the reference year for the latest I-O model.

KPMG identified two sources of Capital Expenditures undertaken by WBHDC:

1. The expenditures on building housing units, and rental and business properties that are capitalized by WBHDC. The data for these expenses can be found from WBHDC's CapEx database.
2. The expenditures on building housing units that are eventually sold on the market as part of the Homeownership program. The data for these expenses can be found in WBHDC's OpEx database under the line item "Cost of Construction."

The task of gathering and aggregating capital expenditure data was broken into three main steps as described below.

1. Capitalized Construction

A complete list of the 16 rental housing projects and 1 commercial project that were included in this analysis are summarized in Table 1. A detailed breakdown of the total CapEx into individual line items was available for six of these projects, including The Shores (2009), Sandpiper Properties (2010), The Cascades (2010), Stony Mountain (2011), Siltstone Ridge (2013), and Boreal Business Centre (2013). For the remaining 11 projects, only the total CapEx values were available.

In order to aggregate the expenditure by detailed line item, across the projects, the following manipulations were made to the raw data:

- In order to breakdown the total CapEx values for the 11 projects into individual line items, we used Sandpiper Properties as a reference point. Specifically, we applied the cost allocation of Sandpiper Properties as shown in Table 2, to the total CapEx of other projects in order to allocate the total CapEx value into individual line items. Sandpiper was selected as the reference project as it was considered to be the most representative and accurately documented CapEx breakdown among all other projects by WBHDC.
- For projects such as Siltstone Ridge for which a detailed breakdown was available but was inconsistent with Sandpiper to a large degree, large capital cost buckets such as "Contract Management" and "General Contracting Fees" were broken down further into line items consistent with Sandpiper Properties breakdown, by WBHDC.

2. Non-Capitalized Construction

Any construction activity that is undertaken by WBHDC as part of the Homeownership Program is categorized as an operating expense in WBHDC's accounts. Specifically, these construction costs are embedded in the line item "Cost of Construction" in WBHDC's annual Operating

Statement. This line item includes other expenditures such as Land Development costs incurred under municipal contracts, as well as the cost of buying back homes from beneficiaries of the Homeownership program.

For the purposes of capturing the impact of all of WBHDC's construction activity, it was important to capture the costs of construction incurred under the Homeownership program, as well as under Land Development contracts. While these are not WBHDC's capital assets as WBHDC recovers the cost of building these homes, the construction activity undertaken by WBHDC has follow-on impacts that require that these expenditures be captured in WBHDC's total CapEx rather than in OpEx, and included in the CapEx model run.

In order to include these construction costs in total CapEx, the following assumptions and manipulations were made to the raw data:

- The "Cost of Construction" line item was removed from the Operating Expenditure and included in the Capital Expenditure file. This annual amount is summarized in Table 4.
- After consultation with WBHDC, it was determined that 89% of the total "Cost of Construction" is the cost of building homes and land development expenses (whereas the other 11% represents the cost of buying back homes under the homeownership program).
- The total capital costs as calculated above, were then allocated across detailed CapEx line items as per the Sandpiper Properties cost distribution (i.e. the same methodology as that used to allocate total costs of capitalized projects, as described above).

3. Data Aggregation and Assignment to I-O Model

The detailed CapEx data for all the capitalized projects as well as the Non-Capitalized Construction was added up by year. This data was then transformed into 2010 \$ values using the CPI for Alberta, in order to run the model accurately.

In order to assign the detailed expenditure categories to standard industry inputs in the Statistics Canada I-O model, the following manipulations and assumptions were made:

- 22 line items were further broken down into labour and materials expenditure share, by WBHDC, as shown in Table 3.
- The line items "GST" and "Taxes during Construction" were removed from final, aggregated CapEx, since cash taxes incurred do not create economic impact directly and do not necessarily represent the total tax impact of the expenditure. As such we rely on the output of the I-O model to determine the taxes associated with the total expenditure and use those values exclusively.

After making all of the above adjustments, the final Total CapEx was \$307 million in 2010 \$ (i.e. 323 million in 2013 \$).

Operating Expenditures (OpEx)

The scope of the economic impact assessment included all operating expenditures incurred by WBHDC from 2003 to 2013. Like with the CapEx data, the estimation of impacts using Statistics Canada's Input-Output (I-O) model required a detailed breakdown of operating expenditures undertaken by WBHDC. This is required to accurately assign expenditures to the intermediate inputs coded into the I-O model.

Detailed OpEx data was available for the years 2008 – 2013, as shown in Table 5. The OpEx data for the years 2003 to 2007 was derived from the WBHDC Audited Financial Statements for these years. The following assumptions and manipulations to the raw data were made:

- From the original OpEx data for the years 2008 – 2013, WBHDC removed the line items pertaining to:
 - Depreciation
 - Labour Expenses that were Allocated to Capital Projects
- KPMG removed the line item “Cost of Construction” from OpEx and included it in CapEx. Please see the description above.
- From the “Statement of Operations” in WBHDC’s Audited Financial Statements, the “Total Expenditure” line was extracted from this statement for each year (2003 – 2007). This was assumed to be the total OpEx in each of these years, as confirmed by WBHDC.
- The total OpEx value for each years was allocated to detailed line items as per the average cost distribution over the years 2008 – 2013 (Please see Table 5).
- The yearly expenditure data was then transformed into 2010 \$ values using the Alberta CPI, in order to develop accurate inputs for the I-O model.

In order to assign the detailed expenditure categories to standard industry inputs in the Statistics Canada I-O model, the following manipulations and assumptions were made:

- The following line items were removed:
 - “Food Support Worker Chargeout”, as this is internal transfer pricing
 - “Rent Supplement Expense”, as this is a provincial government pass through payment

After making all of the above adjustments, the final Total OpEx was \$183 million in 2010 \$ (i.e. \$192 million in 2013 \$).

Appendix 5 List of Tables

5.1.1 Table 1. WBHDC Rental Housing and Commercial Projects, 2003 – 2013

Buildings	Capital Expenditure (Nominal \$)²⁶	Year
1. Edge Water Properties	\$18,583,589.30	2003
2. Building – Horizon View	\$13,803,691.77	2005
3. Building - Breakwater	\$9,824,585.12	2007
4. Building – Marshall House	\$4,182,889.51	2007
5. Building - Rotary House	\$2,633,440.73	2007
6. Building - The Creekside	\$9,624,577.75	2007
7. Building - Prospect View	\$14,851,413.69	2007/2008
8. Building - Delta	\$11,618,508.00	2008
9. Building - Conklin (Pine Lane)	\$1,409,309.43	2008
10. The Shores	\$11,415,761.29	2009
11. Building - Venture Terrace	\$5,888,747.93	2009
12. Building - Janvier	\$1,667,527.77	2009
13. Sandpiper Properties	\$47,430,243.53	2010
14. The Cascades	\$8,770,676.26	2010
15. Stony Mountain	\$33,538,778.42	2011
16. Siltstone Ridge	\$45,784,775.79	2013
17. Boreal Business Center	\$7,439,808.36	2013
Total	\$248,468,324.65	

5.1.2 Table 2. Sandpiper Properties, Cost Distribution²⁷

Cost Category	Share of Total Cost
General Labour/ Supervision	5.60%
Building Permit/ Insurance	2.99%
Field Project Management	0.85%
Temporary Utilities	4.67%
Survey, Stake, & Grade	0.05%
Garbage Removal / Cleaning	0.28%
Sand / Gravel / Crusher Chips	0.29%
Underground Services	2.07%
Soils Testing	0.02%

²⁶ This is the original data from WBHDC, before adjustment to 2010 \$ and removal of the line items "GST" and "Taxes during Construction"

²⁷ This is a list of line items only for the Sandpiper Project, which was used to allocate total costs of projects for which a detailed cost breakdown was unavailable. The final list of CapEx line items includes some additional categories that were unique to the other 5 capital projects for which a detailed breakdown was available.

Excavation, Backfill, Rough Grading	1.64%
Site Prep.& Paving	4.38%
Fencing	0.04%
Landscaping	1.27%
Site Grade Improvements	0.64%
Foundation & Footings	0.04%
Concrete Materials	4.13%
Prep., Place & Finish	1.10%
Precast Stairs	0.38%
Structural Metals	0.13%
Decorative Metals	0.18%
Framing Contract	4.12%
Framing Material	1.56%
Floor Joists / Roof Trusses	1.69%
Millwork / Finishing	5.31%
Tar & Weeping Tile	0.28%
Shingles	0.16%
Siding, Soffit, & Fascia	3.92%
Windows & Doors	2.00%
Flooring	2.19%
Insulation, Drywall, Texture	7.69%
Painting	1.79%
Light Fixtures	0.29%
Plumbing	3.67%
Heating	13.82%
Elevator	0.76%
Electrical	4.53%
Utility Connections	0.73%
Contingency on Hard Costs	1.40%
Construction Interest	1.11%
Appliances	0.34%
Blinds	0.13%
Utilities	0.00%
Development Permit	0.00%
Marketing	0.00%
Assessments	0.02%
Fees & Developments	0.05%
CMHC Fees	0.05%
Architecture	3.27%
Geotechnical	0.03%
Engineering	0.04%
Project Management	2.49%
Appraisal	0.02%
QS Service	0.03%

Legal to Mortgage Preparation	0.16%
Mortgage Brokerage	0.34%
Taxes during construction	0.62%
Gst	4.64%

5.1.3 Table 3. Labour and Materials Cost Allocation for Select Cost Categories

Cost Category	Labour	Materials	Description Of Material
Underground Services	75%	25%	Piping/Cables/Sand/Fill
Excavation, Backfill, Rough Grading	75%	25%	Sand/Fill
Site Prep.& Paving	60%	40%	Fill/ Asphalt
Fencing	70%	30%	Chain link/ Posts
Landscaping	60%	40%	Sod/Trees/Shrubs/Soil
Site Grade Improvements	70%	30%	Fill
Foundation & Footings	70%	30%	Compacted Fill/Concrete
Prep., Place & Finish	85%	15%	Sand
Framing Contract	60%	40%	Lumber
Millwork / Finishing	60%	40%	Cabinetry
Siding, Soffit, & Fascia	60%	40%	Siding/Soffit/Facia
Windows & Doors	60%	40%	Windows/Doors
Flooring	65%	35%	Carpet/Lino/Tiles/Ceramics
Insulation, Drywall, Texture	60%	40%	Insulation, Drywall
Painting	60%	40%	Paint
Light Fixtures (PC Sum)	50%	50%	Lights
Plumbing	70%	30%	Piping/Fixtures
Heating	70%	30%	Boilers/MUA/hot water tanks/Piping/Ducks
Elevator	40%	60%	Elevator
Electrical	70%	30%	Wiring/Fixtures
Utility Connections	65%	35%	Piping/Connectors
Contingency on Hard Costs	60%	40%	please pro-rate to above items

5.1.4 Table 4. CapEx from Non-Capitalized Assets (Homeownership and Land Development Projects)

Year	Total "Cost of Construction" (Nominal \$) ²⁸	Cost of Homeownership and Land Development Projects
2006	\$3,082,182.00	\$2,743,141.98
2007	\$8,797,968.00	\$7,830,191.52
2008	\$7,651,660.93	\$6,809,978.23
2009	\$10,638,080.33	\$9,467,891.49
2010	\$23,488,847.32	\$20,905,074.11
2011	\$12,496,120.08	\$11,121,546.87
2012	\$9,328,731.01	\$8,302,570.60
2013	\$3,902,639.92	\$3,473,349.53

5.1.5 Table 5. Operating Expenditure Breakdown and Distribution

Compensation	Distribution of Expenses (2008 - 2013)
Project Labour:	
Project Labour	2.49%
Employee Benefits Project	1.56%
Housing Allowance Project	1.92%
Maintenance Labour	0.45%
Maintenance Labour - Benefits	0.08%
Maintenance Labour - Housing Allowance	0.11%
Housekg/Laun Labour	1.74%
Housekg/Laun Labour - Benefits	0.41%
Housekg/Laun Labour - Housing Allowance	0.52%
Food Services Labour	1.02%
Food Services Labour - Benefits	0.29%
Food Services Labour - Housing Allowance	0.29%
Outreach Worker Labour	0.06%
Outreach Worker - Benefits	0.01%
Outreach Worker Labour Housing Allowance	0.02%
Administration Labour:	
Administration Labour	14.29%
Employee Benefits Administration	2.80%
Housing Allowance Administration	1.85%
Casual Labour Administration	0.01%

²⁸ This is original data from WBHDC, i.e. before adjustment to 2010\$ and removal of the line items "Food Support Worker Chargeout" and "Rent Supplement Expense"

Administration - SERP	0.18%
Administration Bonus	0.21%
Total Compensation	30.31%
Taxes	
Property Tax:	4.81%
Total Taxes	4.81%
Utilities	
Electricity	1.93%
Water & Sewer	2.00%
Heating Fuel	1.82%
Cable TV Service	0.01%
Total Utilities	5.76%
Operating Expenses	
Food	0.78%
Travel & Meals	0.39%
Food Support Worker Chargeout	0.40%
Kitchen Linen/Cleaning Supplies	0.05%
Resident Activities	0.06%
lContr.Conferred toFoodBank	0.01%
Smallwares	0.02%
Janitorial Materials & Service	0.92%
Pest Control & Cleanup	0.15%
Safety and Security- Site specific	1.97%
Snow Removal	0.36%
Waste Removal	0.78%
Vehicle Expenses	0.21%
Minor Equipment Purchase	0.05%
Bad Debts Expense	0.54%
Condo Fees	1.70%
Sundry Expenses	0.06%
Over/Under Petty Cash	0.00%
Over/Under Security Deposit	0.00%
Winter Clothing/Uniforms	0.02%
Rent Supplement Expense	12.76%
Construction Costs	1.60%
Total Operating Expenses	22.82%
Maintenance	
<i>Recurring Maintenance:</i>	
Building Exterior & Interior	1.47%
Heating, Ventilation & Plumbing	1.22%
Appliance Repairs/Replacement	0.17%
Electrical Systems	0.20%
Elevator Repairs	0.25%
Painting Exterior & Interior	0.61%

Grounds, Maintenance & Materials	0.29%
<i>Non-Recurring Maintenance:</i>	
Building Exterior & Interior - NR	6.49%
Heating, Ventilation & Plumbing- NR	0.50%
Appliance Replacement - NR	0.04%
Electrical Systems - NR	0.05%
Grounds Maintenance & Materials - NR	0.34%
Painting-Exterior & Interior - NR	0.08%
Equipment	0.01%
Total Maintenance	11.71%
Administration Expenses	
Printing and Copying	0.17%
Office Expenses	0.18%
Kitchen Expense	0.02%
Telephone, Comm., & Postage	0.54%
Freight & Courier	0.02%
Travel & Meals (other than conf.)	0.08%
Advertising & Promotion	0.52%
Recruitment fee and charges	0.12%
Bank Charges & Interest	0.09%
Short Term Interest	0.10%
IT Support Services	0.20%
Legal & Collection	0.42%
Accounting Fees	0.17%
Audit Fees	0.97%
Professional Fees - Memberships/Dues	0.07%
Consulting Fee	0.43%
Meeting Expenses	0.05%
Staff Relations	0.12%
Conference/Training	0.29%
Travel Meals Conf./Training	0.07%
Office Space Rent Expense	0.41%
Donations Paid	0.01%
Insurance Expense	3.73%
Furniture & Equipment	0.07%
Vehicle Expense	0.06%
Forgiven Second Mortgage	0.02%
Payroll Processing Fee	0.04%
Parking Expenses	0.05%
Deferred Loss Recognized	0.19%
Sundry Expenses	0.26%
Total Administration Expenses	9.46%
Overhead Expenses:	
Interest on Mortgage	13.27%

Mortgage Renewal Fee	0.08%
Computer Hardware	0.12%
Computer Software	0.70%
Computer Maintenance	0.00%
Leasehold Improvements	0.02%
Research & Development	0.25%
Total Overhead Expenses	14.42%
Cost of Sales	
Sales Commission	0.50%
Legal Fees on Sale	0.19%
Total Cost of Sales	0.70%

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