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CUSTOM REPORT

investStratford's Business Investment Attraction Successes— An Economic Impact Analysis

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Executive Summary

This study assesses the economic impact of investStratford’s business investment attraction successes on the Stratford region’s economy. Specifically, the research quantifies the aggregate value of the investments undertaken through investStratford to the Stratford region economy. investStratford provides benefits to many stakeholders including local citizens, the local government, local agencies, educational institutions, and higher levels of government. The agency’s impact on these stakeholders is quantified by conducting an economic impact analysis. Through this analysis, we can also estimate the City of Stratford’s return on investment by comparing its investStratford funding to the economic impact of the economic development agency’s investment wins.

The economic impacts are generated using an economic model that has been specifically developed to isolate local, provincial and national level effects of non-residential/commercial developments in Stratford. The economic impact analysis of each project encompasses two components: the investment phase impact and the operations phase impact. The investment phase impact is temporary, occurring only while construction of a given project is ongoing. The operations phase impact is permanent, recurring every year that the facility remains open and in use. A separate impact is calculated for projects that have been completed and those that are ongoing or in the planning stages (uncompleted projects). We assess investStratford’s economic impact on gross domestic product, employment, wages, and government revenue. The impact on employment is reported in person-years, which is equivalent to one job for one year. For example, hiring ten people for one year is equivalent to ten person-years. Hiring one individual for ten years is also equal to ten person-years.

Stratford possesses many of the ingredients that are necessary to be attractive to both businesses and highly skilled workers. It is a highly livable city, boasting clean air, a vibrant cultural scene, affordable rents, and green spaces. Its economy is gradually diversifying, transitioning from manufacturing to services, broadening its appeal to a wider variety of businesses and workers.

Developments in the region are cause for optimism. A promising project currently in the works is the \$50-million Grand Trunk Community Hub that will include the revitalization of the YMCA, the construction of a bus terminal off Downie Street, and the Conversion of the Grand Trunk building into a community hub¹. The project is currently in the advanced planning and development phase. Also, in late 2017, Stratford was officially designated by the Province of Ontario as an official Demonstration Zone for Autonomous Vehicle Testing— a major coup. This designation officially makes Stratford a site where autonomous vehicle technologies can be tested and showcased in real traffic conditions.² The province established the demonstration zone in partnership with the Automotive Parts Manufacturer’s Association.³ Stratford was chosen in part because it possesses a Wi-Fi network that covers the entire city, which is backstopped by a high-speed broadband network and LTE.⁴ The citywide internet coverage means all connected vehicles

¹ Simmons, “Draft Master Plan for Grand Trunk Community Hub Presented at Council Monday.”

² Autonomous Vehicle Innovation Network. *Demonstration Zone*.

³ Ibid.

⁴ Ibid.

tested in Stratford will operate on one network, essential for controlling the tests and comparing the data.⁵ This designation is likely to have real benefits for Stratford, enabling it to attract STEM workers and as business investment.

In its goal to attract STEM workers, Stratford also benefits from its proximity to the University of Waterloo—which has been recognized for 26 consecutive years as being the most innovative university in Canada by MacLean's magazine⁶. In fact, the city is home to the University's of Waterloo's Stratford campus, which on July 1st, 2018, will officially be renamed The Stratford School of Interaction Design and Business.⁷ The designation is a testament to the success of the campus—its student population has grown at double digit rates. An expansion of the campus is in the works, whose master plan has already been formally approved by Stratford City Council.

⁵ Pender, "Stratford Seeks Starring Role in Self-Driving Car Technology."

⁶ University of Waterloo. *Waterloo Facts*.

⁷ University of Waterloo. *Stratford Campus to Become the University of Waterloo's Newest School*.

Economic Impact of the Investment Phase

We will begin by presenting the investment phase impacts of investStratford’s completed and uncompleted projects.

Completed Projects

We estimate that a total of \$83.1 million has been invested in the City of Stratford since 2015 on projects that have received support from investStratford. These investments boosted Stratford’s GDP by \$27.0 million, including the direct, indirect, and induced impacts. The increased GDP supported an additional 310.3 person-years of employment in the city and an additional \$18.9 million in wages.

Governments also benefitted from investStratford’s efforts, as the investment phase of completed projects boosted revenues for all three levels of government by a total of \$23.3 million. Of that total, \$875,000 was earned by the Stratford municipal government. (See Table E1.)

Table E1
Investment Phase Impacts for Completed Projects

	GDP (nominal \$)	Employment (person-years)	Wages (nominal \$)	Municipal taxes (for Stratford)
Stratford	27,035,827	310.3	18,920,970	875,499

Source: The Conference Board of Canada

Uncompleted Projects

In addition, we calculated that a further \$57.5 million will be invested in the City of Stratford over the next several years, based on announced but uncompleted projects that received support from investStratford. The investment phase of these projects will increase Stratford’s GDP by \$18.7 million. This will support a total of 214.7 person-years of employment and an additional \$13.1 million in wages.

The capital spending on investStratford’s uncompleted projects will support a total of \$17.7 million in tax revenues. Of this amount, about \$2.2 million will be pocketed by the municipal government of Stratford. (See Table E2.)

Table E2
Investment Phase Impacts for Uncompleted Projects

	GDP (nominal \$)	Employment (person-years)	Wages (nominal \$)	Municipal taxes (for Stratford)
Stratford	18,707,101	214.7	13,092,127	2,176,228

Source: The Conference Board of Canada

Economic Impact of the Operations Phase

Completed Projects

The ongoing operations of the completed projects boost Stratford’s GDP by \$42.9 million per year, including the direct, indirect and induced effects. The increased GDP will add a total of 512.3 person-

years of employment, while wages will rise by \$31.2 million. Governments will see their tax revenues increase by a total of \$22.6 million, with \$4.2 million destined for the Stratford municipal government. (See Table E3.)

Table E3**Operations Phase Impacts of investStratford for Completed Projects**

	GDP (nominal \$)	Employment (person-years)	Wages (nominal \$)	Municipal taxes (for Stratford)
Stratford	42,870,932	512.3	31,166,638	4,201,714

Source: The Conference Board of Canada.

Uncompleted Projects

The ongoing operations of the uncompleted projects will increase GDP by \$95.9 million per year. The increased GDP will create 690.7 person-years in employment, boosting wages by \$46.4 million in Stratford. Government tax revenues will enjoy a \$36.7 million windfall, \$2.9 million of that total earned by the local government. (See Table E4.) Municipal tax revenues are expected to be higher in the completed group of projects than in the uncompleted group because they are more likely to include an investment component that will add to the capital stock and consequently property taxes.

Table E4**Operations Phase Impacts for Uncompleted Projects**

	GDP (nominal \$)	Employment (person-years)	Wages (nominal \$)	Municipal taxes (for Stratford)
Stratford	95,904,379	690.7	46,435,124	2,916,168

Source: The Conference Board of Canada.

Total Economic Impacts and Return on Investment

Adding together all four impacts, investStratford's business investment attraction successes will support \$184.5 million in GDP for the Stratford region and 1,728.1 person-years of employment. This increased economic activity will add \$109.6 million to wages and generate \$10.2 million in tax revenue for the Stratford municipal government.

Table E7**investStratford's Total Economic Impact**

	GDP (nominal \$)	Employment (person-years)	Wages (nominal \$)	Municipal taxes (for Stratford)
Stratford	184,518,238	1,728.1	\$109,614,859	\$10,169,609

Source: The Conference Board of Canada.

The tax revenue that the local government is expected to generate from these projects can be compared to the funding that the City of Stratford government provides to investStratford, thus generating a return on investment (ROI). The Stratford municipal government has invested about \$2.3 million over the past four years (2014-17) in investStratford and earned an estimated \$5.1 million in tax revenue from

completed projects, with the potential of earning an additional \$5.1 million from the uncompleted projects. For the completed projects alone, this works out to a solid ROI of 125 per cent for the local government. That said, the ROI may come down over time, as its current high level might reflect an initial heightened focus on attracting investment to the region that may dissipate over time.

Introduction

To be competitive in this era of increased global competition, cities need to be attractive to both businesses and individuals. The shift that has been occurring since the late 1970s towards a more “knowledge-based” economy has increased demand for high-skilled workers. Unfortunately, small communities often find themselves at a competitive disadvantage to their larger competitors in attracting both highly-educated workers and business investment. This is not surprising, as smaller communities are often lesser known than their more populated counterparts. Businesses also tend to cluster together, particularly when they operate within the same industry, as this increases their chances of success.

Still, Stratford possesses a lot of the ingredients necessary to be attractive. It is a highly livable city, boasting clean air, a vibrant cultural scene, affordable rents, and green spaces. Its economy is gradually diversifying, transitioning from manufacturing to services, broadening its appeal to a wider variety of businesses and workers. Indeed, over the past five years, two technology-intensive industries in the services sector—professional, scientific and technical services and information and culture—boasted some of the fastest growing labour forces. Developments in the region reflect the shift towards services. Royal Bank operates a 396,000 square-foot data centre in Stratford’s south end. At the same time, the region is becoming a hub for the testing of self-driving vehicles, including the activities of Renesas Electronics America Inc.⁸ More companies are likely to soon join, as Stratford is now home (since late 2017) to an autonomous vehicle demonstration and testing zone, enabling researchers to test autonomous vehicles in real traffic conditions.⁹ The province established the demonstration zone in partnership with the Automotive Parts Manufacturer's Association.¹⁰ Stratford was chosen in part because it possesses a citywide Wi-Fi network, essential for controlling the tests and comparing the data.¹¹ This designation is likely to have real benefits for Stratford, enabling it to attract STEM workers and business investment. The province is also making \$30-million available to companies that test self-driving technologies in the city.¹²

Another promising project is The Grand Trunk Community Hub, which aims to revitalize Stratford’s Cooper Block. According to a draft master plan presented to the public in February, the project consists of eleven elements, which include the revitalization of the YMCA, the construction of a bus terminal off Downie Street, and the conversion of the Grand Trunk building into a community hub.¹³ The project is currently in the advanced planning and development phase.

Despite these positive developments, Stratford faces some challenges. The region’s employment growth has been sluggish over the past decade. Its population is rapidly aging, putting downward pressure on the labour force pool and increasing the risk of labour shortages. Given low fertility rates in Ontario, Stratford will need to turn to migrants to ensure an adequate supply of workers. Meanwhile, its proportion of

⁸ Keenan, "In Stratford, Ont., a Computer-Chip Maker Puts the Future of Autonomous Driving to the Test."

⁹ Mathieu, "Arts Meets High-Tech in the New Stratford."

¹⁰ Autonomous Vehicle Innovation Network. *Demonstration Zone*.

¹¹ Ibid.

¹² Keenan, "Stratford, Ont., Set to Become Research Hub for Self-Driving Vehicles."

¹³ Simmons, "Draft Master Plan for Grand Trunk Community Hub Presented at Council Monday."

bachelor degree holders remains below the provincial average, suggesting that the region still has work to do in terms of attracting skilled workers.

investStratford, Stratford's economic development agency, has been helping the city deal with some of these challenges. The agency's overarching mission is to promote economic development and growth in the Stratford region by expanding job opportunities, promoting new investments, and generating new revenues for the city, thus improving the quality of life of the region's residents. In an OECD summary report, Mountford (2009)¹⁴, discusses the large range of tasks that local economic development agencies may perform (development agencies do not necessarily perform all tasks). She classifies those tasks into five main categories— strategic; asset and investment; promotional; capacity building; and innovation, enterprise, skills, and employment.¹⁵ The strategic tasks often include gathering data and information on the local economy, advocating to all levels of government for investments that promote economic growth and competitiveness, and ensuring coordination between the region's various stakeholders.¹⁶

Gathering information on the local economy helps achieve two goals. First, it helps in the recruitment and retention of businesses, thus expanding job opportunities in the region. Businesses and site selectors screen locations based on various factors, including economic and demographic factors (unemployment rate, participation rate, GDP growth, and population growth), and cost indicators (average wages and salaries, taxes, real estate). Economic development agencies can assist in compiling data on these factors. The agencies can also usually provide information on the availability of labour and real estate, on government incentive and assistance programs available to entrepreneurs, on the permitting process, and on the region's supply chain.¹⁷ This information allows development agencies to effectively market a region's strengths, both in terms of business climate and quality of life. But having an in-depth understanding of the regional economy also serves another goal. It helps the agencies adopt successful development strategies for their regions, as it allows them to determine areas for improvement and the causes behind their regions' performance.¹⁸

Encouraging coordination and partnerships between regional stakeholders helps ensure goal alignment, information sharing and effective allocation of resources.¹⁹ Partnerships between the education sector and the private sector are especially useful, as they are an effective way to encourage innovation—a process that uses knowledge to produce new and improved products and services.²⁰ Encouraging partnerships that enhance innovation is important, as innovative cities tend to have better productivity levels, higher incomes per capita, and better services for their residents. Stratford is well positioned in promoting such partnerships, as it is relatively near four universities: University of Waterloo, Wilfried Laurier University, University of Guelph, and the University of Western Ontario.²¹ It is also home to the

¹⁴ Mountford, "Organising for Local Development: the Role of Local Development Agencies. Summary Report."

¹⁵ Mountford, "Organising for Local Development: the Role of Local Development Agencies. Summary Report," 11.

¹⁶ Ibid.

¹⁷ Economic Development Winnipeg. *Our Services*.

¹⁸ Kisman and Tasar, "The Key Elements of Local Development," 1690.

¹⁹ Ibid.

²⁰ Kisman and Tasar, "The Key Elements of Local Development," 1693.

²¹ investStratford. *Why Invest in Stratford?*

University's of Waterloo's Stratford campus, which offers several media and technology programs, helping to train tomorrow's skilled workers.²² The campus has been successful in attracting students, registering a 20 per cent increase in its student population in 2017 alone, which stood at close to 600 full-time and part-time students at the beginning of the school year.²³ The student population is poised to grow even further, as second-year students in Waterloo University's Global Business and Digital Arts program will begin following their classes from the Stratford campus starting in 2019, boosting the full-time student population from about 300 to 500—a 66 per cent increase.²⁴ On July 1st, 2018, the Stratford campus will officially become The Stratford School of Interaction Design and Business. The designation is testament to the campus' success in attracting students.²⁵ In more good news, an expansion of the campus is in the works, whose master plan has already been formally approved by Stratford City Council.

Connecting private sector businesses with one another and promoting partnerships between them is no easy task, as businesses are often wary of sharing information with their competitors. Still, all businesses have an interest in promoting their industry, a task that no business can do on its own. Networking with other businesses can be particularly helpful to small businesses and recently established businesses, as they can cooperate in promoting one another.

The asset and investment category includes tasks such as the management of aid to businesses and lending to firms²⁶. These can be helpful in spurring start-up growth, encouraging business expansion, and getting new businesses to stand on their feet. Capacity building involves gathering and sharing information on best market practices, so that companies can focus their energy on areas that offer the greatest “bang for the buck”, improving their performance.²⁷ Meanwhile, the promotional category centres around the marketing of the region— attracting association meeting and conventions, business and leisure tourists, and sporting and cultural events.²⁸ Stratford already attracts a good number of leisure tourists every year, with the biggest attraction being the internationally-renowned Stratford Festival. To help grow the festival, the federal and provincial governments have each contributed \$20 million to build a new \$68-million Tom Patterson Theatre.²⁹ Construction of the theatre is beginning in 2018 and is expected to be complete in June 2020, coinciding with the festival founder's birthday. Once it opens, the new theatre is expected to attract an additional 50,000 visitors to Stratford annually and bring in an additional \$14 million per year into the region.³⁰

Beyond these qualitative factors, the activities of economic development agencies, especially attracting business investment, can boost a region's economic growth. But by how much? This study attempts to answer this question by estimating the economic impact of investStratford's business investment wins.

²² investStratford. *Why Invest in Stratford?*

²³ Juha, “University of Waterloo Stratford Campus Sees 20 per cent Growth in Number of Students Compared to 2016.”

²⁴ Juha, “Changes to Take Place at Beginning of the 2019 School Year.”

²⁵ University of Waterloo. *Stratford Campus to Become the University of Waterloo's Newest School.*

²⁶ Mountford, *Organising for Local Development: the Role of Local Development Agencies. Summary Report*, 11.

²⁷ Ibid.

²⁸ Ibid.

²⁹ Stratford Festival. *Tom Patterson Theatre Project.*

³⁰ Ibid.

investStratford provides benefits to many stakeholders such as local citizens, the local government, local agencies, educational institutions, and higher levels of government. The agency's impact on these stakeholders is derived from the economic impact analysis.

The economic impacts are generated using an economic model that has been specifically developed to isolate the local, provincial and national level effects of non-residential/commercial developments in Stratford. The economic impact analysis of each project encompasses two components:

- A) Investment impact – aggregate impact over the entire construction phase.
- B) Annual operations impact – this calculates the impact once the business in question is at full production and thus ignores the ramping up period.

For each component, an impact is calculated for both completed and uncompleted projects.

The paper is structured as follows. Chapter 2 presents the data and the methodology used in this study, while Chapter 3 provides an overview of Stratford's recent economic and demographic performance. Chapter 4 reports the detailed economic impact results. Lastly, Chapter 5 provides concluding remarks.

Methodology

To measure the economic effects of the construction and operations phases of investStratford's successes, we use Statistics Canada's North American Industry Classification System (NAICS) to categorize the different shocks to the local economy. In total, we consider four shocks— the first two are for the construction phases of the completed and uncompleted projects, while the other two are for the operational phases of these same projects. For the construction shocks, we divided the costs required to build new or improve existing infrastructures into two NAICS categories—non-residential construction and miscellaneous goods. Each of these categories received half the investment. To calculate the economic impact of the operations phase, we estimated the operations annual revenues. Based on the specific investments, estimated annual revenues were divided in 18 different NAICS categories, including other motor vehicle parts manufacturing, newspaper publishers, greenhouse, nursery and floriculture production, and traveller accommodation. Annual revenues were estimated based on employment figures—the number of jobs created and the number of jobs retained—provided by investStratford. investStratford received full credit for jobs created but got only half credit for jobs retained.

Once the investment wins data are selected and categorized, we use an input-output model of the Stratford census agglomeration (CA) to calculate the total economic impact. This model mirrors the economic structure of Stratford and distributes an economic shock to the different sectors of the CA. The construction phase of investStratford's completed projects represents a \$41.55 million "shock" to both non-residential construction output and miscellaneous goods. For the construction phase of the uncompleted projects, these industries each get a shock of \$28.75 million. The operations phase consists of an output total output shock of \$98.0 million for the completed projects and \$166.6 million for the uncompleted projects. The model distributes these shocks among Stratford's industries following the local economic structure and accounting for factors such as productivity by industry, supply-chain linkages, and import ratios.

For each one of these phases, the model measures the effect on key economic indicators such as gross output, gross domestic product, employment, wages, and government revenue. These indicators, as well as some other key terms, are defined below:

- **Gross output**—Gross output measures total economic activity in the production of new goods and services. It includes intermediate inputs as well as final output, so there is doubling counting.
- **Gross domestic product**—Gross domestic product is the total value of all final goods and services produced over a given period. It represents the gross value of output minus all intermediate consumption (cost of materials and services used to produce final goods and services), thus avoiding double counting.
- **Government revenue**—In the context of this report, government revenue is revenue generated in the form of taxation from increased activity by households and firms. We assume that property taxes only apply to the development value and not the land purchase value.
- **Wages & Salaries** - This represents the increase in workers' earnings in the Stratford CA resulting from the activities of investStratford's investment wins.

- **Employment** - These figures represent the employment generated by the initial expenditure on completed and uncompleted projects.
- **Person-years** – One person-year is equivalent to one job for one year. For example, hiring ten people for one year is equivalent to ten person-years. Hiring one individual for ten years is also equal to ten person-years.

Stratford's Demographic and Economic Context

Demographic Profile

The Stratford census agglomeration has seen flat population growth over the past decade. Between 2006 and 2016, the area's population grew by an annual average of 0.3 per cent. In other words, Stratford gained an average of about 95 people per year over this ten-year period. This pace of growth is much weaker than in Ontario and Canada, where population gains averaged 1.0 per cent and 1.1 per cent per year, respectively, over the same period. (See Table 1.) A total of 31,465 people called Stratford home in 2016, up slightly from 30,516 in 2006.

Table 1

Average Annual Population Growth Rates, 2006 to 2016 (per cent)

	10-year	5-year
Stratford	0.3	0.4
Ontario	1.0	0.9
Canada	1.1	1.0

Sources: The Conference Board of Canada; Statistics Canada.

Stratford has seen significant changes in the age structure of its population over the past two decades. Between 1996 and 2016, the age distribution of the population has become increasingly skewed towards the older age cohorts. (See Chart 1.) In 1996, a high concentration of individuals was in the 30 to 44 age group, accounting for 24.1 per cent of the region's population. By 2016, this age cohort's share of the total population had decreased to 17.5 per cent. At the same time, the proportion of the population aged 65 and over grew by about five percentage points, climbing from 16.0 per cent in 1996 to 20.8 per cent in 2016. A similar trend took place across Ontario, albeit to a lesser extent—over the same period, the share rose from 12.4 per cent to 16.7 per cent. Stratford's reputation as one of Canada's best places to retire can, in part, explain the region's higher share of people aged 65 and over relative to the rest of the province.³¹ As a result, the median age of Stratford's population is 4.1 years higher than Ontario's— 45.4 years compared to 41.3 years for the province. (See Table 2.) Moreover, the age gap between Stratford and Ontario has increased over time, as it stood at 2.1 years in 2006— 50 per cent lower than in 2016.

Table 2

Median Age of the Population

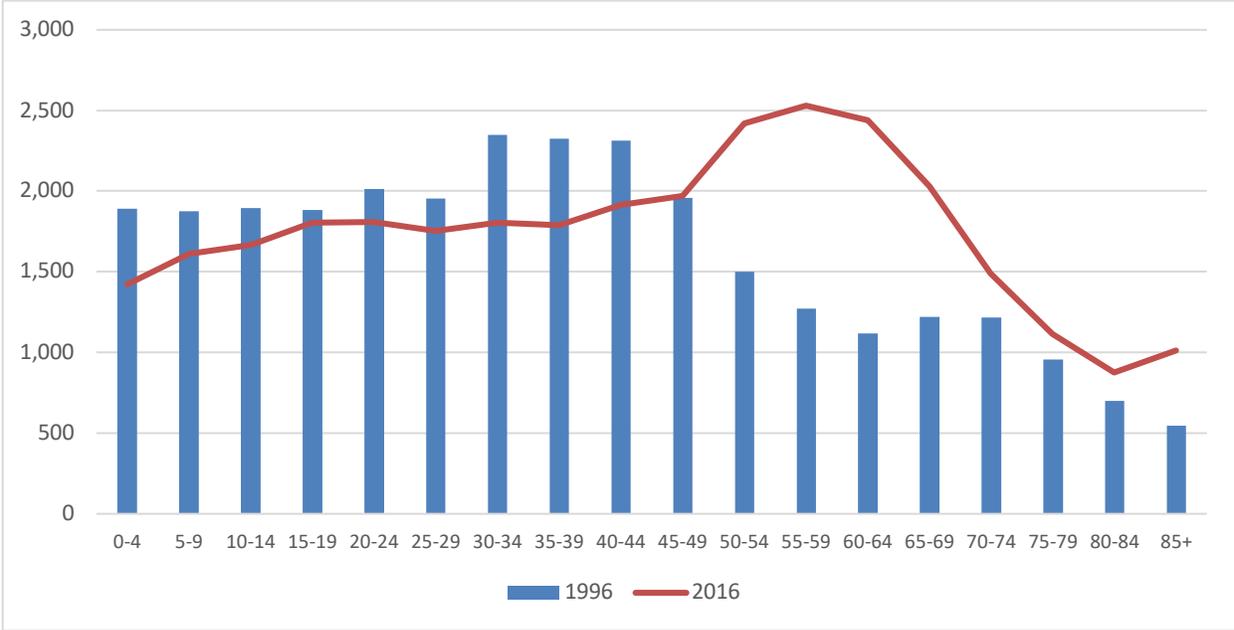
	2006	2011	2016
Stratford	41.1	43.8	45.4
Ontario	39.0	40.4	41.3
Canada	39.5	40.6	41.2

Sources: The Conference Board of Canada; Statistics Canada.

³¹ Max Brown, *Canada's Best Places to Retire 2017*.

The aging population has widespread implications for the region’s economy. The greying of the population alters the composition of the labour force, and makes labour scarcer. This in turn puts downward pressure on both the unemployment rate and the participation rate. Labour shortages also exert upward pressure on wages, incentivizing businesses to boost their investments in productivity, affecting potential output and growth in every sector of the economy.

Chart 1
Age Distribution of the Population, 1996 and 2016



Labour Market Profile

The last ten years were challenging for job seekers in Stratford, with employment remaining flat between 2006 and 2016. (See Table 3.) In contrast, Ontario and Canada saw average annual job gains of 0.7 per cent over the same period. Still not all news is bad. Employment growth strengthened in Stratford in the second half of this period (2011-16), albeit slightly, coming in at 0.5 per cent per year, with the creation of 390 net new jobs. Still, this pace of growth remained below the national and provincial averages of 0.8 per cent and 1.0 per cent, respectively.

Table 3
Average Annual Compound Employment Growth Rates, 2006 to 2016 (per cent)

	10-year	5-year
Stratford	0.0	0.5
Ontario	0.7	1.0
Canada	0.7	0.8

Sources: The Conference Board of Canada; Statistics Canada.

Although Stratford has seen sluggish job growth in the past ten years, its unemployment rate remains below Ontario’s and Canada’s, standing at 5.3 per cent in 2016, slightly up from 5.0 per cent in 2006. (See

table 4). This can be viewed as good news in the sense that not many people in the region are looking for work. On a negative note, it could also mean that labour shortages will become a challenge for the region.

Table 4
Unemployment Rates

	2006	2011	2016
Stratford	5.0	6.8	5.3
Ontario	6.4	8.3	7.4
Canada	6.6	7.8	7.7

Sources: The Conference Board of Canada; Statistics Canada.

Breaking down the region's labour force gains by industry, we see that Stratford saw healthy growth in some industries while others struggled. (See Table 5.) The construction sector posted annual labour force gains averaging 3.8 per cent between 2006 and 2016. In 2016, the sector accounted for 6.6 per cent of the total labour force, up from 4.7 per cent in 2006. The professional, scientific, and technical services industry was another bright spot, posting labour force growth of 3.2 per cent over the 10-year period between 2006 and 2016. However, the industry remains small, with a labor force of only 820 individuals in 2016, equivalent to 4.8 per cent of the total.

Labour force in the finance, insurance, and real estate sector—which encompasses finance and insurance; real estate, rental and leasing; management of companies and enterprises; and administrative and support, waste management and remediation services— rose by 2.4 per cent between 2006 and 2016. Public administration and health care and social assistance are two other industries that posted healthy labour force gains, with increases of 1.9 per cent and 2.0 per cent, respectively. On the downside, these sectors experienced significant losses in the most recent five-year period—the labour force shrank by an annual average of 5.5 per cent in public administration and 1.5 per cent in health care and social assistance between 2011 and 2016. Still, the health care sector remains one of the region's largest industries, with a labour force of 2,060 individuals in 2016. Most of these individuals are employed at the region's three health care institutions— Stratford General Hospital, Perth District Health Unit, and the Stratford Family Health team.³²

³² City of Stratford, *Health Care*.

Table 5**Average Annual Compound Growth Rates of the Labour Force by Industry, 2006 to 2016 (per cent)**

	10-year	5-year
All industries	0.5	0.3
Agriculture; forestry; fishing and hunting	-4.3	0.8
Construction	3.8	2.1
Manufacturing	-1.0	2.3
Wholesale and retail trade	-0.8	-1.0
Transportation and warehousing	-0.2	-2.2
Information and culture	-1.5	2.6
Finance, insurance, real estate, rental and leasing	2.4	1.3
Professional, scientific, and technical services	3.2	2.5
Educational services	-0.1	0.2
Health care and social assistance	2.0	-1.5
Arts, entertainment and recreation; accommodation and food	0.2	-0.6
Public administration	1.9	-5.5

Sources: The Conference Board of Canada; Statistics Canada.

The manufacturing industry is Stratford's largest industry, accounting for approximately 21 per cent of the region's labour force. The importance of manufacturing should not come as a surprise, as Stratford is home to an array of manufacturers, including Hendrickson Spring, a heavy-duty transportation manufacturer, FAG Aerospace, a manufacturer of aerospace bearings, Clemmer Steelcraft, a manufacturer of steel and fiberglass reinforced plastic storage systems and Aisin Canada, an auto body parts supplier.³³ Unfortunately, the manufacturing industry's labour force declined by an annual average of 1.0 per cent between 2006 and 2016. This is not surprising, given that Ontario's manufacturing sector was among the hardest hit by the 2008-09 economic recession.

Wholesale and retail trade is another important industry in the region, accounting for 14.3 per cent of the labour force in 2016. Stratford is home to many shops, boutiques, and markets, including Hudson's of Stratford, a department store that is over a century old, Junction 56, a craft distillery, and Bradshaw's, a home and kitchenware store that opened in 1895. Unfortunately, the wholesale and retail trade industry's labour force has struggled, declining by 0.8 per cent between 2006 and 2016.

The labour force of two tourism-related industries—arts, entertainment and recreation and accommodation and food—together accounted for 12.7 per cent of Stratford's labour force in 2016. The region hosts each year an array of events including a swan parade and the internationally-renowned Stratford Festival, which runs from April to October.³⁴ The festival attracts both domestic and international

³³ investStratford, *Manufacturing*.

³⁴ Stratford Tourism Alliance, *Arts Inspire our Town*.

tourists, making it a major driver of tourism activity in the region. Disappointingly, the tourism sector's labour force remained essentially flat between 2006 and 2016.

Despite manufacturing's importance to the region's economy, labour force growth has been concentrated in the services sector, which lines up with trends elsewhere. The sector's labour force increased by 0.7 per cent per year between 2006 and 2016, adding 850 individuals. The construction sector was the lone goods sector to post labour force growth over this period³⁵, although it was not strong enough to offset losses in the other good industries. As a result, services' share of the total labour force has been slowly rising, climbing from 69.7 per cent in 2006 to 71.6 per cent in 2016. In 2016, the services sector labour force stood at 12,225 individuals, compared to the good sector's 4,840.

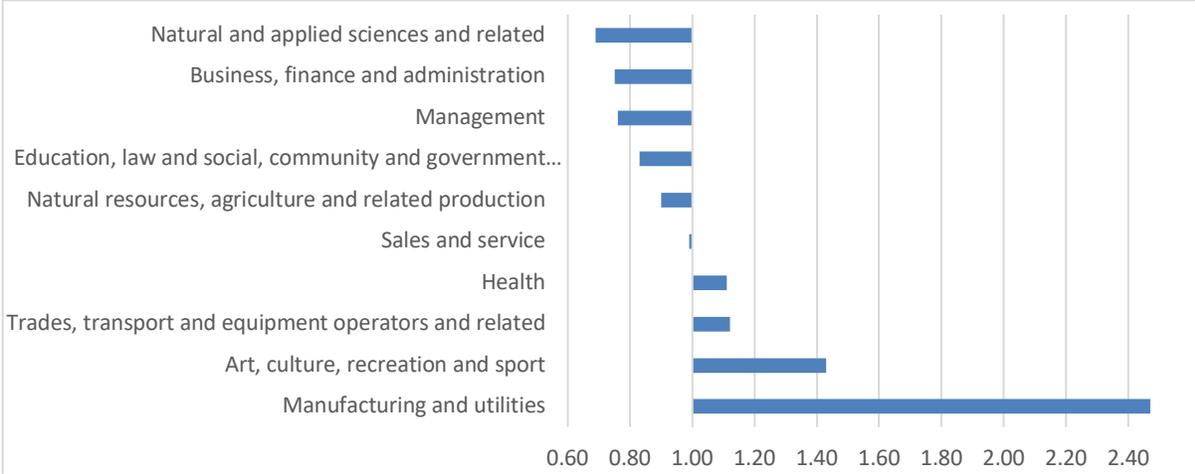
Economic Structure

Another way to analyze the structure of Stratford's economy and identify areas of specialization is to compute location quotients. To calculate the location quotient for each occupation group, we take that occupation's share of total labour force in Stratford and then divide it by the corresponding share for Ontario. Therefore, occupations with a location quotient greater than 1.0 have a higher concentration in Stratford than in Ontario, and vice versa.

Manufacturing and utilities is the occupation group with the highest location quotient in 2016, meaning that the share of the labour force in these occupations is higher in Stratford than in the province. (See Chart 2). This is not surprising, as manufacturing is Stratford's largest industry. Arts, culture, recreation, and sport and trades; transport and equipment operators are the occupation groups with the second and third largest location quotients, at 1.43 and 1.12 per cent, respectively, and both saw increases in their labour force in the ten-year period under study.

Chart 2

Industrial specialization by occupation relative to Ontario (location quotient), 2016



³⁵ The construction sector was the lone goods sector to post labour force growth when considering agriculture, forestry, fishing, hunting, mining, quarrying, oil and gas extraction, and utilities (all small industries in Stratford) as a single sector. If these industries are considered separately, both the construction sector and the utilities sector posted increases in their labour force between 2006 and 2016.

Sources: The Conference Board of Canada; Statistics Canada.

Health comes next, with a location quotient of 1.11, followed by sales and service occupations, whose location quotient stood at 0.99 in 2016. Aside from sales and services, whose location quotient is close to 1, the share of people in the labour force in the other occupation groups was less than the share observed in Ontario as whole. Business, finance, and administration and natural and applied sciences are the occupations groups with the lowest location quotients.

Economic Impact of investStratford’s Activities

The previous chapter showed that Stratford faces several demographic and economic challenges, including an aging population and flat employment growth. investStratford, which is tasked with promoting economic growth in the region, is helping the region overcome some of these challenges. This chapter will evaluate the economic impact of investStratford’s recent investment wins on the national, provincial and regional economies.

Economic Impact of the Investment Phase

The investment phase of any project boosts economic growth temporarily, with most of the impact occurring in the construction sector. investStratford’s recent investment wins adds up to a total investment of \$83.1 million for completed projects.

Completed Projects

The \$83.1 million that has been invested in Stratford since 2015 boosted Canada’s GDP by \$71.3 million, including the direct, indirect and induced impact. Of that figure, \$61.3 million was generated within Ontario, including \$27.0 million in the Stratford region alone. (See Table 6.) The increased GDP generated a total of 745.8 person-years of employment across the country, including 669.3 person-years in Ontario and 310.3 person-years in Stratford. This additional employment lifted wages by \$45.6 million across Canada, with \$40.9 million generated in Ontario, including \$18.9 million in Stratford.

Table 6
Investment Phase Impacts for Completed Projects

	Stratford	Ontario	Canada
GDP (nominal \$)	27,035,827	61,297,455	71,279,041
Employment (person-years)	310.3	669.3	745.8
Wages (nominal \$)	18,920,970	40,915,260	45,627,125
Taxes (federal shown Canada, provincial for Ontario, municipal for Stratford)	875,499	9,782,464	10,799,581

Source: The Conference Board of Canada.

Governments also benefitted from investStratford’s efforts, as the investment phase of completed projects boosted tax revenue for all three levels of government by a total of \$23.3 million. Of that total, \$10.8 million was earned by the federal government, \$9.8 million by the Ontario government, and \$875,000 by the Stratford municipal government.

Uncompleted Projects

There are also \$57.5 million of investment wins in the pipeline, referred to as uncompleted projects in this report. The investment phase of these projects is expected to add \$49.3 million to Canada’s GDP, \$42.4 million of which will be generated within Ontario, including \$18.7 million in Stratford alone. (See Table 7.) This, in turn, will support a total of 516 person-years of employment across the country, including 463.1 person-years in Ontario, including 214.7 person-years in Stratford. These jobs will lift wages by a total of \$31.6 million in Canada, \$28.3 million of which will be in Ontario, including \$13.1 million in Stratford.

In addition, the capital spending on these uncompleted projects will generate a total of \$17.7 million in tax revenues to all levels of government. Of those taxes, \$7.5 million will be destined to the federal government, \$6.8 million to the Ontario provincial government, and about \$2.2 million to the municipal government of Stratford.

Table 7
Investment Phase Impacts of investStratford for Uncompleted Projects

	Stratford	Ontario	Canada
GDP (nominal \$)	18,707,101	42,414,003	49,320,636
Employment (person-years)	214.7	463.1	516.0
Wages (nominal \$)	13,092,127	28,310,800	31,571,116
Taxes (federal shown Canada, provincial for Ontario, municipal for Stratford)	2,176,228	6,768,853	7,472,634

Source: The Conference Board of Canada.

Economic Impact of the Operations Phase

Once the investment phase is complete, Stratford will also enjoy a permanent boost to economic growth for as long as the facilities remain open and operational. Given this impact is generated year-after-year, the economic impact of this phase is usually much larger than the investment phase.

Completed Projects

The operations of the completed projects are estimated to generate \$98 million in revenue per year. This revenue estimate is used to calculate the economic impact. Specifically, such a revenue stream is estimated to lift Canada’s GDP by \$75.7 million, \$66.0 million of which will be generated within Ontario, including \$42.9 million in the Stratford region. (See Table 8.) This economic activity will add a total of 794.3 person-years of employment across the country, including 713.9 person-years in Ontario. Of the latter figure, 512.3 person-years of employment will be created in Stratford. Wages across Canada will

rise by \$50.3 million, in line with increased GDP and employment. Of that, \$45.2 million will be within Ontario and \$31.2 million in Stratford.

Governments will see their tax revenues increase by a total of \$22.6 million as result of operational activities at these completed projects. Of that total, \$9.9 million will be earned by the federal government, \$7.0 million by the Ontario provincial government, and \$4.2 million by the municipal government.

Table 8
Operations Phase Impacts of investStratford for Completed Projects

	Stratford	Ontario	Canada
GDP (nominal \$)	42,870,932	66,013,957	75,688,607
Employment (person-years)	512.3	713.9	794.3
Wages (nominal \$)	31,166,638	45,229,565	50,322,047
Taxes (federal shown Canada, provincial for Ontario, municipal for Stratford)	4,201,714	6,972,435	9,893,983

Source: The Conference Board of Canada.

Uncompleted Projects

Turning to the uncompleted projects, annual revenues of \$166.6 million will boost Canada’s GDP by \$148 million, \$133.8 million of which will be generated in Ontario. (See Table 9.) Of that, \$95.9 million will be generated in Stratford. The increased GDP will add 1,151 person-years of employment across the country, including 690.7 person-years within the Stratford area. As such, wages in Canada will rise by \$77.4 million, including by \$69.9 million in Ontario and \$46.4 million in Stratford.³⁶

Finally, the operations phase of the uncompleted projects will result in a total of \$36.7 million in tax revenues for all three levels of government. The federal government would collect \$17.1 million, while the Ontario and Stratford governments would pocket in \$14.1 million and \$2.9 million, respectively. Municipal tax revenues are higher in the completed group of projects than in the uncompleted ones because they are more likely to include an investment component that will add to the capital stock and thus to property taxes.

³⁶ The GDP-to-employment ratio is higher for the yet-to-be completed group of projects than for the completed one because the former group happens to be more capital intensive and thus less labour dependant than its completed counterpart. In other words, the uncompleted group, by the nature of their investment profile, will require fewer workers to produce \$1 of GDP.

Table 9
Operations Phase Impacts for Uncompleted Projects

	Stratford	Ontario	Canada
GDP (nominal \$)	95,904,379	133,758,463	148,236,430
Employment (person-years)	690.7	1,027.8	1,151.0
Wages (nominal \$)	46,435,124	69,870,761	77,372,286
Taxes (federal shown Canada, provincial for Ontario, municipal for Stratford)	2,916,168	14,106,082	17,072,225

Source: The Conference Board of Canada.

Return on Investment (ROI)

The tax revenue that the local government is expected to generate from these projects can be compared to the funding that the City of Stratford government provides to investStratford, thus generating a return on investment (ROI). The Stratford municipal government has invested about \$2.3 million over the past four years (2014-17) in investStratford and earned an estimated \$5.1 million in tax revenue from completed projects, with the potential of earning an additional \$5.1 million from the uncompleted projects. For the completed projects alone, this works out to an ROI of 125 per cent for the local government. That said, the ROI may come down over time, as its current high level might reflect an initial heightened focus on attracting investment to the region that may dissipate over time.

Conclusion

This study assesses the economic impact of investStratford's business investment attraction successes on the Stratford region's economy. Specifically, it estimates the investment and operations phase impacts of investStratford's completed and uncompleted projects.

We found that investStratford's efforts yield a significant impact to the region, the province and Canada. In total, investStratford's completed projects have contributed \$147.0 million to Canada's GDP, of which \$127.3 million were generated in Ontario, including \$69.9 million in Stratford alone. The increased GDP supported 1,540 person-years of employment in the country as whole, 1,383 person-years within Ontario, including 823 person-years in Stratford. In addition, investStratford's completed projects supported a total of \$45.9 million in tax revenue for all three levels of government, with the federal government receiving \$20.7 million, the Ontario government \$16.8 million, and the Stratford municipal government \$5.1 million.

Adding the impact of investStratford's uncompleted projects gave us the economic development agency's total impact. The economic impact generated by the construction and operations activities at investStratford's completed and uncompleted projects is estimated to support a total of \$344.5 million in GDP for Canada, including \$303.5 million in Ontario. Of the latter figure, \$184.5 million will be generated in the Stratford region. This level of economic activity will result in the addition of 3,207 person-years of employment across the country, of which 2,874 person-years will be created in Ontario, including 1,728 person-years within the Stratford region alone.

investStratford's projects would also provide all three levels of government with additional tax revenues. Specifically, federal government revenues would be boosted by \$45.2 million, provincial government revenues by \$37.6 million, and Stratford government revenues by \$10.2 million. The bottom line is that investStratford is providing the City of Stratford with a solid rate of return on its investment. Based on a four-year funding cycle of \$2.3 million, the local government earned a 125 per cent ROI on the completed projects alone. In other words, the city more than doubled its investment in investStratford.

Appendix A: Economic Impact Methodology

To produce economic impact results that are as robust and reliable as possible, we utilized economic impact models at the national, provincial and metropolitan levels that make use of the most current and most detailed input-output (IO) tables and multipliers available from Statistics Canada. In addition, the economic impact models used leveraged the credibility and robustness of sector specific tax data available from Statistics Canada.

Broadly speaking, IO based economic models are used to identify and quantify the extent of linkages that exist between different segments (households, businesses and government) and sectors of the economy. At its core, IO-based models rely on input-output tables that illustrate not only how goods and services are produced in an economy but also who consumes the goods and services. In this respect, an IO-based analysis reveals how the output of one industry serves as an input to another industry, thereby linking industries as both producers and consumers of goods and services. These models utilize various forms of “impact” matrices to perform scenario analysis pertaining to changes on industry, consumers, government, and even foreign suppliers.

Taxes and employment are two key impact measures that require data sources beyond those available in the IO model.

Taxes

Even though many of the sales tax ratios are available from the margins tables produced by Statistics Canada, additional work was required to adjust these rates because taxes had changed between 2010 (the year the IO tables were produced) and 2017 (the base-year of the analysis). Additional work was also required to extend the analysis to include taxes on incomes (i.e., on employment earnings, corporate profits, net income of unincorporated business and government business enterprises) and contributions to social insurance plans (i.e., premiums for Canada Pension Plan, Employment Insurance and workers' compensation). The source used to assemble specific income tax rates, by income range, was the Canadian Tax Foundation's most current *Finances of the Nation* report.³⁷

Employment

Employment is a measure that is available, in aggregate form, from the multiplier tables produced by Statistics Canada. However, the employment multipliers relate to the year of the tables (2010) and not the year of the analysis (2017). To adjust for this, average wage growth was incorporated to reflect the seven-year gap.

Once again, to preserve the industry-by-industry detail available from the model, appropriate average wages were applied against industry labour income estimates to largely align with the employment multipliers from Statistics Canada. Although the employment multipliers still reflect the economic

³⁷ Treff, K., & Ort, D. (2013). *Finances of the Nation 2012*.

structure as of 2010, the adjustments on average wages would estimate what the employment multipliers would resemble had they been produced in 2017.

Construction of the Metropolitan Economic Contribution Model(s)

Unfortunately, Statistics Canada does not produce IO based tables or multipliers at a sub-provincial basis. However, The Conference Board of Canada has been developing sub-provincial and metropolitan based regional models for over 20 years. The methodology we use to produce local area impacts leverages existing IO models and accounting frameworks that are based on provincial economic impact models.

The general method used to develop metropolitan based regional models involve the simulation of intraprovincial commodity flows. By using this technique, we are able to estimate the degree to which provincial requirements for goods and services can be met by production activity that occurs in a specific region (or metropolitan area) of the province. Capturing intraprovincial linkages will permit the assessment of the local economic contribution associated with the project under analysis.

The principle used to simulate sub-provincial commodity flows in the development of the municipal economic impact models involves the use of a modified "gravity model". Basically, the "gravity model" states that the required commodity (& service) inputs from within a province will be "recruited" in a manner which takes into consideration economies of scale (i.e. production costs), transportation costs and the availability of specific industries. Economies of scale (i.e. lower production costs) are positively correlated with input demand while greater transportation costs are negatively correlated with input demand. Fulfilling that demand from specific sub-provincial regions of a province is also contingent on the fact that the specific industry exists in that region. An advantage of using the "gravity model" to simulate intraprovincial commodity flows is that as the industrial composition of the labour force changes, or as new industries appear for the first time in specific regions, the share of production between the various sub-provincial regions of a province can also change.

One variation on the "gravity model" principle involves the estimation of "relative trade distances" by incorporating different "weights" for different modes of transport. Once these coefficients are generated for all regions and over all industries, a measure of sensitivity (mostly relative to price, but in the case of service industries also to a "local preference criteria") is then applied to all commodities.

Another variation we employed, relative to the strict "gravity model" approach, is that the measure of sensitivity is adjusted by varying the distance exponent. In the basic "gravity model" this is assumed to be 2. In our application, the exponent varies depending on the specific commodity or service required. The variation in distance exponent revolves principally around two research hypotheses: (1) the greater the proportion of total shipments from the largest producer (or shipper), the lower the exponent, and (2) the greater the proportion of total flow which is local (intra-regional), the higher the exponent.

Ultimately, the simulation of intraprovincial commodity flows are used to determine the degree to which provincial production requirements can be met at the metropolitan level. As is the case with modeling economic impacts at the national and provincial level, additional efforts are required to report on taxes and employment at the metropolitan (or sub-provincial) level.

Specifically, the economic contribution model developed at the metropolitan level further refines the tax rates used in the corresponding province based on any differences that may exist within the local area. For instance, many local jurisdictions have specific room-taxes that are not implemented across all jurisdictions of the province.

Similarly, employment estimates are also adjusted to account for the fact that average wages in most large metropolitan areas tend to exceed those for the province as a whole. As a result, employment estimates produced at a local level would be lower, if everything else was held constant. In contrast, if average wages are lower, then employment estimates would be higher.

Appendix B: Detailed Economic Impact Tables

Table A1

Detailed Total Employment Impact of investStratford's Completed and Uncompleted Projects (person-years)

	Stratford	Ontario	Canada
Crop and animal production	67.1	84.6	91.3
Forestry and logging	-	2.3	2.9
Fishing, hunting and trapping	-	1.4	1.6
Support activities for agriculture and forestry	-	2.4	3.2
Mining, quarrying, and oil and gas extraction	-	60.6	66.6
Utilities	15.9	27.8	31.2
Residential construction	12.2	12.2	12.2
Non-residential building construction	325.3	436.9	438.7
Engineering construction	-	-	-
Repair construction	12.9	48.1	56.2
Other activities of the construction industry	5.3	6.5	6.9
Manufacturing	683.3	1,153.3	1,239.7
Wholesale trade	71.0	118.3	141.5
Retail trade	74.6	136.1	166.8
Transportation and warehousing	20.9	77.8	100.8
Information and cultural industries	4.3	27.9	35.2
Finance, insurance, real estate, rental and leasing and holding companies	141.4	197.9	230.1
Owner occupied dwellings	-	-	-
Professional, scientific and technical services	83.0	131.4	160.6
Administrative and support, waste management and remediation services	76.0	120.1	145.0
Educational services	3.0	5.3	6.6
Health care and social assistance	13.1	22.9	27.3
Arts, entertainment and recreation	15.5	27.4	34.3
Accommodation and food services	55.5	84.0	99.4

Other services (except public administration)	29.3	49.5	60.4
Repair, maintenance and operating and office supplies	-	-	-
Advertising, promotion, meals, entertainment, and travel	-	-	-
Transportation margins	-	-	-
Non-profit institutions serving households	4.4	9.7	11.8
Government education services	4.1	8.9	10.8
Government health services	1.8	4.0	5.1
Other federal government services	1.5	3.0	3.9
Other provincial and territorial government services	1.0	1.9	2.6
Other municipal government services	5.6	11.5	14.2
Other aboriginal government services	0.1	0.1	0.1
Total	1,728.1	2,874.1	3,207.1

Source: The Conference Board of Canada.

Table A2**Detailed Total GDP Impact of investStratford's Completed and Uncompleted Projects**

	Stratford	Ontario	Canada
Crop and animal production	\$3,402,600	\$4,686,425	\$5,557,546
Forestry and logging	\$0	\$197,838	\$231,636
Fishing, hunting and trapping	\$0	\$44,110	\$52,369
Support activities for agriculture and forestry	\$0	\$123,857	\$136,038
Mining, quarrying, and oil and gas extraction	\$0	\$7,170,125	\$7,556,591
Utilities	\$1,593,121	\$5,352,910	\$5,967,285
Residential construction	\$1,092,915	\$1,093,459	\$1,193,806
Non-residential building construction	\$26,062,838	\$35,026,914	\$37,150,823
Engineering construction	\$0	\$0	\$0
Repair construction	\$871,018	\$3,484,073	\$3,721,706
Other activities of the construction industry	\$935,609	\$1,157,928	\$1,200,534
Manufacturing	\$57,936,699	\$100,374,728	\$122,244,214
Wholesale trade	\$9,173,027	\$15,251,670	\$16,701,129
Retail trade	\$4,192,140	\$8,213,917	\$9,623,817
Transportation and warehousing	\$1,712,559	\$6,850,237	\$8,124,341
Information and cultural industries	\$626,099	\$4,960,702	\$5,732,648
Finance, insurance, real estate, rental and leasing and holding companies	\$51,407,022	\$63,266,297	\$67,240,757
Owner occupied dwellings	\$5,603,822	\$11,207,645	\$13,104,653
Professional, scientific and technical services	\$7,377,763	\$12,805,004	\$13,661,905
Administrative and support, waste management and remediation services	\$4,225,719	\$7,108,501	\$7,651,178
Educational services	\$114,293	\$217,043	\$257,952
Health care and social assistance	\$885,908	\$1,663,425	\$1,979,179
Arts, entertainment and recreation	\$882,951	\$1,677,414	\$1,986,404
Accommodation and food services	\$3,132,791	\$4,771,000	\$5,675,286
Other services (except public administration)	\$1,434,606	\$2,569,933	\$2,965,921
Repair, maintenance and operating and office supplies	\$0	\$0	\$0
Advertising, promotion, meals, entertainment, and travel	\$0	\$0	\$0

Transportation margins	\$0	\$0	\$0
Non-profit institutions serving households	\$280,876	\$670,747	\$806,396
Government education services	\$462,059	\$1,087,023	\$1,262,731
Government health services	\$189,509	\$442,302	\$514,256
Other federal government services	\$203,252	\$431,687	\$469,609
Other provincial and territorial government services	\$130,115	\$283,384	\$315,410
Other municipal government services	\$585,820	\$1,285,980	\$1,429,043
Other aboriginal government services	\$3,106	\$7,598	\$9,552
Total	\$184,518,238	\$303,483,878	\$344,524,714

Source: The Conference Board of Canada.

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