

APPENDIX 8A

**CALGARY 2026
OLYMPIC AND
PARALYMPIC WINTER
GAMES: ECONOMIC
IMPACT ANALYSIS -
A REPORT BY
DELOITTE LLP**

Calgary 2026 Olympic and Paralympic Winter Games

Economic Impact Analysis

May 23, 2017



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Introduction

About the Calgary Bid Exploration

On June 20, 2016 Calgary's City Council voted to endorse a Bid Exploration for the 2026 Olympic and Paralympic Winter Games ("the Games"). The Calgary Bid Exploration Committee (CBEC) has overseen an in-depth study on whether or not Calgary should indeed pursue a bid for the Games.

About This Study

Deloitte was engaged by the CBEC to conduct an economic impact analysis of the Games, including the Games' impact on the local, provincial and national economies. The objective of the analysis is to quantify the economic impacts resulting from the bid development, venue and facility development, Games operations and security expenditures associated with hosting the Games and describe the additional legacy socio-economic impacts that may occur based on observations from past Olympic Games and similar events.

This study does not represent a cost-benefit analysis for any particular stakeholder of the Games and does not represent a comparison of the potential economic impact of the Games to the potential impact of an alternative use of resources. In particular, the study does not assess the opportunity cost to the City of Calgary and other stakeholders of pursuing the Games.

The findings of this study are intended to be considered as one among many important considerations in deciding whether or not Calgary should pursue the Games.

Executive Summary (1 of 3)

Estimated Expenditure

Based on financial data provided by the CBEC we estimate that the Games will result in a total expenditure of over \$3.3B in Canada, which includes spending of \$47 million during bid development, \$500 million on venue and facility development, and \$2.16 billion on Games operations and \$608 million on security.

Economic Impacts by Level and Type (Excluding Structuring and Legacy Impacts)

- **National Impact:** Accounting for the direct and indirect economic impacts, we estimate that the Games will contribute nearly \$2.7B to Canada's GDP, of which over \$1.9B will be in contribution to labour income. We estimate that the Games will generate 27,614 person-years of employment across Canada, equivalent to an average of 3,068 jobs per year during the 9 year period studied.
- **Provincial Impact:** Accounting for the direct and indirect economic impacts, we estimate that the Games will contribute nearly \$2.2B to Alberta's GDP, of which over \$1.6B will be in contribution to labour income. We estimate that the Games will generate 22,528 person-years of employment across Alberta, equivalent to an average of 2,503 jobs per year during the 9-year period studied.
- **Great Calgary Area Impact:** Accounting for the direct and indirect economic impacts, we estimate that the Games will contribute \$853M to the GDP of the Greater Calgary Area, of which \$631M will be in contribution to labour income. We estimate that the Games will generate 8,506 person-years of employment across the Greater Calgary area, equivalent to an average of 945 jobs per year during the 9-year period studied.
- **Government Revenue:** We estimate that the Games will generate approximately \$109M in federal, provincial, and municipal product and production taxes across Canada, as well as significant corporate and personal income taxes which have not been estimated in this report.

National impacts are inclusive of the provincial impacts, which are inclusive of the Calgary Area impacts. The impact estimates are sensitive to changes in the underlying estimates of expenditure. The impact estimates are conservative as they do not account for **induced impacts** (the impact of spending of wages and salaries), **tourism spending** during or after the games, or investments in transportation and other **enabling infrastructure**, which are being considered regardless of the Games but may be expanded or accelerated if the Games are pursued.

Economic Impacts by Activity and Phase

- **Bid Development Impacts:** Accounting for the direct and indirect economic impacts, we estimate that bid development will contribute \$39M to Canada's GDP, of which \$30M will be in contribution to labour income. We estimate that the bid development will create or sustain employment of 377 FTE-years across Canada.
- **Venue and Facility Development Impacts:** Accounting for the direct and indirect economic impacts, we estimate that the development and construction of venues and facilities will contribute \$385M to Canada's GDP, of which \$263M will be in contribution to labour income. We estimate that the development and construction of venues and facilities will generate 3,168 person-years of employment across Canada.
- **Games Operations Impacts:** Accounting for the direct and indirect economic impacts, we estimate that Games operations will contribute over \$1.7B to Canada's GDP, of which nearly \$1.2B will be in contribution to labour income. We estimate that Games operations will generate 16,613 person-years of employment across Canada.
- **Security Spending Impacts:** Accounting for the direct and indirect economic impacts, we estimate that security will contribute \$515M to Canada's GDP, of which \$459M will be in contribution to labour income. We estimate that security for the Games will generate 7,456 person-years of employment across Canada.
- **Impacts by Phase:** We estimate that approximately 1.5% of national impacts will occur during the Bidding phase, 60% during the pre-Games phase, and 39% during the year of the Games. We have not quantified the economic impacts during the post-Games, legacy period.

Executive Summary (2 of 3)

Structuring and Legacy Economic Impacts

Beyond the direct and indirect impacts of the activities associated with the Games, if deliberate strategies are pursued, the Games could have important structuring and legacy economic impacts, that bring lasting benefits to Calgary and Alberta:

- **Tourism Attraction and Associated Spending:** While we do not find evidence of a positive tourism impact in the period prior to the Games, findings from the Calgary 1988 and Vancouver 2010 Games indicate that the Games could drive an increase in international visitors during and after the event, particularly if a deliberate tourism strategy is employed. Visitors of past Winter Olympics in Canada have tended to stay up to 2.1 times longer and to spend up to 15.5% more in the local economy than visitors during similar periods in the absence of the Games.
- **Economic Development and Diversification:** With a deliberate strategy, the Games could align well to Calgary's Economic Development Strategy as defined by CED. The Games would also promote economic diversification in Calgary and Alberta by drawing investment and building foundational assets in industries outside of the primary resource sector, as well as by supporting the development of Sports and Culture clusters.
- **Legacy Housing Infrastructure:** It is anticipated that portions of the proposed accommodation infrastructure (for athletes, media, workforce, etc.) will be converted into affordable housing units. Current estimates are for 800 units which represent approximately 4 years worth of growth in affordable housing units for Calgary. The provision of affordable housing units can bring lasting socio-economic benefits such as improved health, security, education, job proximity, wealth accumulation and integration of immigrants.
- **Human Capital Attraction and Development:** Past Olympics have been associated with a lasting, positive labour market impact after the event as a result of human capital attraction and development by industry as well as due to targeted training and upskilling programs. These benefits can accrue not only to industries directly involved in the preparation and delivery of the Games, but to the economy more broadly by enhancing the local talent pool.
- **Exports and Investment Attraction:** Past studies have found that hosting the Games correlates with increased trade and investment attraction as it typically signals the host jurisdiction's openness to trade. Research shows that trade is higher for countries that have hosted the Olympics, and that trade openness is strongly linked to foreign direct investment attraction, contributing to an inflow of capital, technology and talent. This effect is typically a result of specific trade liberalization policies and actions taken in parallel with pursuing the Games.

Targeted strategies and tactics need to be employed to realize these legacy benefits as they would not come automatically with hosting the Games.

Executive Summary (3 of 3)

Social and Environmental Impacts and Alignment to Triple Bottom Line

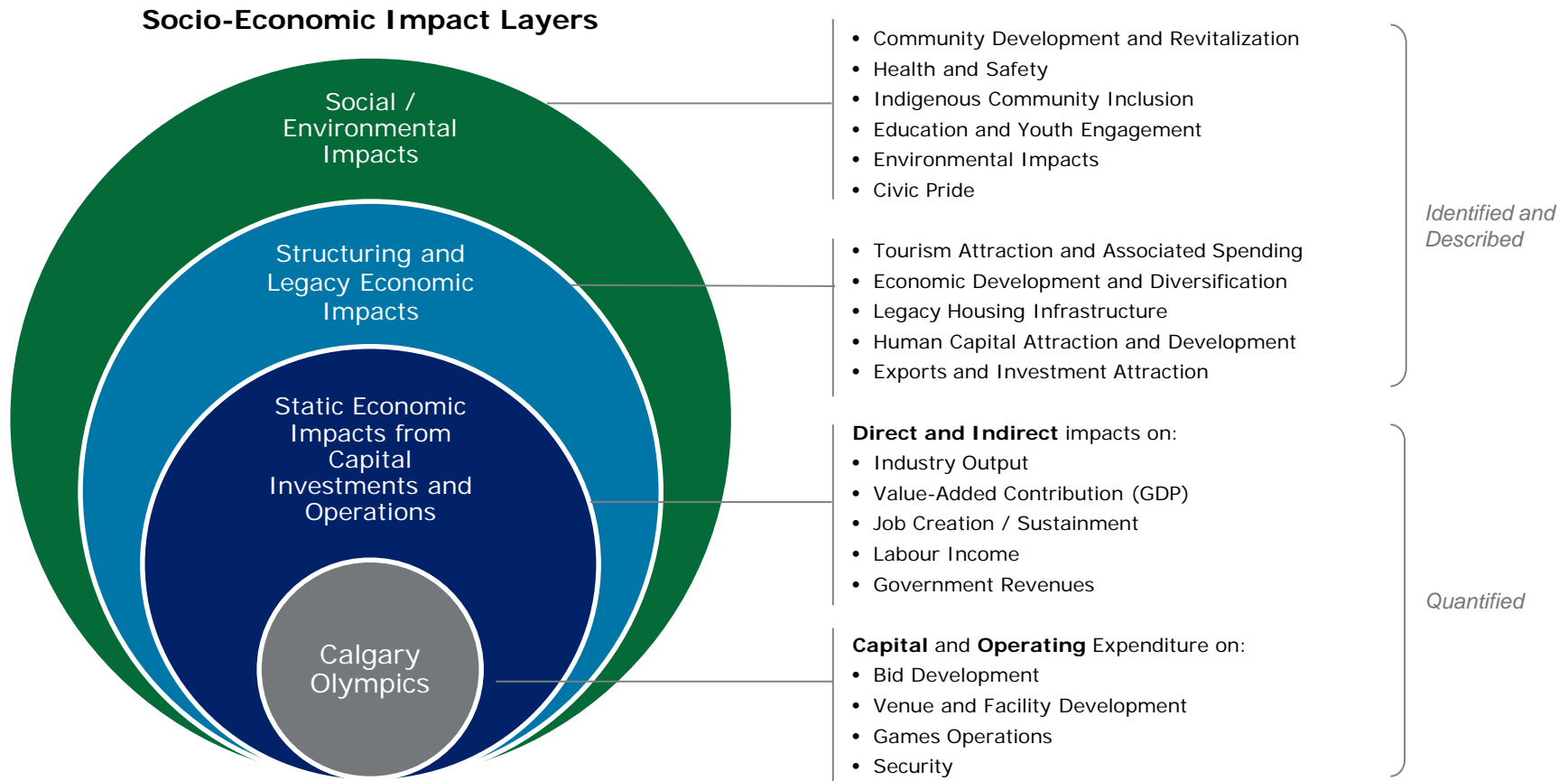
The Games can have important social and environmental impacts on the local community and the province, and, with a deliberate strategy, can align well to Calgary's Triple Bottom Line policy framework:

- **Community Development and Revitalization:** The downturn in commodity markets has had a severe negative impact on the City of Calgary and the Province of Alberta. The spending and investment associated with the Games can offer significant stimulus and support the recovery and revitalization of local communities. The legacy infrastructure of the Games, such as housing, sporting and cultural facilities, can bring an enhanced standard of life in local communities and act as a driver of future community development.
- **Health and Safety:** The planned development and upgrades of venues and facilities will offer an opportunity to bring them up to higher health and safety standards by implementing leading practices and modern technology. The conversion of Games accommodations into affordable housing units can bring long-term health and safety benefits to residents that may be currently coping with inadequate housing conditions.
- **Indigenous Community Inclusion:** With appropriate planning in place, the Games would provide an opportunity for partnering with Indigenous communities in a range of economic and social activities that foster inclusion, cultural exchange and improved relationships with government. The 2010 Vancouver Games offer an example of how indigenous peoples and businesses can be engaged in a range of activities including construction, craft production, venue preparation, performing arts and branding.
- **Education and Youth Engagement:** The Games present an opportunity to increase youth engagement, as well as incorporate educational institutions into the planning and delivery of the Games. Today's youth have little or no connection to the 1988 Games and the benefits of hosting again must be communicated and shared to gain their support, especially given that any positive and negative impacts could impact them most. Although educational institutions are not directly tied to the event, there is an opportunity to partner with them in certain areas to showcase the institutions and their students.
- **Potential Environmental Benefits:** An environmental impact analysis has not been completed as part of this study. However we note that while the increase in economic activity and flow of goods and people can have negative short-term environmental impacts, the Games can also bring long-run environmental benefits. These benefits could stem from the development of sustainable event hosting practices as well as from the upgrading of facilities and infrastructure with modern energy efficiency and environmental protection technologies.
- **Civic Pride:** Past studies have found evidence of lasting benefits from hosting major sporting events associated with a stronger sense of community, civic pride, volunteering, and reputation. The '88 Games in Calgary are often attributed with bolstering and showcasing the community's civic pride by placing Calgary and its people on the world stage.
- **Alignment to Triple Bottom Line Policy:** If delivered purposefully, the Games can align well to the economic, social, environmental and integrated policy objectives defined in Calgary's Triple Bottom Line policy framework.

Targeted strategies and tactics need to be employed to realize these socio-economic benefits as they would not come automatically with hosting the Games.

Analytical Framework

We have conducted analysis which identifies not only the economic impacts from bidding, venue and facility development, operations, and security activities, but also examines the structuring and legacy impacts on the economy and society



Economic Impacts from Bid Development, Venue and Facility Development, Games Operations, and Security

Activities and Expenditures Associated with the Games

The economic impacts of the Games will be driven by four primary categories of activities¹ accounting for a total expenditure of over \$3.3B¹

Bid Development

Expenditure: \$47.2M

Includes expenditure on human capital and activities required to prepare the bid such as technical, operational, accommodation, transportation and financial planning, executive, finance and administration costs, international relations missions and activities, and various marketing and communication activities

Venue and Facility Development

Expenditure: \$499.9M

Includes the development and upgrading of various venues and facilities including the athletes' village, media village, Satellite Arena, Corral, Saddledome, Agrium, BMO, Big Four & Demountables, Grandstand, Olympic Oval, Sliding Track, WinSport, CNC, Nakiska, Lake Louise, and Whistler

Games Operations

Expenditure: \$2,163M²

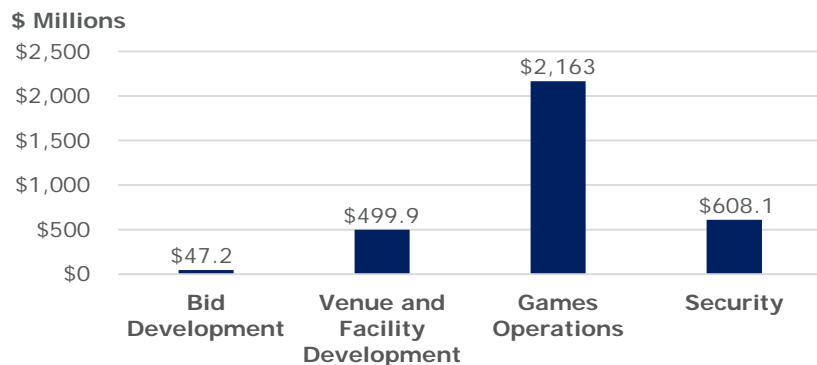
Includes organizing committee activities such as marketing and communications, Games operations, technology, workforce sustainability, finance, government services and coordination, as well as citizen engagement and outreach

Security

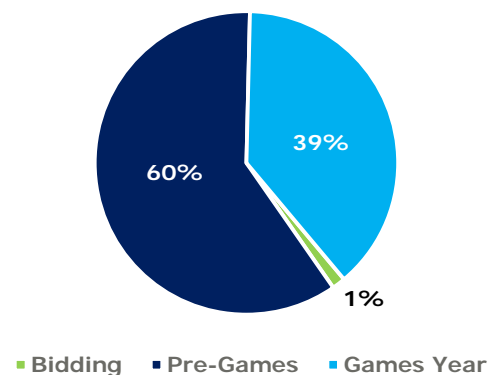
Expenditure: \$608.1M

Includes private security services, as well as local police and military forces. Accounts for various security related expenditures, such as emergency services, aviation, meals/accommodation, flights, vehicles, maintenance, fuel, leased office and warehouse space, mobilization, demobilization, admin, training, IT, command centre, special equipment and office equipment

Projected Expenditure by Activity



Expenditure by Phase



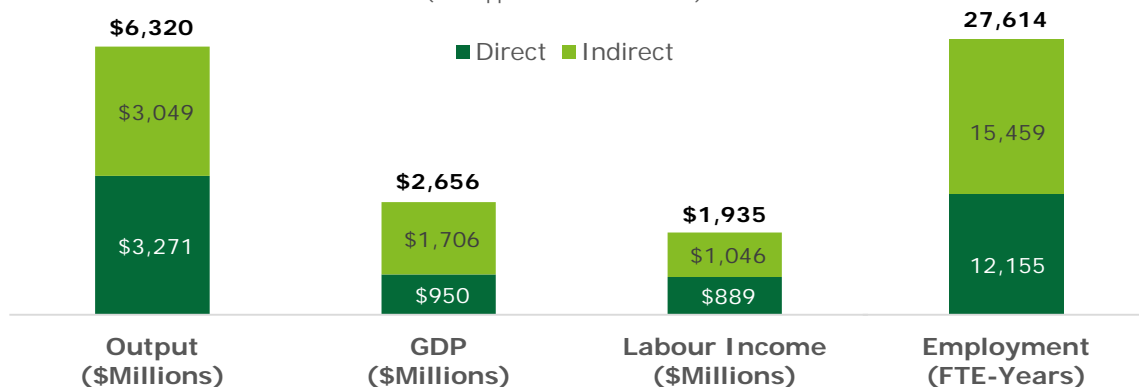
1. Our analysis excludes investment in transportation and other infrastructure, which is being considered regardless of the Games but may be expanded or accelerated as a result of the Games; as such our impact analysis is conservative
2. This estimate does not include \$173M in technology spend that is likely to occur outside of Canada

National Economic Impacts Summary

Accounting for the direct and indirect economic impacts, we estimate that the Games will contribute nearly \$2.7B to Canada's GDP, of which over \$1.9B will be in contribution to labour income. We estimate that the Games will generate 27,614 person-years of employment across Canada, equivalent to an average of 3,068 jobs per year during the 9-year period studied. These impacts are inclusive of the estimated impacts to Alberta.

Economic Impacts in Canada

(See appendix for definitions)



For every dollar spent in Canada, the Games are expected to contribute \$0.80 of value-added (GDP) to the Canadian economy directly or indirectly

For every million dollars spent, the Games are estimated to create or sustain 8.3 person-years of employment in Canada directly or indirectly

The employment impacts will benefit a wide range of industries

Employment Impacts By Industry

Top 10 Industries Impacted	Arts, sports, entertainment and recreation*	23.8%
	Other municipal government services	17.2%
	Administrative, waste management and remediation services	11.4%
	Professional, scientific and technical services	5.6%
	Transportation and warehousing	5.3%
	Accommodation and food services	5.3%
	Non-residential building construction	5.1%
	Manufacturing	4.2%
	Finance, insurance, real estate, rental and leasing and holding	3.1%
	Information and cultural industries	2.9%

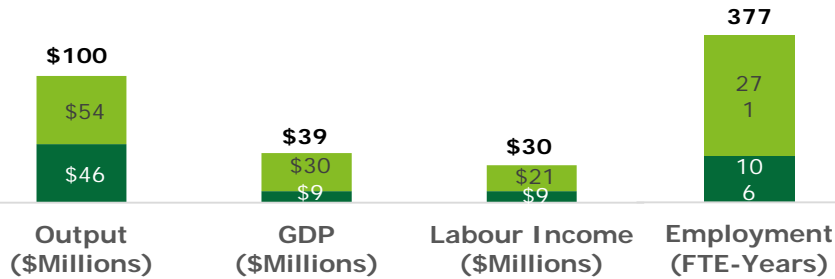
* Includes employees on payroll with OCOG and BidCo

National Economic Impacts by Activity

Bid Development Impacts

(See appendix for definitions)

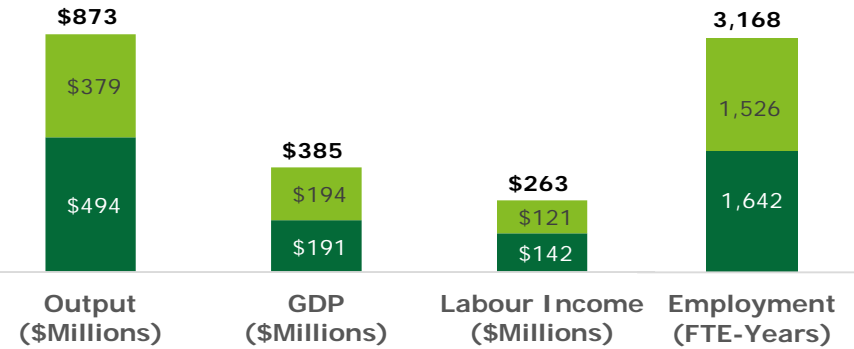
■ Direct ■ Indirect



Venue and Facility Development Impacts

(See appendix for definitions)

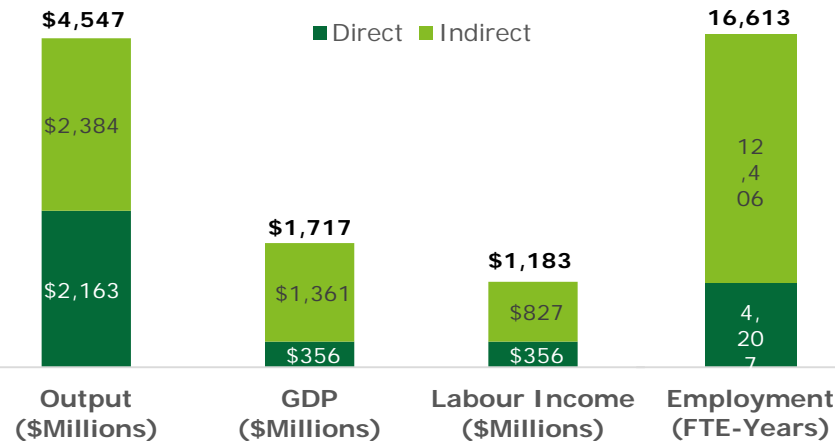
■ Direct ■ Indirect



Games Operations Impacts

(See appendix for definitions)

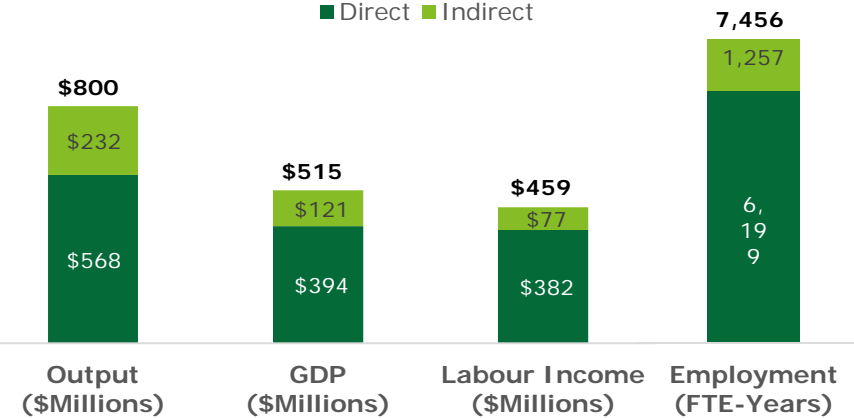
■ Direct ■ Indirect



Security Spending Impacts

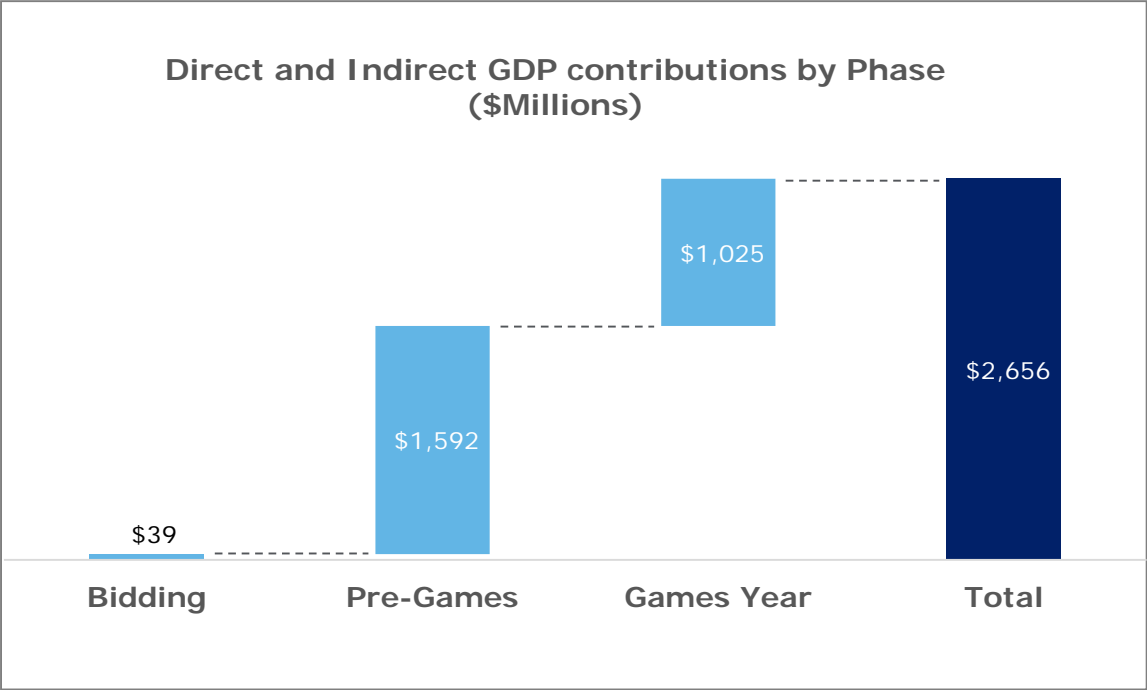
(See appendix for definitions)

■ Direct ■ Indirect



National Economic Impacts by Phase

We estimate that \$39M of direct and indirect GDP contributions will occur during the Bidding phase, nearly \$1.6B will occur during the Pre-Games Phase, and slightly over \$1B will occur during the year of the Games



Approximately 61% of the economic impacts are expected to occur in the Bidding and Pre-Games phases, with 39% occurring during the year of the Games.

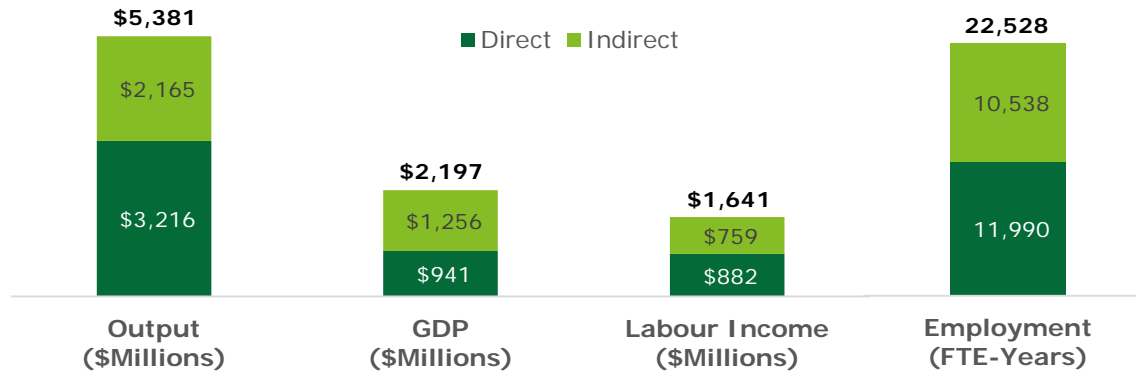
This study has not quantified the economic impacts that may occur in the post-game, legacy period. For details on these impacts see Structuring and Legacy impacts section.

Impacts to Alberta

Accounting for the direct and indirect economic impacts, we estimate that the Games will contribute nearly \$2.2B to Alberta's GDP, of which over \$1.6B will be in contribution to labour income. We estimate that the Games will generate 22,528 person-years of employment across Alberta, equivalent to an average of 2,503 jobs per year during the 9-year period studied. These impacts are inclusive of the estimated impacts to Calgary.

Economic Impacts in Alberta

(See appendix for definitions)



For every dollar spent in Alberta, the Games are expected to contribute \$0.67 of value-added (GDP) to Alberta's economy directly or indirectly

For every million dollars spent in Alberta, the Games are estimated to create or sustain 6.9 person-years of employment in Alberta directly or indirectly

The employment impacts are expected to benefit a wide range of industries

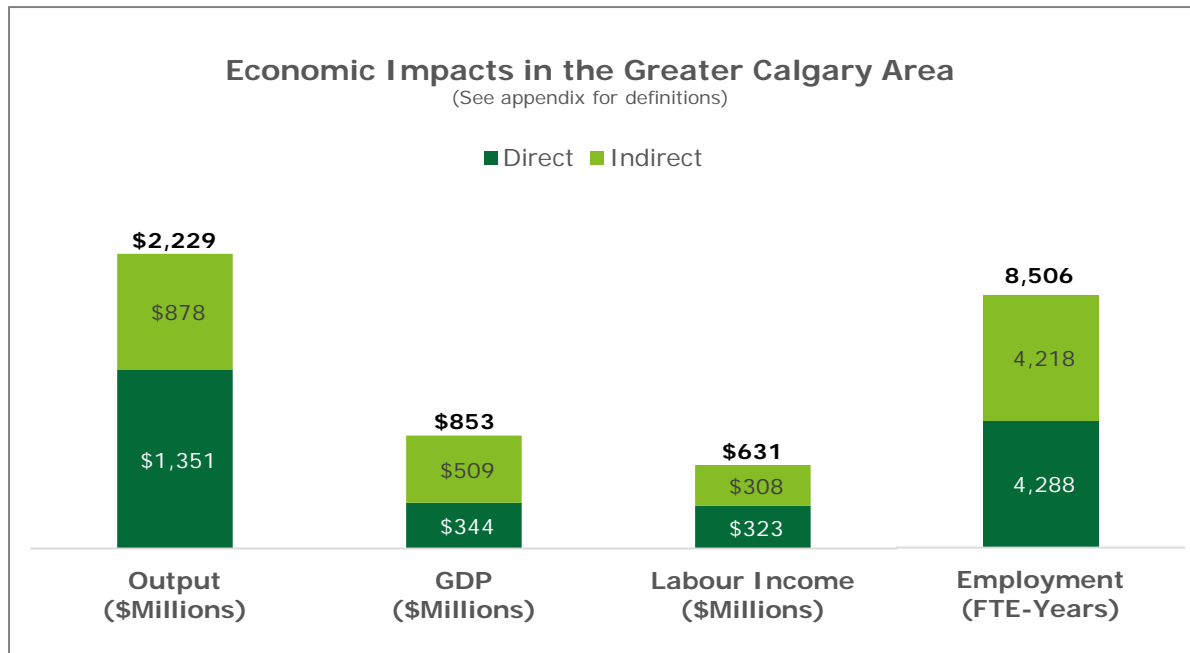
Employment Impacts By Industry

Top 10 Industries Impacted	Arts, sports, entertainment and recreation*	26.1%
	Other municipal government services	20.5%
	Administrative, waste management and remediation services	10.6%
	Non-residential building construction	6.2%
	Accommodation and food services	4.9%
	Professional, scientific and technical services	4.7%
	Transportation and warehousing	4.0%
	Manufacturing	2.7%
	Retail trade	2.7%
	Information and cultural industries	2.3%

* Includes employees on payroll with OCOG and BidCo

Impacts to the Greater Calgary Area

Accounting for the direct and indirect economic impacts, we estimate that the Games will contribute \$853M to the GDP of the Greater Calgary Area¹, of which \$631M will be in contribution to labour income. We estimate that the Games will generate 8,506 person-years of employment across the Greater Calgary Area, equivalent to an average of 945 jobs per year during the 9-year period studied



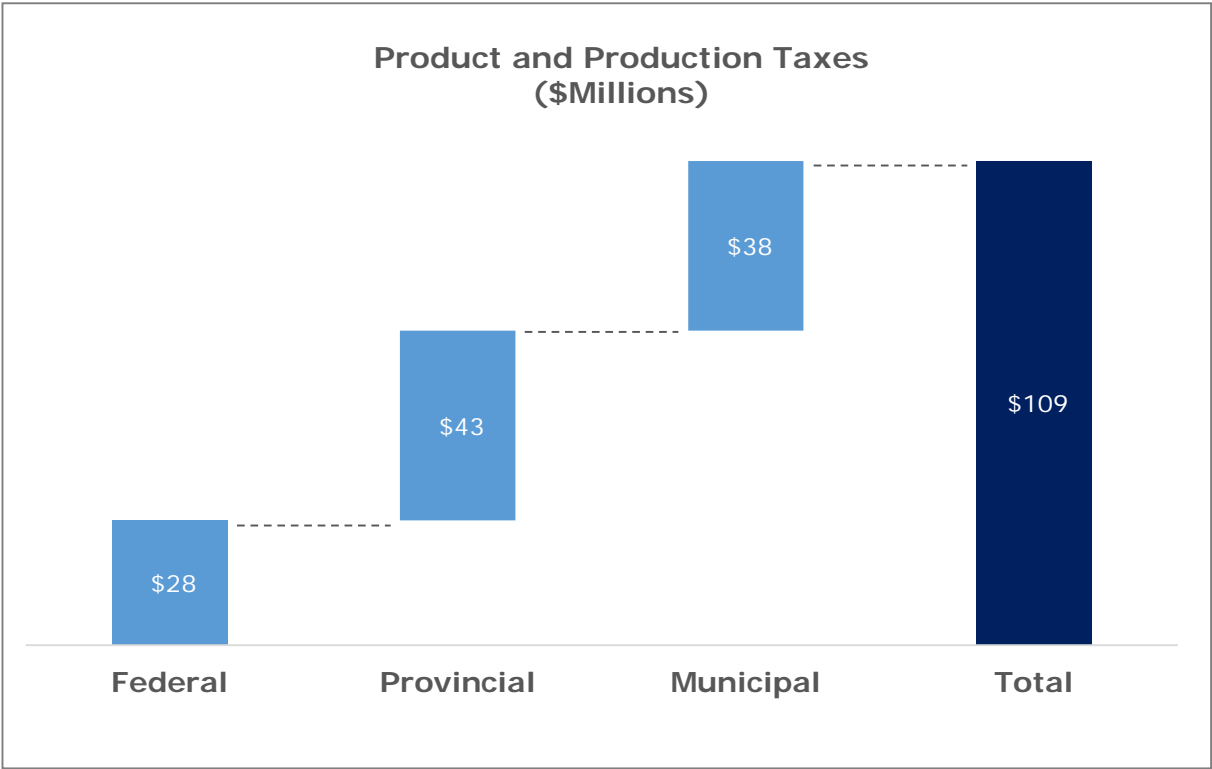
For every dollar spent in Alberta, the Games are expected to deliver \$0.26 of value-added (GDP) to the Greater Calgary Area's economy directly or indirectly

For every million dollars spent in Alberta, the Games are estimated to create or sustain 2.6 FTE-years of employment in the Greater Calgary Area directly or indirectly

1. The Greater Calgary Area refers to the Calgary economic region as defined by Statistics Canada, which includes: Foothills No. 31, High River, Longview, Turner Valley, Black Diamond, Okotoks, Rocky View No. 44, Calgary, Chestermere, Cochrane, Airdrie, Irricana, Beiseker, Crossfield, Mountain View County, Carstairs, Cremona, Didsbury, Olds, Sundre, Eden Valley 216, and Tsuu T'ina Nation 145 (Sarcee 145)

Product & Production Taxes in Canada

Accounting for the direct and indirect economic impacts, we estimate that the Games will generate \$109M of product and production taxes at federal, provincial, and municipal levels.



Product and production taxes include Provincial sales tax, H.S.T., excise tax, duty tax, air transportation tax, import duties, environment tax, gallon tax, trading profits, gas tax, amusement tax, other provincial consumption taxes, and various taxes on production.

In addition, the Games are expected to generate significant corporate and personal income taxes, which have not been estimated as part of this study.

Structuring and Legacy Impacts

Introduction to Structuring and Legacy Impacts

Beyond the Static Economic Impacts

Beyond the direct and indirect impacts of the activities associated with the Games, the Games could have important “structuring” and legacy economic impacts, if deliberate strategies are put in place:

- 1. Tourism Attraction and Associated Spending**
- 2. Economic Development and Diversification**
- 3. Legacy Housing Infrastructure**
- 4. Human Capital Attraction and Development**
- 5. Exports and Investment Attraction**

While these potential benefits are much more difficult to forecast and measure, they could have a lasting impact on the local and provincial economies that may in fact exceed the impact of the activities directly associated with hosting the Games.

Targeted strategies and tactics need to be employed to realize these legacy benefits as they would not come automatically with hosting the Games.

This section offers a description of each of these impacts and comparative data from previous studies of similar sporting events.

Socio-Economic Impact Layers



1. Tourism Attraction and Associated Spending

About this section

This section is focused on examining the implications of tourism and tourism spending from hosting the Games as well as how other host cities have effectively leveraged a tourism strategy for the Games to realize the associated benefits. This study does not, however, aim to quantify the tourism impacts that Calgary might realize from hosting the 2026 Olympic and Paralympic Winter Games. Specifically, an analysis on the incremental number of visitors and associated spending that hosting the Games would bring to Calgary before, during, and after the event has not been conducted at this time.

This section is broken into four chapters:

- i. Tourism prior to the Games
- ii. Tourism during the Games
- iii. Tourism after the Games
- iv. Considerations for attaining lasting tourism impacts

Each of these aspects are examined based on a variety of sources with an emphasis on reviewing the Calgary 1988 and Vancouver 2010 Games through a combination of Statistics Canada tourism data as well as survey data from the respective Games.

1.i. Tourism Prior to the Games

Our research did not find conclusive evidence suggesting the Olympic Winter Games have a positive tourism impact prior to the event, and that there should be efforts to mitigate potential negative impacts from tourism displacement¹

Impact on tourist arrivals

Our research did not find evidence of positive tourism impact of the Winter Olympics in the pre-games period. In some cases negative impacts were reported:

- Research on the impact of mega-events on tourist arrivals (see findings on the right) found that some mega-events have significant positive impacts prior to the event, but that this finding does not apply to the Winter Olympics
- In the year prior to the Calgary 1988 Games, Alberta had a drop in international arrivals of 7.4%, and Canada had a drop of 4.5%²
- In the year prior to the Salt Lake City 2002 Games, Utah had a drop in international arrivals of 15.7%, and the U.S. had a drop of 8.4%²

Mitigating potential tourism displacement

Targeted actions can be taken to boost tourism prior to the Games and mitigate potential negative impacts from “tourism displacement”¹:

- Messaging should emphasize that the region is still welcoming to visitors and disruptions are being mitigated. For example, Vancouver’s 2010 Joint Tourism Olympic Strategy emphasized targeted communication to international tour operators that venue construction was officially complete and destinations were open before the Games²
- Host regions should leverage the increased media coverage during both the bid phase and lead-up to the Games in order to boost awareness and interest in visiting the region. Successful visitor attraction requires a dedicated and proactive marketing strategy that capitalizes on the Olympic spotlight by translating Games coverage into appealing stories of the host city and nation

Research findings on the impact to tourism from mega-sport events³

“Tourism tends to increase dramatically as the event draws near: predicted tourism is 11% higher three years before the event, 10% two years before the event and 19% one year prior to the event”

“Tourism displacement, or **crowding-out**, seems to be much higher when an event is scheduled for peak-season (summer) rather than during other months. Thus, local mega-event organizers must be cognizant of the important effects of seasonality on tourism when submitting a bid”

“There are, however, large disparities between the types of event; the Summer Olympics, FIFA World Cup and, to a lesser extent the Cricket World Cup and Lions Tour, all seem to have a significant positive impact on tourism, while the Winter Olympics and the Rugby World Cup do not”

Source:

1. Displacement is an effect generally attributed to visitors postponing trips to coincide with the event or avoiding the region due to perceptions of inflated prices, over-crowding, or disruption caused by construction and other preparatory activities.
2. Fourie, Johan, and Maria Santana-Gallego. “The impact of mega-sport events on tourist arrivals.” *Tourism Management* 32, no. 6 (2011): 1364-1370.
3. Canadian Tourism Commission Briefing Note on Olympic Aversion, February 2009

1.ii. Tourism Impacts During the Games (1 of 2)

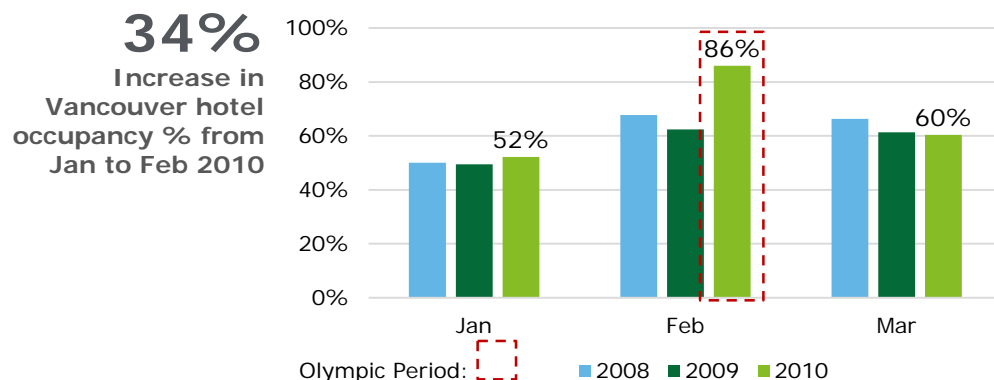
Studies of the Calgary 1988 and Vancouver 2010 Games indicate that the Games could bring an increase in visitors during the event period

Hotel occupancy

While the incremental number of visitors that the Games would draw to Calgary has not been estimated, there is evidence that more visitors come to the host region for the Games than during 'normal' periods:

- Vancouver observed a sharp increase in its hotel occupancy rates during February 2010, and this increase appears to be an outlier compared to other Q1 months from 2008-2010
- It is likely that a significant amount of this increase in hotel occupancy rates was driven by an increased number of out-of-province visitors

Vancouver hotel occupancy rates spiked in February 2010 versus other Q1 periods¹



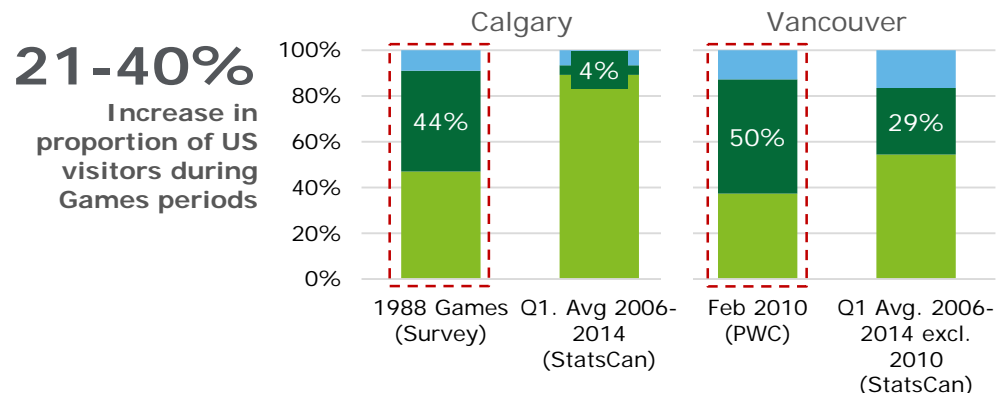
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Visitor origin proportions

There is evidence indicating that when the Games are hosted in Canada, the host cities see an increase in the proportion of visitors from the United States versus other periods:

- While detailed visitor origin data for Calgary in Q1 1988 was not available, a 1988 survey of Games attendees shows a significant increase (40%) in the proportion of US visitors when compared to Calgary's Q1 average from 2006-2014
- PWC's post-Games analysis of Vancouver 2010 estimates that 50% of visitors in February were from the US, a significant increase from the Q1 average of 29% from 2006-2010 (excluding 2010)

Calgary and Vancouver had a higher proportion of US visitors during the Games than normal¹



Sources:

1. 1988 Olympic Winter Games Visitor Study, The Games Effect Report 7 – PWC Economic & Statistical Services, October 2011, Statistics Canada 2006-2014 Q1 Overnight Visits

1.ii. Tourism Impacts During the Games (2 of 2)

Visitors from past Canadian Winter Olympic Games have tended to stay longer and spend more than general tourists

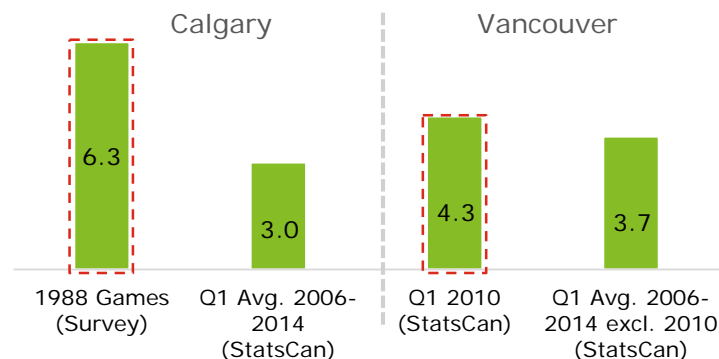
Visitor duration of stay

There is evidence that the average duration of stay for visitors were longer during the Calgary and Vancouver Games than what is normally observed:

- Survey results from the 1988 Games indicate that attendees appear to have stayed for over double the number of nights that visitors stay on average (Q1 average from 2006-2014)
- Statistics Canada data for Vancouver Q1 2010 indicates a slight increase in the duration of stay for visitors against other Q1 periods, and this may be understated if an increase in February 2010 is muted by the other Q1 months

1.1-2.1x
Longer average duration of stay for visitors during the Games

Calgary and Vancouver had visitors staying for more nights during the Games period than normal¹



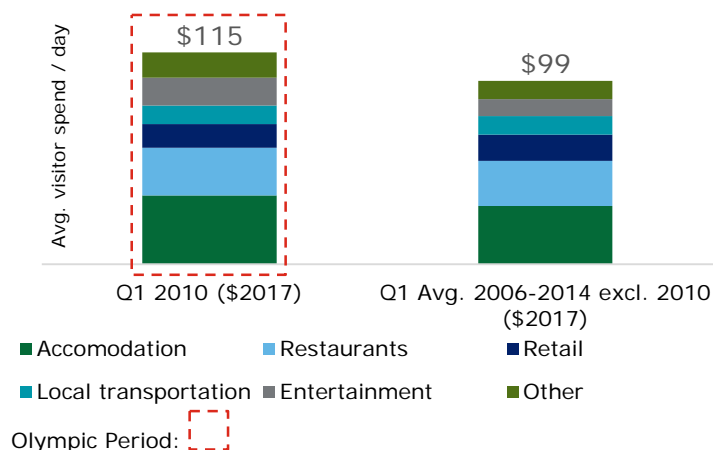
Visitor average daily spending

There is evidence that visitors to past Winter Olympics in Canada have tended to spend more than typical tourists. For example, in Vancouver, the Q1 2010 Olympics period saw a 15.5% increase in average daily spending per visitor (inflated to \$2017) compared to the 2006-2014 average (excluding 2010). Key differences in spending patterns were:

- 65% higher spending on entertainment (3rd largest spend category for 2010 visitors and smallest category for other visitors)
- 18% higher spending on accommodations (the largest spend category for both groups)
- 9% lower spending on retail (4th and 3rd largest spend for 2010 and other visitors respectively)

15.5%
Increase in average daily visitor spending during the Vancouver Games period

Vancouver saw higher daily visitor spending during the Games period than normal²



Sources:

1. 1988 Olympic Winter Games Visitor Study, Statistics Canada 2006-2014 Q1 Overnight Visits

2. Statistics Canada 2006-2014 Q1 Overnight Visits (visitor spending inflated to \$2017)

1.iii. Tourism Impacts After the Games

The largest opportunity to capture tourism impacts appears to be post-Games, particularly if a deliberate tourism strategy is in place to leverage the city's exposure

Global audience

The Games provide a global platform with the opportunity to convert increased awareness into sustained tourism impacts :

- The 2010 Games were estimated to have \$1B in Advertising Equivalency Value as global audiences saw Canadian tourism media 12 billion times through Olympic coverage²

Awareness of the host city

Surveys gauging awareness of Calgary relative to other Canadian cities found that:

- From 1987-1988, Calgary saw a ~24% increase in the percentage of respondents able to name it, compared to an average decrease of 2% for other major Canadian cities
- However, Calgary's awareness then dropped 9% in 1999 from its 1988 peak, demonstrating that the window of opportunity for capitalizing on awareness is short-lived

A similar study saw an average increase in awareness of Vancouver by target foreign markets of 34% from 2009-2010³

Image of the host city

Surveys studying Calgary's image revealed that the Games significantly shifted the perception of the city:

- Calgary's image became dominated by the Olympics in 1988, with 77% of US respondents associating Calgary with the Games, as opposed to 17% the prior year
- It appears that this image shift also peaks during the event year and then begins to drop off

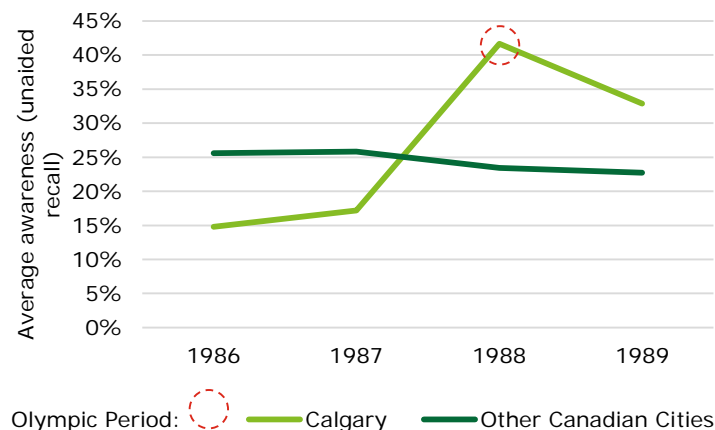
Sources:

1. Assessing the impact of the 1988 Calgary Olympic Winter Games on levels of international awareness and knowledge of the host city during the period 1986-1989, August 1990
2. Canadian Tourism Commission report on leveraging the 2010 Winter Games for Canada, 2010
3. Canadian Tourism Commission ad tracking, 2009 and 2010

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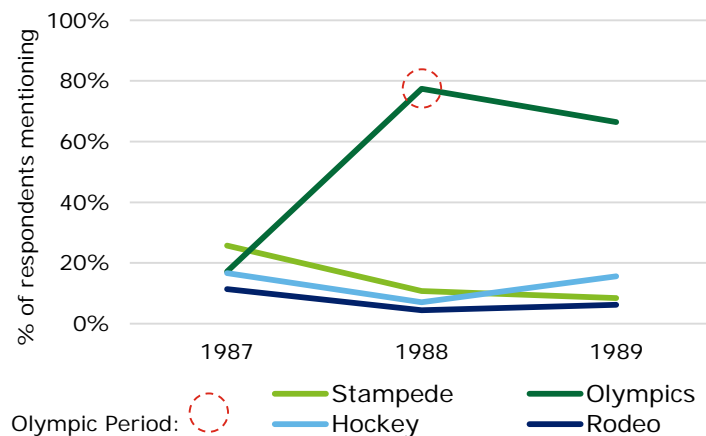
Calgary saw an increase in awareness from 1986-1987 compared to other Canadian cities¹

24%
Increase in survey respondents' ability to recall Calgary (unaided) from 1987-1988



The 1988 Games also changed the image of Calgary in the eyes of potential US visitors¹

60%
Increase in percent of respondents that associate the Olympics with Calgary from 1987-1988



1.iv. Attaining Lasting Tourism Impacts

There are many factors that influence the realization of long-term tourism impacts, and although not all are controllable, a focused tourism strategy can help align efforts and priorities

Challenges in realizing lasting tourism impacts

There are several factors that can challenge the extent to which tourism impacts are realized, such as:

- The global economic situation and availability of (and competition for) tourism dollars from visitors in target markets
- Any tourism displacement effects as a result of the Games, such as potential crowding out of arts and culture tourism in favour of sports tourism
- Economic leakage if income from Games tourism (and other spending) leaves the local economy (e.g. via imports of goods and services or repatriation of profits in other countries)
- Media coverage that paints an inconsistent or unfocused picture of the host city and region, potentially due to competing priorities by various stakeholder groups
- The extent to which Olympic infrastructure and memorabilia (such as signage, statues and memorials) can be preserved and marketed for tourism

Opportunities to maximize tourism impacts

Hosts can improve their potential to realize tourism impacts by:

- Developing a tourism strategy that aims to translate Olympic media coverage into focused and consistent stories about the host city and region
- Ensuring that the tourism strategy is aligned with the city's broader vision and strategy for the Olympics, such as branding the region as a winter sports hub
- Understanding the key metrics that the region wishes to track and improve and in what market, such as awareness and interest in visiting from Asian countries
- Accelerating the development of hosting infrastructure (such as transit routes and convention centres) to improve the hosting capacity of the region

Although there are no guarantees in realizing the tourism benefits of hosting the Games, a focused strategy that leverages the Olympic spotlight to emphasize the appeal of the host region can drive significant, sustained tourism awareness from potential visitors both during and after the Games.

Sources:

1. Utah Sports Commission, Salt Lake Chamber (ksl.com "Economic impact of 2002 Olympics still felt")

2. Legacies of North American Olympic Winter Games Volume 3 – Kate Zimmerman, 2007

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The 2002 Salt Lake City Games are seen as successful in realizing lasting impacts¹

The 2002 Salt Lake City Winter Games are widely considered a success, despite concerns leading up to the event that the US economy's downturn would lessen the impacts realized.

The Games saw **significant and lasting tourism impacts**, such as:

- +25% in hotel room rents from 2002-2009
- +42% in skier visits from 2002-2012
- +67% in expenditures from skiers and snowboarders from 2002-2011

Much of this is **attributed to the focus of Salt Lake City's broader Olympic strategy, which emphasized developing a winter sports cluster**

- For example, the region leveraged its Olympic legacy alongside tax breaks in 2006 to attract ski companies to move offices to the area²
- In a 2006 news release, the city of Ogden, Utah claimed "no other city in the world has more winter sports companies than Ogden" after a relocation announcement from Amer Sports Corporation meant Ogden would soon be home to 11 ski companies²

2. Alignment to Calgary Economic Development Strategy

If delivered purposefully, the Games can align to and support key aspects of Calgary Economic Development's strategy

Calgary Economic Development Focus Areas ¹	
Global Energy	<ul style="list-style-type: none">• Build on Calgary's position as the centre for responsible energy development and leadership• Leverage the strength and international reach of the energy industry to grow high potential energy-related sectors
Entrepreneurial Energy	<ul style="list-style-type: none">• Build on our business strengths, infrastructure and location to strategically grow non energy-related sectors• Provide business and entrepreneurs the support to grow
Innovative Energy	<ul style="list-style-type: none">• Leverage the strength of the energy industry to establish Calgary as a preferred location in Canada to successfully start, build and grow early-stage technology companies• Promote a culture of innovation throughout industry, the public sector, educational institutions and community agencies
People Energy	<ul style="list-style-type: none">• Invest in equal opportunity and prosperity for all Calgarians
Community Energy	<ul style="list-style-type: none">• Build Calgary as a model city for sustainable development and affordable living• Build and promote Calgary as a city to live a creative, active life
Collaborative Energy	<ul style="list-style-type: none">• Tell Calgary's unique and compelling story with a unified approach• Connect organizations and individuals to build collaboration, leadership and reporting on the activities of the Economic Strategy for Calgary

Hosting the 2026 Winter Games could directly or indirectly support these focus areas and strategies by:

- **Providing a media platform to raise awareness of the city and support investment attraction** (such as through profiling local businesses, entrepreneurs and innovators to support the *Global, Entrepreneurial and Innovative* aspects)
- **Re-purposing investments after the event to support social goals** (such as through Olympic Village suites being used for affordable housing after the Games to support the *People and Community* aspects)
- **Entailing extensive coordination across all three levels of government and the local business community to plan and deliver the Games** (such as through a coordinated tourism strategy that supports the *Collaborative* aspect)

Source:

1. Calgary Economic Development 'building on our energy' economic strategy, August 2015 V2.1

2. Economic Development and Diversification

The Olympic Games can present an opportunity to stimulate diversification and cluster development in Calgary's primary-resource-focused economy

Calgary is focused on economic diversification

Calgary's economy is becoming more diversified but is still heavily resource-focused:

- The primary resource sector contributed 31% of Calgary's GDP in 2016; 2/3 of the top 15 (by revenue) Calgary-based head offices are in the energy industry¹
- Calgary has been focused on diversifying its economy, and has seen strong growth in other sectors, such as Business Services growing 380% since 1987 (\$2.2B to \$10.8B)²
- Leaders in Calgary have been conducting trade missions to attract companies and diversify the economy³

The Games can stimulate further diversification

The Olympic Games draw significant investment and provide foundational assets into a range of industries outside of primary resources. Specifically, the Games can stimulate the development of Sport and Cultural clusters:

- Facilities from 1988 have been in use for almost 30 years and supported Calgary's development of a sport industry cluster
- Winsport was recently estimated to have an annual contribution of \$120M and 1,200 jobs to the Calgary area⁴
- In 1981 there were no national sports organizations based in Calgary, and by 2016 there were eight⁵
- Other business sectors could also benefit if a concerted strategy was in place to develop them in a focused manner

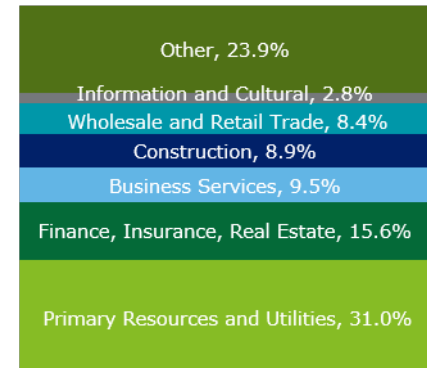
Sources:

1. *Calgary Economic Development Fact Sheet: Calgary Head Offices*, March 2017
2. *Calgary Economic Development Economy Our Economy in Depth*, Conference Board of Canada
3. *CBC News*, <http://www.cbc.ca/news/canada/calgary/calgary-high-tech-economic-development-nenshi-moran-bilous-1.4055947>
4. *Economic Impact of WinSport on the Calgary Economy*, March 2017
5. *Ken Read, Calgary Sun*, <http://www.calgarysun.com/2016/06/25/sizing-up-calgarys-legacy-olympic-facilities-ahead-of-2026-winter-games-bid>

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Calgary's GDP is still heavily dependent on primary resources ²

31%
of Calgary's 2016
GDP came from
*Primary and
Utilities**
industries

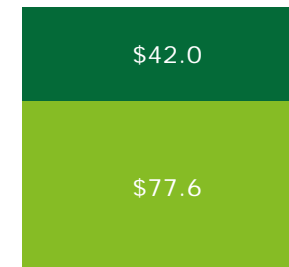


2016 % of GDP

Calgary's sports cluster that was catalyzed by the 1988 Winter Olympics⁴

1,200
Full-time equivalent
jobs across Calgary
generated by
WinSport

\$119.6M annually



- Winsport Indirect Economic Impact
- Winsport Direct Economic Impact

3. Legacy Housing Infrastructure

It is anticipated that portions of the proposed accommodations will be converted into approximately 800 affordable housing units, which represents approximately 4 years worth of growth in affordable housing units for Calgary; the provision of these units can bring lasting socio-economic benefits



Job Proximity

Provision of housing in areas that are closer to employers (e.g. town centres) can benefit the local labour market by increasing employee-employer proximity and reducing travel and temporary accommodation costs. Past studies have shown that these factors can improve the ability of residents to find and sustain a job as well as boost employee retention outcomes for employers.¹



Household Wealth

The provision of affordable housing can improve homeownership rates which are a key driver of wealth accumulation, particularly for young families.² Equity in a residence can account for up to 40% of the net worth of homeowners, while the net worth of homeowners is 17 times that of renters.³ Thus, programs that increase homeownership can be important vehicles for long term household financial stability.



Immigrant Integration

The effective settlement of immigrants is important for the stability of the labour market and for overall economic development. Affordable housing can allow immigrants to own a home earlier in their settlement cycle, bringing benefits such as higher income security, better health and educational attainment and lower encounters with crime. These outcomes can reduce the long-term costs of public services such as welfare assistance, healthcare and policing.⁴



Education

Affordable housing solutions support families in remaining in their homes longer and can reduce moves from one dwelling to another, which has been shown to have a positive impact on educational attainment of children. The quality of the household also has an impact on educational attainment, as overcrowding and poor household infrastructure has been shown to cause poor performance on educational tests among children.⁵



Health

The design and build-quality of modern housing developments can mitigate many of the health risks associated with lack of adequate housing, including risk of disease, injuries and mortality⁶ as well as the prevalence of mental health illness, leading to improved socio-economic outcomes of residents. Improved health outcomes can reduce the long-term costs for healthcare providers.



Security

Improved housing can improve security and reduce intruder-related crime, thereby reducing the costs of crime and mitigating mental health issues associated with the fear of crime and its aftermath. Homeownership specifically has been found to be 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.⁷

For a potential Calgary 2026 Games to realize significant legacy housing benefits, it will be important to plan for units to be secured and provided to the individuals and families who would benefit most across these areas

Sources:

1. Submission of Intervention of Regional Municipality of Wood Buffalo, Joint Review Panel Hearing of Application No. 1554388, 2012
2. Jesse Hajer, "Low-Income Households: Outcomes for Families and Communities." 2009.
3. Oxford Economics. "The Economic Impact of the London 2012 Olympic and Paralympic Games." 2012

© Deloitte LLP and affiliated entities.

4. Ibid.

5. Tom Carter. "Housing is Good Social Policy." CPRN, 2004.

6. Ibid.

7. Oxford Economics. "The Economic Impact of the London 2012 Olympic and Paralympic Games." 2012

3. Legacy Housing Infrastructure – Case Studies

London 2012 Summer Olympics

The London Games resulted in the construction of 11,000 new houses, five new schools, new health facilities, six new community centres and 250 acres of new parkland. This construction created six new neighbourhoods.

According to a 2012 study of the London Olympics¹, the 3,850 new affordable homes constructed in London have resulted in a total economic benefit of £50 to £130 million per year. These benefits are expected to accrue from better health, fewer lost working days, lower National Health Service costs and reduced costs of crime. The study also estimates that within the next 20 years the yearly flow of continuing improved outcomes is valued at £0.8 to £2 billion.

The study also estimates that the parkland elements of the Games' legacy have a capital value of nearly £500 million.

Vancouver 2010 Winter Olympics

The Vancouver Games contributed to the construction of approximately 1,100 new units. Of these new units, 125 have been sold and over 100 have been converted into rental housing. These units are "affordable", costing no more than 30% of a household's total gross monthly income. The Games also resulted in the construction of a new community centre, daycare, retail facilities and space for a regional office of the Canadian Sport Centre Pacific in the athletes' village.

In Whistler, 200 townhouses, a rental apartment building and a 100-room lodge were built. The townhouses were primarily sold as "long-term affordable" housing with a covenant on title limiting future price increase to a CPI-tied rate in order to maintain affordability over time for local residents. The apartment building is operated by Whistler Housing Authority, and the lodge became a dormitory for high performance athletes. An additional 156 units were temporary and transferred to other parts of the province to serve as social and seniors housing.

Source:

1. Oxford Economics. "The Economic Impact of the London 2012 Olympic and Paralympic Games." 2012

4. Human Capital and Labour Market Development

Past Olympics have been associated with a lasting positive labour market impact during the post-event period as a result of human capital attraction and development by industry as well as from targeted training and upskilling programs

Human capital impacts

Positive human capital impacts are typically triggered by the training support, skill development/transfer, and technology adoption associated with significant development activity.

- Over the long term this improvement in skills and qualifications can result in improved productivity, better paid workforce and reduction in unemployment
- A review of academic literature conducted by Oxford Economics in 2012 finds that an individual's higher productivity stemming from better qualifications increases the likelihood of being employed, increases the profitability and competitiveness of their employer, and benefits co-workers via skill transfers or faster technology adoption¹
- These benefits are further enhanced if the Olympic projects employ workers that are previously unemployed, which can create lasting benefits after the projects are over by removing the "scar" of unemployment
- An in-depth study found that a period of unemployment significantly increases the likelihood that a person will be unemployed in the future and reduces their wage by 10% on average upon returning to work²

Sources:

1. Oxford Economics. "The Economic Impact of the London 2012 Olympic and Paralympic Games." 2012
2. Arulampalam, W. "Is unemployment really scarring? Effects of unemployment experiences on wages", *Economic Journal*, 111(475). 2001
3. Olympic Games Impact (OGI) Study: Post-Games Report (OGI-UBC).

London 2012 Summer Olympics

According to a 2012 study of the London Olympics¹ the training support from the Olympic Development Authority has resulted in a net present value of £504 million over the working lives of training recipients.

Furthermore, 3,000 formally unemployed people gained work from the Games' construction activity. As a result of the removal of the unemployment "scar" these workers are likely to earn an additional £121 million in wages over their working lives, the equivalent of approximately £40,000 per worker.

Vancouver 2010 Winter Olympics

In the Games in Vancouver, between 2006 and 2010, a total of 267 training positions for priority populations were created, of which 220 positions were filled.

Priority populations include inner city residents, Indigenous peoples, persons with a disability, and new immigrants.

The types of skills training provided included customer service, carpentry, and material handling.

A total of 35 trainees were hired for VANOC jobs, including the RONA Vancouver 2010 Fabrication Shop that made items for the 2010 Winter Games such as podiums and wheelchair ramps.³

5. Exports and Investment Attraction

Studies have found that hosting the Games correlates with increased trade and investment attraction, as it typically signals the host jurisdiction's openness to trade

The "Olympic Effect"

A comprehensive study of past Olympic events finds that trade is around 30% higher for countries that have hosted the Olympics. Importantly, countries and cities that bid for the Olympics unsuccessfully have also experienced a boost in trade, comparable to that received by actual Olympic hosts, suggesting that the process of bidding itself can be a policy signal towards trade liberalization, outside any change in economic fundamentals.¹

- Trade openness is strongly linked to the attraction of foreign direct investments. Studies show that by entering global supply chains through trade, regions are able to attract foreign companies. On average these companies tend to be large multinational corporations, with capital spending above the regions average spending for most cases.² Research also shows that the increase in trade spurs internal competition, further boosting capital investments and efficiency³
- Foreign investment attraction brings important economic benefits on its own right by increasing the inflow of capital, technology, and talent to the country, and boosting GDP by improving the balance of trade

Tourism's impact on exports

Additional tourism is shown to contribute to an overall increase in exports. Deloitte analysis, using Canadian data, suggests that each 1% increase in tourists to Canada generates an \$817 million increase in Canadian Exports for the following two years. Deloitte finds that this increase in travel would increase the range of Canadian goods exported by 0.27% for each 1% increase in international arrivals.⁴

The "Olympic Effect" and trade liberalization

The 1960 Rome Games coincided with Italy's move towards currency convertibility, joining the UN, and the beginning of the Messina negotiations that lead to the Treaty of Rome and the creation of the European Economic Community.

The Tokyo Games of 1964 coincided with Japanese entry into the IMF and the OECD.

Barcelona was awarded the 1992 Games in 1986, the same year Spain joined the European Economic Community.

The decision to award Korea the 1988 Games coincided with Korea's political liberalization.

After being awarded with the hosting of the 2008 Beijing Summer Olympic Games, China successfully concluded negotiations with the World Trade Organizations, formalizing its commitment to trade liberalization.

Sources:

1. Rose, Andrew K., and Mark M. Spiegel. "The olympic effect*." *The Economic Journal* 121, no. 553 (2011): 652-677.
2. Janicki, Hubert P., and Phanindra V. Wunnava. "Determinants of foreign direct investment: empirical evidence from EU accession candidates." *Applied Economics* 36, no. 5 (2004): 505-509.
3. Harrigan, James. "Openness to Trade in Manufactures in the OECD." *Journal of international economics* 40, no. 1 (1996): 23-39.
4. Deloitte Canada. "Passport to Growth: How International Arrivals Stimulate Canadian Exports." 2014

Social and Environmental Impacts and Alignment to Calgary's Triple Bottom Line Policy

Social and Environmental Benefits

In addition to the economic impacts presented in previous sections, the Games can deliver important social and environmental benefits to the local community and the province



Community Development and Revitalization

The downturn in commodity markets has had a severe negative impact on the City of Calgary and the Province of Alberta. The spending and investment associated with the Games can offer a significant stimulus and support the recovery and revitalization of local communities. The legacy infrastructure of the Games, such as housing, sporting and cultural facilities, can bring an enhanced standard of life in local communities and act as a driver of future community development.



Health and Safety

The planned development and upgrades of venues and facilities will offer an opportunity to bring them up to a higher health and safety standard by implementing leading practices and modern technology. The conversion of Games accommodations into long-term affordable housing units can bring long-term health and safety benefits to residents that may be currently coping with inadequate housing conditions. Poor housing has been linked with a range of health and safety risks including disease, injuries, mortality, and mental health issues.



Indigenous Community Inclusion

With appropriate planning in place, the Games would provide an opportunity for partnering with Indigenous communities in a range of economic and social activities, fostering inclusion, cultural exchange and improved relationships with government. For example, the 2010 Vancouver Games provided 4,000 job opportunities for Indigenous peoples and engaged 100 Indigenous businesses. As well, one third of VANOC's royalties from the sale of Indigenous licensed products were donated to the Aboriginal Sport Legacy Fund.



Education and Youth Engagement

Educational institutions could see benefits from the Games through infrastructure, such as accommodations and sports facilities, being incorporated into the institutions after the event. Additionally, there could be increased community engagement by youth (both within the education sphere and outside) through opportunities to volunteer and contribute to the Games, such as by having student groups design or deliver various components of the event. This could help drive civic spirit in younger demographics as well as bolster the reputation of Calgary's educational institutions.



Potential Environmental Benefits

An environmental impact analysis has not been completed as part of this study. However, we note that while the increase in economic activity and flow of goods and people will likely have a negative environmental impact, the Games can also bring environmental benefits. These are associated with the planned development and upgrades of facilities and infrastructure, which will enable the implementation of modern energy efficiency and environmental protection technologies. Local traffic and emissions can be reduced over the long run if the Games stimulate an expansion in public transit routes.



Civic Pride

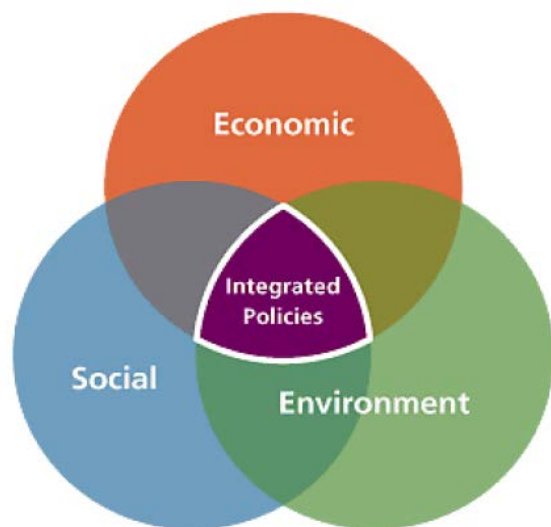
A number of past studies have found evidence of lasting benefits from hosting major sporting events associated with a stronger sense of community, civic pride, volunteering, and reputation. The '88 Games are often attributed with bolstering civic pride by placing Calgary and its people on the world stage. Research also shows strong evidence of "feel good" factors from hosting events. The Euro 1996 in England was estimated to have boosted the nation's happiness by the equivalent of £165 for every person.¹

Targeted strategies and tactics need to be employed to realize these socio-economic benefits as they would not come automatically with hosting the Games.

1. Kavetos, G, and Szymanski, S. "National wellbeing and international sports events", North American Association of Sports Economists Working Paper No. 08-14., 2008

Alignment to Triple Bottom Line Policy

If delivered purposefully, the Games can align well to Calgary's Triple Bottom Line policy framework¹



Integrated Policies	Potential Alignment
<ol style="list-style-type: none"> 1. Encouraging Sustainable Communities 2. Reducing automobile dependence 3. Engagement, participation and community networks 4. Integrated decision-making and working with regional partners 5. Accountability, transparency and good governance 	<ul style="list-style-type: none"> • The nature and scale of the Games demand extensive integration across communities, partners, and other stakeholders • Canadians, Albertans and Calgarians would hold the organizing committee to the highest standards of governance

Economic Objectives	Potential Alignment
<ol style="list-style-type: none"> 1. Promoting an environment conducive to attracting, retaining, and nurturing businesses 2. Creating a city where citizens want to live, work and invest 3. Strategically investing in infrastructure 4. Investing and leveraging investment in community infrastructure and programs 5. Encouraging a creative city 	<ul style="list-style-type: none"> • The Games could support business attraction and retention and may contribute to local business growth • The Games may accelerate or increase investments in strategic and community infrastructure (e.g. transit, business, sports and culture infrastructure) • The Games would directly support investments in sport and culture improving quality of life • The Games could be designed to bolster creativity in Calgary

Social Objectives	Potential Alignment
<ol style="list-style-type: none"> 1. An inclusive city 2. A safe city 3. A cultural city 4. An active city 5. A city of strong neighbourhoods 	<ul style="list-style-type: none"> • Housing and other infrastructure could develop communities • Games activities would share and promote the city's culture and lifestyle

Environment Objectives	Potential Alignment
<ol style="list-style-type: none"> 1. Reducing energy use and climate change impacts 2. Improving air quality 3. Ensuring land stewardship and protection 4. Protecting water resources 5. Protecting open space 	<ul style="list-style-type: none"> • Investments could improve the sustainability of facilities and infrastructure • Environmental stewardship plans could be re-used for future events

Source:

1. City of Calgary Triple Bottom Line Policy, October 2011 Update

Economic Impact Definitions and Modeling Assumptions

Economic Impact Definitions

Direct Impacts	Direct economic impacts represent the economic value added directly associated with capital investments and associated operations. For example, they include the employment and income of employees and contractors directly involved in a project, as well as the associated product, production and income taxes paid.
Indirect Impacts	Indirect economic impacts represent the economic value added resulting from the demand for materials and services that the project generate in supplier industries. 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 project.
Induced Impacts	Induced economic impacts are general income effects associated with the spending of salaries and wages earned as a result of the project on consumption. An example of an induced economic impact are workers engaged in a project purchasing goods and services (at a household level) with their earnings.
Output	The value of goods and services produced by establishments (e.g. firms), excluding “intermediate” goods and services consumed by the same establishment during the production process (e.g. electricity produced for own consumption). Output includes goods and services sold in the market place as well as goods added to inventory.
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”. 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 value-added resulting from the capital investments and associated operations of a project.
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 the projects), 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	In our study we have only partially accounted for government revenues generated as a result of a project. We include provincial and municipal product and production taxes such as sales taxes, property tax, and environment taxes. We have not included personal income tax or corporate income tax.

For technical definitions refer to Statistics Canada - Industry Accounts Division, System of National Accounts, 2009

Economic Impact Model and Assumptions

Introduction to Input-Output Modelling

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 uses data on the flow of goods and services among various sectors of the economy, and attempts to model how an expenditure, increase in demand, or investment ripples through a region's economy. This is done by mapping the production of products and service by each industries, and identifying the intermediate inputs used in the production of each final product or service used by consumers, sold as an export, or purchased by government. 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.

Deloitte used the Statistics Canada Interprovincial Input-Output model to generate the results in this report. Deloitte supplemented the output of the model with additional analysis at a regional level to estimate the potential economic impacts to the Greater Calgary Region.

Assumptions and Limitations of the Model

The Statistics Canada Interprovincial Input-Output model is subject to a number of general assumptions and limitations. The model reflects a simplified macroeconomic structure, and does not include some variables of interest for macroeconomic analysis such as interest rates, unemployment rates, or income tax rates. 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 outpace the capacity to produce the required goods and services, however it does estimate the portion of goods and services sourced from other provinces in Canada and internationally. 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." For more information on the assumptions and limitations of the model, please refer to *"The guide to using the input-output simulation model"*, which is available free of charge upon request from Statistics Canada.

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Disclaimers and Limiting Conditions

This report has been provided for the purpose of informing the Calgary Bid Exploration Committee on the potential socio-economic impacts of the potential Calgary 2026 Olympic and Paralympic Winter Games (“the Games”).

This study does not represent a cost-benefit analysis for any particular stakeholder of the Games and does not represent a comparison of the potential economic impact of the Games to the potential impact of an alternative use of resources. In particular, the study does not assess the opportunity cost to the City of Calgary and other stakeholders of pursuing the Games.

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