

# **Mega-Projects and Mega-Events: Evaluating Vancouver 2010 Stadium and Convention Infrastructure**

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This paper evaluates two infrastructure mega-projects connected to the 2010 Winter Olympics in Vancouver's downtown peninsula: the renovation of BC Place Stadium and the Vancouver Convention Centre expansion. These projects correspond to two categories of mega-projects often constructed alongside sporting mega-events with intended tourism development legacies that have a history of financial underperformance. Touching upon literatures concerning mega-events, event leveraging, urban development, as well as the public finance of sport and convention venues, this work focuses on fiscal impacts and opportunity costs for venue site locations where there are already high property values, with the aim of providing lessons for comparable future mega-event hosts contemplating similar event related mega-projects. In addition to arguing for the alignment of venue design to efficiently maximize long term operating returns and event portfolios for tourism development, this article highlights that venue location within a host city shapes the opportunity costs for government investors and that cost overruns to meet a fixed event deadline can undermine what may otherwise be a sustainable financial structure. While a mega-event related stadium or convention centre is at significant risk of becoming a financial loser when considering both capital and operating costs, as well as a sub-optimal platform for maximising an event portfolio, this does not have to be the case. Beyond more traditional measures of project return, this article highlights and further develops another key measure of evaluating financial and revenue outcomes, which can be summed up as the opportunity cost of alternative land uses on a venue site.

## Introduction

While mega-events such as the Olympics and World Cup are often foremost considered sporting endeavours by the public, from a financial, economic, and legacy perspective, these can be better viewed as large public works and infrastructure programs that can shape land use, urban development, and fiscal health for decades. In many instances the stated cost of the mega-event will be several times exceeded by associated infrastructure projects in anticipation of event related demand (see Agha *et al.*, 2012; Baade & Matheson, 2016). Although elite coalitions of project proponents and governments may assert that these infrastructure projects would otherwise be constructed at some point absent the event, the timeframe of the event generally pushes these projects forward and may alter their characteristics in ways that are beneficial for hosting the event, but possibly suboptimal for developing and leveraging a legacy event portfolio.

This article compares major capital projects related to the 2010 Winter Olympics in Vancouver, British Columbia (BC), under two categories of infrastructure frequently constructed in conjunction with sporting mega-events: stadiums and convention centres. Specifically these projects are the renovation of BC Place Stadium and the Vancouver Convention Centre (VCC) expansion. After a brief review of sporting mega-events and infrastructure under both categories, this article compares the respective fiscal, economic, and leveraging impacts, as well as opportunity costs in a location with high land values, before providing lessons for future similar projects in comparably situated host cities. In addition to evaluating key capital elements of the Vancouver 2010 legacy ten years later and how these venues have shaped an event and tourism portfolio, the focus on real estate as a crucial element of opportunity cost is a primary theoretical and practical contribution of this work.

## **Urban Growth Coalitions, Mega-Events, and Vancouver**

Regime theory argues that the complexities of local politics impact policy through brokering, coalition building, and resource sharing between public (elected and bureaucratic) and private centres of political and economic influence (Basolo, 2000). This extends to competition between elites in different jurisdictions to implement economic development agendas, manifesting in the “growth machine” concept through which coalitions of elite local organizations impact self-beneficial urban policies while selling these policies as benevolent (Logan & Molotch, 1987). There is an already well-documented phenomena of growth coalitions of business, political, and media leaders in mid-sized North American cities that provide relatively higher stadium subsidies to retain or attract major league teams than larger markets (see Delaney & Eckstein, 2006).

In the mega-event context, growth coalitions can be driven by politicians and elites aiming to demonstrate their brand on the international stage relative to other cities, while consolidating support for a domestic agenda. Internationally, sometimes the objective will be to showcase a lesser known city, a modern side of an existing hub, increase a tourism profile, or more broadly make gains in “soft power” (see Grix & Lee, 2013; Sant *et al.*, 2019). Domestically, the mega-events can be a political impetus to speed up infrastructure investments that will have legacies beyond the event period (Muller, 2017), or as ploys by local and sub-federal governments to direct central government investment to particular regions.

The Vancouver Olympics can be viewed as a bookend mega-event to the 1986 World’s Fair (Expo ’86). Both instances saw a growth coalition of centre-right business leaders, politicians, and media drive forward the events as economic and infrastructure growth agents that would position Vancouver as a global city attractive for investment (see Sant & Mason, 2015;

Surborg *et al.*, 2008; Sussman, 2006; Whitson, 2004). In the decade following Expo '86, the real estate industry became central to the growth machine, with the formerly blighted Expo lands developed into condominiums becoming a core element to attracting capital from anxious Hongkongers (Yu, 2013). This was complemented in the 2000s by a larger second wave of wealthy mainland Chinese (Todd, 2014).

### **Mega-Events, Infrastructure, Post-Event Use and Leveraging**

A relatively vibrant literature exists on infrastructure investments and legacies in a mega-event context. Some focus on directly on infrastructure and cost overruns (Flyvbjerg *et al.*, 2016; Matheson, 2012), economics (Baade & Matheson, 2016), or mega-events as a broader phenomenon and systemic problem (Davies & Mackenzie, 2014; Muller, 2017). Mega-events such as the Olympics can be seen as agents of urban transformation (Hiller, 2006; Liao & Pitts, 2006) and tourism development (Giampiccoli *et al.*, 2015). Others argue that mega-events using existing infrastructure can have significant dividends (Gratton *et al.*, 2006), or be leveraged to diversify an event portfolio for optimised tourism development (Chalip, 2004, 2017; 2018; Ziakas & Costa, 2011). Chalip (2004) conceptualized an event portfolio being a leverageable resource optimising total trade and enhancing the host's image as a destination.

With Vancouver 2010, previous works have addressed Games-related infrastructure projects in a legacy context (Kaplanidou & Karadakis, 2010; Kidd, 2011; Sant & Mason, 2015), the Canada Line subway as a private-public partnership (Siemiatycki, 2006), and the conceptualization of legacy by destination marketing managers (Sant *et al.*, 2013). This 2013 study revealed the perceived importance of physical infrastructure as a legacy for the tourism industry, although later work from Sant *et al.* (2019) noted that developing an event portfolio was not intended at a national level for Vancouver 2010.

While the legacy model of Sant and Mason (2015) highlighted the role of deficient highway infrastructure connecting the two competition clusters in selling Games related expenses, no work has detailed the two largest Games-related facility or venue financial investments: the BC Place renovation and the VCC expansion. Likewise, while some have covered the impact of the Olympics on land acquisition (Davis & Thornley, 2010), property values (Kavetsos, 2012), or development on land ancillary to mega-event related infrastructure projects (Yamawaki & Duarte, 2014; Zhao *et al.*, 2017), there is nothing focused on the opportunity cost of land Games-related venues reside upon.

### *Stadiums and the Olympic Games*

Stadiums are perhaps the most traditionally visible Olympic expenditures. The Olympics pose the twin challenges of requiring many more venues than a host would have good legacy use for, and many of those venues being specific to sports that have little demand outside of the Olympics. Given these issues, stadiums also represent the most visible Olympic white elephants. Combined with the documented phenomena of the Olympics exceeding the cost overruns of other mega-project classes, the potential for fiscal strain and low utilization is considerable (Flyvbjerg *et al.*, 2016).

Most iterations of the Summer Olympics and some of the Winter Games will see the construction of a new primary stadium. As the Winter Games stadium does not need to hold athletics, many hosts have had more flexibility to temporarily repurpose existing rectangular sport stadiums (Calgary 1988, Salt Lake 2002, and Torino 2006). Challenges have been more pronounced in smaller host cities with no use for a permanent stadium, such as Albertville (1992) and Pyeongchang (2018), which used temporary stadiums, and Lillehammer (1994), which used

its ski jump venue. One smaller winter host that built a large new stadium, Sochi (2014), has seen Fisht Stadium remain severely underutilized outside of hosting 2018 World Cup matches.

Even where primary Olympic stadiums have a viable post-Games use, the public return on investment is generally poor, with sporting tenants brought in on attractive lease terms and often without the revenue generation power to match the scale of construction costs, as well as the venue being a poor fit for hosting a more diverse portfolio of events. However this is consistent with many publicly financed sports stadiums in general. Significant academic literature asserts that stadiums fail to create economic growth in a city or region (see Coates & Humphreys, 2008; Humphreys, 2019). Whereas most publicly funded professional sports stadiums are at least optimized to the needs of their primary tenants, and in theory designed to maximize longer term revenue potential, post-Olympic conversions are rarely the stadium in mind had there been a venue constructed without the Games.

While the literature on public stadium subsidies generally undermines arguments for economic benefits, governments may still embark upon a path of stadium finance for three other reasons. First, a government may wish to use a venue to revitalize and redirect activity or visitors to a particular geographic area, such as a downtown (Rosentraub, 2009). Second, governments can use a stadium and its resident sports teams as an amenity to compete with alternative jurisdictions for jobs, talent, tourism, and tax base. Third, there may be some intangible value beyond financial return (Coates & Humphreys, 2003). This intangible effect may extend to hosting the Olympics (Atkinson *et al.*, 2008) or World Cup (Kavetsos & Szymanski, 2010).

### **Convention Centres and the Olympics**

Although less common than stadium investments, convention centres frequently serve as temporary arenas or broadcast centres. New convention centres were constructed in concert with

the Athens (2004) and Beijing (2008) Olympics, while major expansions were undertaken alongside the Torino (2006) and Vancouver Games. Where these facilities are used in competition or to host Games media, they are considered “direct capital costs” under the International Olympic Committee’s (IOC) cost categorization scheme (Flyvbjerg *et al.*, 2016).

The exposure provided by sporting mega-events has been cited as stimulating strong long term convention hosting gains (Kim & Kim, 2004), despite the risks of displacement during the event year or recession delaying benefits (Agha *et al.*, 2012). Specifically, a sporting mega-event can demonstrate that the prospective host can provide the attributes and amenities desired for a large convention, such as sufficient exhibition space and hotel rooms, flight availability and airport connections, and entertainment (Crouch & Louviere, 2004; Kim & Kim, 2004). Thus there may be potential for mega-event infrastructure to demonstrate the feasibility of a future event which can subsequently be leveraged.

However the literature on convention centres more generally highlights the failure of actual convention business to match projections or economic impact (Sanders, 2014). As with stadiums, new or expanded convention centres can be part of a local growth coalition’s redevelopment and status boosting aspirations (2014). From a real estate perspective, this growth agenda can view a convention or stadium venue as an anchor for neighbourhood development or a buffer against blight, while at the same time as a means to compete with alternative jurisdictions for talent, tax base, and visitors.

Unlike with stadiums, where substitution effects call into question whether economic activity is being created that would not have otherwise occurred in a region, conventions are better positioned to draw external dollars. Where prospective attendees of most sporting events will overwhelmingly reside in the same region as the venue (such as those occurring in a mega-

event venue after the event), economists argue that these prospective attendees would substitute sports spending for other entertainment spending (see Propher, 2012; Siegfried & Zimbalist, 2002). With major conventions that could be held in any number of regions, a much larger proportion of spending will come from visitors to the region, thus in theory escaping the substitution effect. Similarly, if a prospective host has insufficient facilities or amenities to be a viable site, the opportunity to attract the potential impact of those external dollars is lost. The greater volume of prospective convention opportunities also provides the potential for a more diverse and evenly distributed event portfolio.

### **Materials and Methods**

This article uses a comparative case study design to synthesize the experience of two Vancouver 2010 related venue projects across four performance aspects: financial structure and return, economic impact and leveraging, ancillary real estate development opportunity cost, and total financial and economic opportunity cost for the initiating government. Beyond residing in the same host city and stemming from the same mega-event, the projects are also selected for their effectively common ownership and management structures, as well as similar locations within the downtown core of the host city. The common ownership and management of the facilities also means that there is consistency in organizational culture and policy, annual and financial reporting, internal measures of economic impact, and application of local planning bylaws. This unified public ownership also allows for the same degree of application for freedom of information laws to obtain internal documents.

The article primarily relies upon document review and synthesis, with sources found using a snowball technique from databases until search terms and relevant results were exhausted. Key sources included financial reports, government documents, academic articles,



media, and real estate industry materials. Financial cost and return, as well as economic impact, were analysed with initial reference to official sources before adding synthesis of secondary sources from the document review. Real estate development and opportunity cost of real estate were calculated from land values and comparable land sales in Vancouver. The basis for real estate and opportunity cost calculations is further detailed in the relevant sub-sections.

### **Vancouver 2010 Venues and Infrastructure**

Vancouver 2010 venues were broadly divided into a mountain cluster near Whistler, and a city cluster. Within the city cluster, the athletes' village, primary stadium and arena, and broadcast centre were located around the downtown peninsula, with three secondary arenas scattered elsewhere in Vancouver. The long track speed skating venue was constructed near the airport in Richmond, and a freestyle complex was built at Cypress Mountain in West Vancouver.

In addition to the C\$603 million in direct capital expenditures linked to the Games by the UBC Olympic Games Impact study, which included certain initial upgrades to BC Place, there were three primary infrastructure projects related to Vancouver 2010 not included in organizing committee expenses. These projects were the VCC expansion, the C\$2 billion Canada Line subway, and a C\$796 million upgrade to the Vancouver-Whistler highway. With pressure from the provincial government, the Canada Line was prioritized ahead of other regional transit priorities to link the airport to downtown and several key venues: the long track, curling rink, athletes' village, BC Place, and VCC. For its part, the "Highway of Death" connecting the two competition clusters in Vancouver and Whistler was cited as a major flaw by the IOC bid evaluation team (Fowlie, 2009; VanWynsberghe, 2013). All of these projects can be viewed as having been expedited in ways that would not have been present absent the Olympics.

Additionally, each had potential to facilitate future tourism flows – between the airport and urban core, the city and a world-class winter resort, and bringing larger conventions.

[Insert Figure 1]

## **BC Place Stadium**

### *Financial Overview*

BC Place is a rectangular field stadium in downtown Vancouver owned by the province and managed by a provincial crown corporation, the BC Pavilion Corporation (PavCo). PavCo is also responsible for managing the VCC, following a trend in many American cities for publicly owned stadium and convention venues to be managed by a combined public authority.

Pegged for the cultural ceremonies at Vancouver 2010, the January 2007 collapse of the stadium's dome prompted a more ambitious renovation including a retractable roof. The initially revised interior and exterior renovation was cited in early 2008 by PavCo as being in the range of C\$100 million (Mackin, 2013a). Less than a year later, the budget had been increased to C\$365 million and the roof postponed to after the Olympics. Following the October 2009 provincial election, the budget was further increased to C\$514 million, C\$458 million of which was for the roof (CBC, 2009), where the alternative of a replacement soft Teflon bubble roof would have been approximately C\$20 million. The renovation project was financed by the province and tendered via traditional construction contracts. Cost certainty was finally achieved with the a fixed-price contract for the roof replacement in October 2009 (BC Place, 2009).

While interior premium seating and stadium concourse renovations were complete for Vancouver 2010, the roof and seating bowl replacement did not occur until after, with the fully renovated stadium opening 2011. Even with a reduced capacity from 59,000 to 54,000, the stadium is a poor fit for its Major League Soccer (MLS) and Canadian Football League (CFL)

tenants, with both teams using a tarp to cover the upper bowl. The improved acoustics of the renovated stadium has brought more concert traffic, although far fewer acts can make the economics of stadium concerts work and even those who can may still choose arena tours. Other months are largely booked with the same trade shows hosted prior to renovation.

BC Place did serve as the primary venue for the 2015 Women's World Cup, with the final being the most watched soccer game in American history (US Soccer, 2015), surpassing television audiences for any Vancouver 2010 event except the men's hockey gold medal game (NHL, 2010). Without the new roof, this final would not have happened in Vancouver. The World Cup period also saw a surplus of 125,000 overnight visits relative to the previous year (BC Place, 2016). BC Place has also become a regular host for World Rugby Sevens, an annual 2-day event that likely would not have chosen Vancouver but-for the stadium renovation. Additionally, BC Place was slated to be a focus city for the 2026 World Cup, but the new provincial government declined to enter into the onerous terms of a FIFA host agreement (Laanela, 2018).

Unlike many publicly funded professional sports stadiums that arise from shrewd leveraging of the monopoly scarcity of teams – there being more markets that could host clubs than the supply of clubs – the BC Place renovation was not the first choice of its only major league tenant. Instead, the Vancouver Whitecaps had plans for a privately funded soccer-specific stadium on waterfront lands assembled by ownership, but had been thwarted by troubles securing planning permission from the City (CBC, 2006). PavCo was able to step into the situation and secure the Whitecaps as a tenant with extremely friendly lease terms (Mackin, 2013b).

Although PavCo and the Whitecaps are still fighting years later in court to prevent the full disclosure of their lease agreements through freedom of information law, journalists have

obtained documents indicating that the Whitecaps pay roughly C\$340,000 in yearly rent, while the CFL Lions have paid C\$220,000 (Mackin, 2013b; 2019). This is supplemented by a C\$2 per ticket fee to PavCo. Based upon attendance averages, this likely generates about C\$700,000 from the Whitecaps and C\$450,000 from the Lions in a given season. These effectively sub-market lease rates have crowded out the Whitecaps building an entirely privately funded stadium.

BC Place also runs a considerable yearly structural deficit. In theory, PavCo repays the provincial finance of C\$7.3 million per year from 2018 through 2048 (PavCo, 2018). However at the stated interest rate of 3.29%, this payment will only cover a fraction of the construction principal and interest, with the remainder likely written off by the province. If revenues and expenses are limited to those outside of the debt and debt finance structure, then BC Place has run in the range of a C\$3 million to C\$4 million operating deficit in recent fiscal years (2018). When finance is included, then the BC Place deficit is C\$12.1 million for 2018 and C\$7.3 million for 2017. Under these same accounting methods, the stadium lost almost C\$4 million in the fiscal year immediately prior to the renovation (Mackin, 2014).

[Insert Table 1]

### *Economic Impact and Leveraging*

Through the application of an input-output model multiplier based upon sector data from Statistics Canada, the yearly economic impact of BC Place has been calculated to be in the range of \$128 million and \$202 million between 2015 and 2018, peaking in 2015 with the Women's World Cup (PavCo, 2018). The economic impact of BC Place spending from non-BC residents is pegged at anywhere from 20% to 35% of the total. These non-resident numbers are more reflective of true impact because of substitution – BC residents who spent money at BC Place

would have likely spent most of that money elsewhere in BC had the stadium option not been available.

Even with non-resident spending, it is questionable as to whether the event was the particular reason for the trip to BC. If the availability of the event at the stadium was integral to the BC visit, there are then issues of whether the event could have been held in the province absent the stadium, or whether the trip would have later occurred absent the particular event. With the former, while many non-resident visits to soccer games could have still happened at the Whitecaps privately funded alternative stadium, almost 125,000 overnight visits (mostly from American soccer fans) in 2015 may not have occurred. Likewise, concerts held at BC Place could have alternatively been held with smaller arena crowds. For its part, Rugby Sevens claims \$24 million in yearly economic impact, including 2,300 room nights beyond what spectators reserve (BC Place, 2019). Again, this is a global series that likely would not have ventured to a suburban or dated venue. As one of two North American stops, there are likely to be some portion of fans attracted that would not have otherwise travelled to Vancouver. To the extent visits are external, the renovation can be viewed as strengthening the event portfolio. Beyond visits and trade, the significant international broadcast reach of these events also provided good opportunities to showcase the region to prospective visitors.

Another part of the business case for the BC Place renovation was to allow for the development of a hotel and casino complex at the west end of the property through the relocation of a nearby license. The attached hotels provided greater potential for both gaming and sport-related overnight visits, with the casino differentiated from local competition by targeting a high-end clientele and having a majority of its revenue drawn from table games. This can be seen as a form of using event infrastructure to optimise the casino trade as part of offering a diversified

downtown entertainment district in the regional tourism portfolio, as well as attempting to retain resident tourist dollars that may otherwise flow to Las Vegas or nearby casino resorts in Washington state.

#### *Real Estate Development Opportunity Cost*

In addition to concession revenues from the casino complex, PavCo hopes to further recoup BC Place renovation costs through development of a condominium tower at the southeastern corner of the stadium (Chan, 2018). Based upon conservative estimates of the proposed 400,000 square feet of floor space, 85% of that being living space, Vancouver multifamily concrete tower construction and soft costs (C\$550 per square foot) and sale values of C\$1,000 per square foot, makes for a potential profit of C\$153 million. Although as with the casino concession, a land claims payment to Indigenous groups would likely be undertaken (C\$8.5 million was paid by PavCo to settle Musqueam claims on the casino lot; Robinson, 2015), the avoidance of land acquisition costs makes this a lucrative project for PavCo that can make a more significant dent in renovation costs than stadium operations.

Certainly the renovated stadium made the attached development sites more attractive than had the aging facility been left with a soft dome. However, the opportunity cost is not renovation versus renovation, but rather demolishing the stadium and redeveloping the site. Due largely to limited land supply and mass capital influx from China, Vancouver became one of the world's hottest residential real estate markets in the post-2005 period (see Ley, 2017). With a lack of assembly opportunities, the market for the BC Place lands would likely be strong. For instance in 2017, a downtown gas station site sold for C\$72 million, while roughly three-quarters of an assembled block sold for C\$254 million (Lee-Young, 2017).

Based upon comparable properties and market appreciation since a 2013 expert opinion valuing the land at up to C\$725 million (Fowlie and Sherlock, 2013), the assembled stadium lands zoned for condominiums would likely be worth in the range of C\$1 billion in 2020. If PavCo wished to serve as the developer, then under current zoning law the footprint would be sufficient for eight towers on the same scale as the one planned for the stadium corner lot (City of Vancouver, 2013). The province could also override the local zoning bylaw height and density restrictions, making development more lucrative still. Since provincially owned land is property tax exempt, the City of Vancouver, the provincial school tax fund, and the regional transit authority are missing out on tens of millions in revenues if these lands were developed to their highest use.

#### *Total Opportunity Cost*

When venue development decisions were made in the late 2000s, property values were roughly half of what they were 10 years later. So opportunity cost may be more appropriately based upon land values of the time. Adding temporary cosmetic renovations and a new Teflon dome for the Olympics (C\$60 million), costs to demolish BC Place and prepare the site for redevelopment (C\$50 million based upon comparable projects), then even a public subsidy to acquire land and build a new CFL stadium in the eastern suburbs (C\$140 million), the stadium replacement exercise could have come in at roughly half of the BC Place renovation. When adding in a potential land sale that could have been expected to raise C\$500 million at the time the decision would have been made, the net 30 year opportunity cost to the provincial treasury is estimated at C\$744 million in 2009 dollars

Meanwhile the 30 year present value of non-resident BC Place economic impact is liberally estimated at C\$784 million. This includes revenues from surplus economic impact

created by events at BC Place that would not have happened in BC without the renovation, and would not have happened (or to the same impact) at a lesser new suburban stadium or a privately built Whitecaps stadium. For instance, without the renovated BC Place, metro Vancouver would not have hosted the Women's World Cup Final, but being the closest region to a major American soccer market (Seattle), and with Toronto declining to host due to the 2015 Pan Am Games, still likely would have had games featuring the US in a stadium allowing for 25,000 fewer visits per game. Based upon the non-resident spending economic impact from PavCo, even if an aggressive yearly average of C\$40 million is assumed, the net cost to provincial treasury in tax revenue (income and sales) would be less than C\$5 million per year assuming that in the absence of BC Place this impact would not disappear without some substitution. These estimates are supported by an economic impact summary from an industry group for FIFA, which found the Women's World Cup GDP impact in Vancouver was \$40 million, ultimately generating \$7.2 million in provincial tax revenue (Fisher, 2015).

### **Vancouver Convention Centre Expansion**

The VCC expansion was premised with the economic and tourism opportunity cost of lost conventions in mind. The original VCC, built for Expo '86, is an architecturally distinctive 134,000 square foot space that was too small to compete for many larger conventions. A 419,000 square foot expansion proposal was first made in 2000, based C\$495 million budget (Auditor General, 2007). The initial plan was for a build-operate public-private partnership, but the government was unable to find a private partner and turned to traditional procurement funded with C\$90 million from hotel taxes, and the remainder split evenly between the provincial and federal governments (2007).



The expansion was cited as an alternative site for the International Broadcast Centre (IBC) in the Vancouver 2010 bid. A year after Vancouver was awarded the Games in 2003, the convention centre was confirmed as the IBC site, and later saw its accompanying plaza host the permanent Olympic torch. The Games deadline was cited by an Auditor General report as contributing to cost pressures. Indeed, the budget was increased in 2004 to C\$565 million, and then C\$615 million a year later. By 2007, the final budget of C\$883 million was announced, with the province responsible for the overruns.

Unlike BC Place, the VCC is a viable business, running an operating surplus of roughly C\$4 million in 2017 and 2018 (PavCo, 2018). However operating revenues are not sufficient to account for the construction or debt costs, so the convention centre effectively is a sunk expenditure that will neither recoup its costs nor further bleed the provincial treasury. Thus if the facility cannot cover its own construction and operating costs, its value needs to be found elsewhere: either through economic impact, developing an event portfolio that can be leveraged, or as an amenity.

### *Economic Impact and Leveraging*

Whereas with a stadium outside of the brief mega-event window most visits will be substituted from activity that would have otherwise taken place within the region, convention centres are dominated by external visitors. Convention centres may also have a better argument than sports stadiums that external trips would not have otherwise been deferred. Simply, conference travel is often funded by third parties, meaning that it represents a trip perhaps less likely to be made with private funds later when the traveller can choose from any destination.

The VCC attracted over 500,000 delegate days in 2015/16 and 2016/17, with a decline to 388,000 in 2017/18 (PavCo, 2018). Prior to the expansion, the VCC hosted in the range of

140,000 delegate days (2016), meaning that the expansion was likely building business that was not otherwise going to come and thus leveraging the infrastructure into a more diversified event portfolio – in a typical year the VCC hosts in the range of 550 events (Vancouver Convention Centre). This is especially impressive considering the glut of conference space constructed in North America, which has seen delegate projections in many major cities fail to meet expectations (Sanders, 2005; 2014; Smith, 2014). There is also some indication that many delegates extend their stay as tourists, and that 65% of non-resident attendees plan return to BC within two years (Vancouver Convention Centre).

Using the same model as BC Place, the non-resident impact from the convention centre is calculated at C\$311 million, C\$326 million, and C\$252 million in three fiscal years preceding 2019 (PavCo, 2018). These are numbers in the range of 10 times the non-resident impact for BC Place. Using a ratio of 10% tax revenue generation per dollar of external visitor impact (based on sub-federal revenues generated for other major convention facilities; Heaghney, 2017; Yen, 2007), and subtracting the external impact that could have been expected with no expansion, incremental revenue may address roughly half of the total cost had the venue been financed instead of being funded directly from the provincial budget.

#### *Real Estate Development Opportunity Cost*

The expansion was built on a combination of land and pilings over water. In an alternative where the provincial land was sold for private development, the overwater construction would not have likely happened. Based upon market comparables (discussed in the BC Place section) and its oceanfront location, this assembled property could be worth C\$500 million in 2020, although probably less than half that figure in the mid-2000s when development decisions were being made. If PavCo had undertaken development in-house, the property is

likely sufficient for three condominium towers, using the BC Place methodology, a profit of over C\$400 million could have been attained. Alternatively, if the facility was not intended to be completed on the strict Olympics timeline, a more aggressive value capture strategy could have been pursued, with towers integrated into the design, consistent with condominium development in Vancouver.

#### *Total Opportunity Cost*

Although several years of convention growth would have been lost by delaying the expansion, this delay could have been avoided through better managing risks and unlocking opportunities that were not available given the need to complete the building in 2009. Namely, the design of the expansion could have been completed and accurately costed prior to entering into contracts, and the initial contract could have shifted overrun risk. However, had the true cost been known, the facility may not have been built, or at least encountered political resistance prior to approval, as opposed to after overruns during the construction phase.

This said, the option of integrating lucrative real estate development into the expansion design and having those profits substantially fund the expansion was simply not explored given the hard Olympics deadline. Similarly, even if pre-construction knowledge of the true cost killed the expansion project, then the province could have profited from the land sale. However unlike BC Place, which would debatably have captured similar economic impact with a cheaper alternative venue and location, the convention trade is more premised on central location and in Vancouver's case, was reliant upon the adjacent existing facility. Thus, bare land sale of the expansion site would not have been feasible unless the province was willing to go without the impact of an expansion altogether.

If the province declined to pursue the expansion project, using the late 2000s land value of the site, there is a potential for the provincial treasury to have been in the range of \$410 million better off had the land been sold and expansion not constructed. However, there is potential for a design integrating condo towers to lead to a \$181 million net present value gain to the provincial bottom line. This scenario would allow the convention centre to self-finance from a provincial perspective while still deriving the expansion's non-resident economic impact and event leveraging benefits.

## **Discussion**

With major stadium and convention investments made alongside a mega-event, the Vancouver experience indicates that public financial benefit needs to be found in legacy economic impact and event portfolio leveraging as opposed to revenue return. Likewise, the form of infrastructure investment can be viewed as shaping the scope of the event portfolio that can subsequently be leveraged. For the convention expansion, most visitors are non-residents, meaning that there is significant tourism impact even when accounting for substitution. Combined with Vancouver now being able to host conventions that the original facility could not handle, there is a defensible argument that the expansion – despite overruns – was a decent public investment that attracted a more diverse and consistent event portfolio, which could then be leveraged for better tourism development. However if completion was not necessitated by the hard Olympics deadline, the project could have incorporated lucrative real estate development to recoup a significant portion of costs.

BC Place is not similarly redeemed. Again for stadiums, substitution effects make it difficult to create economic impact that would not have otherwise occurred in the region. With BC Place, similar direct impact could have likely been had through a cheaper suburban substitute

stadium and the provincial treasury would have the benefit of the land sale. Instead, the value of BC Place is more intangible – having the Women’s World Cup Final or MLS or CFL games downtown may have been experientially beneficial to the community or helped downtown become a more complete tourist destination. There is also some leveraging value in the international broadcasting of the Women’s World Cup and Rugby Sevens. However these are either rare or one-time events, limiting promotional exposure. The failure to sign-on as a focus city for the 2026 World Cup is also a significant lost opportunity that indicates a strategic failure to continue leveraging infrastructure from a mega-event under one provincial government to a mega-event under a subsequent government.

While stadium and Olympic venue underperformance is nothing new, the Vancouver projects add high real estate opportunity costs. Where in many cities a sport or mega-event venue will be a clearly higher use than the alternative, this is not necessarily the case where the prospective venue site already has a high land value. In some Olympic hosts, such as London, Beijing, or Sydney, the primary Olympic cluster has been intended to redirect development activity to new parts of the city or serve as a regenerative catalyst, much in the way that North American stadiums are often viewed as agents of downtown redevelopment. In Vancouver however, there was no distinct Olympic park – instead, new or renovated venues were scattered across the city. Although this made sense from a legacy use perspective in other instances, in the studied projects this led to two massive public investments that would not have likely happened in the same way but-for the provincial government pushing forward infrastructure leading into the Games.

The insufficiency of the operating revenues to offset capital costs is compounded by the two venues being located on already extremely valuable real estate in a city with geographically

limited land supply. This left a significant opportunity cost for the province in terms of what could be had from a land sale, as well as local taxing authorities in taking these properties off the tax rolls. In the case of BC Place, a half-billion dollar investment was made into a stadium that is less than ideal for its two permanent tenants, on land that could have been sold for a further half-billion dollars and likely created more tax revenue through market real estate development. Additionally, the public investment decision crowded out plans for a privately funded stadium without subsidies that could have attained much of the economic impact of the renovated BC Place in a downtown location.

For other cities considering stadium and convention investments as part of a mega-event, Vancouver's facilities pose the question of where does the venue fit into leveraging a longer term economic, tourism, and local real estate strategy. While stadium and convention venues generally do not grow a regional economy, research has argued that they can respectively beneficially redirect activity to particular areas or complement a larger tourism industry. Vancouver's most significant capital facility investments were made in an already vibrant and high demand central business district. Indeed, both facilities in this article were updates to previous mega-projects that played major roles in Vancouver's most significant previous mega-event, Expo '86.

However the real estate ancillary to these venues has changed drastically between 1986 and 2010. Driven in large part by the success of Concord Pacific developing the former Expo lands around False Creek into condominium towers, the value and residential desirability of 2010s downtown had already been transformed prior to the 2010 related capital projects. While 1980s Vancouver may have greatly benefited from mega-projects to attract activity on the edges of a sleepy downtown, this was not the case by 2010. As re-conceptions of projects from

Vancouver's first experiment with mega-event driven development, the VCC expansion and BC Place renovation represented different propositions by the late 2000s.

Of the two projects, the VCC expansion was a much more useful complement to what Vancouver had become. The convention expansion filled a legitimate need for the tourism industry to make possible a more diverse event portfolio that included large conventions, with a far lower land opportunity cost. BC Place on the other hand, brought few new opportunities to the downtown area, on land that would have otherwise quickly been consumed by real estate developers. Although to a certain extent BC Place copied the sports and entertainment district development and event portfolio leveraging strategy of other North American downtowns, Vancouver's mixed-use urbanism in the 2000s was much more advanced than its peers, exacerbating the land opportunity cost. Indeed, most of the benefits from this strategy in terms of visits, trade, and destination exposure could already be had through the more frequently used arena on a much smaller and privately owned footprint across the street.

## **Conclusion**

This article highlights a combination of several themes when it comes to mega-event related mega-project venues. First, it is crucial to align venue design to maximize the scope of a potential event portfolio that can then be leveraged for sustainable operating profits and tourism development – the ideal Games facility is often far from the best long term venue. Second, location within a host city matters. A high land value location can crowd out prospective private activity that would yield superior budgetary and economic impact. At the same time, a lower value location can unlock or capture upside without the considerable real estate opportunity costs of an already in demand location. Third, the long term fiscal return can be immediately undermined by major cost overruns incurred to meet an event deadline. Even though the mega-

event may be an opportunity to unlock national level spending that would not otherwise flow to a particular region, the transfer benefit from a senior government can easily be exceeded by a project that does not have a sufficiently strong long term business case from the outset. This flows into the fourth takeaway – although there is a significant risk that a mega-event project will bring a financial and revenue loss, this does not have to be the case. Both projects in this article could have been reframed to substantially achieve mega-event and subsequent event portfolio development objectives, while being a net financial positive to the provincial treasury. For future similar host cities facing comparable prospective mega-event investments, the Vancouver experience can be instructive to shaping superior land use, financial, venue, and event leveraging outcomes.



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Table 1. BC Place and VCC Expansion Cost Comparison (C\$ millions 2009)		
	BC Place	VCC Expansion
Venue Capital Cost	514	883
30 Year NPV Operating Income (Est.)	-58	78
30 Year NPV Non-Resident Economic Impact (Est.)	784	3,520
30 Year NPV BC Tax Revenue (Est.)	78	352
NPV Actual Real Estate Development (Est.)	200	-
Site Land Value 2009 (Est.)	500	250
Alternate Venue Cost NPV (Est.)	250	-
Alternate Development NPV (Est.)	678	341

Figure 1. Downtown Vancouver 2010 Related Facilities (Imagery Source: Google Maps)

