

# OLYMPIC COSTS & BENEFITS

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A Cost-Benefit  
Analysis of the  
Proposed Vancouver  
2010 Winter Olympic  
and Paralympic Games

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By Marvin Shaffer, Alan Greer,  
and Celine Mauboules

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FEBRUARY 2003



CANADIAN CENTRE FOR POLICY  
ALTERNATIVES – BC OFFICE

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By Marvin Shaffer, Alan Greer and Celine Mauboules

February 2003

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# A Cost-Benefit Analysis of the Proposed Vancouver 2010 Winter Olympic and Paralympic Games

NEITHER THE VANCOUVER 2010 Olympic Bid Corporation nor any of its member partners (Vancouver, Whistler, the provincial and federal governments) has undertaken a systematic economic evaluation of the costs and benefits of the investments and other commitments required to hold the 2010 Winter Olympic and Paralympic Games.

To date, the public has seen two economic impact analyses and the Auditor General's review of the Bid Corporation's estimates. None of these provide an assessment of net benefits and costs. Economic impact analyses consider all spending as having a positive impact; they do not differentiate between money spent to build a new hospital, a sports facility or money spent to dig a hole in the ground. These analyses do not consider costs, they overstate the benefits, and they fail to consider what might have been accomplished had the same resources been directed towards other activities.

A cost-benefit evaluation, in contrast, looks at the broader questions of what society gains and loses as a result of undertaking a major capital project. The provincial and federal governments' own guidelines recommend the use of such a broader cost-benefit analysis, yet to date none has been forthcoming.

The purpose of this paper is to present a "multiple account evaluation" of the costs and benefits of the 2010 Winter Games and related initiatives. It is based on publicly available information and is only an overview. Time and data constraints preclude a more detailed analysis. However, it does serve, much more than the impact studies upon which the government and Bid Corporation have been relying, to indicate the trade-offs and benefits and costs that holding the Games would entail.

Multiple account evaluations are not intended to answer whether a project should or should not be undertaken. That is for policymakers and the public to decide. However, this evaluation can and should inform the policy choice.

## **Overall assessment**

This evaluation has three key implications:

1. The Games are not attractive from a financial point of view. There would be a substantial net cost to the public treasury, which would have to be offset by less government spending in other areas or increased taxes or increased debt.
2. The Games cannot be justified on the basis of the estimated economic impacts. The jobs would not

be generated in regions of the province where unemployment is high (compared to the rest of the province) and additional employment opportunities most beneficial. The impacts would be of limited duration, and the effective subsidy per job would be very high.

3. The main potential justification for the Games is the benefit that British Columbians would derive as hosts and spectators of the Games and users of the facilities they provide. Whether the value of those benefits outweighs the cost and risks—whether these Games’ benefits are higher priority than the government services or investment that would be displaced, or disposable income that would have to be taxed to pay the net cost of the Games—is the central public policy issue policy-makers and the public must decide upon.

Consistent with provincial government guidelines, this evaluation examines the costs and benefits in five key areas, known as “evaluation accounts”: government financial, resident/consumer, environmental, economic development, and social.

### **Government Financial Account**

(Net return or cost to taxpayers)

- The 2010 Games will not “pay for themselves.” This analysis indicates that the net financial cost of the Games to British Columbians is \$1.23 billion. This figure builds on the Auditor General’s estimates by incorporating a provision for unbudgeted costs, the opportunity cost of federal funding, incremental taxes, and the benefit of undertaking Sea-to-Sky upgrades that would otherwise be done at a later date.
- The costs may be substantially higher, and are subject to numerous risks. The Province of British Columbia, as the sole guarantor of the Games, is assuming all the financial burden of what is, clearly, a risky business venture.
- If one includes the cost of advancing the construction of a Richmond/Airport-Vancouver rapid transit line, the net costs would be in the order of \$2 billion.

### **Resident/Consumer Account**

(Net benefit to British Columbians as consumers of what the Games provide)

- The positive impacts for British Columbians as residents or consumers include the pride and enjoyment from hosting the Games; the opportunity to attend Games events; and the use of new sports, housing and transportation facilities.
- Negative impacts include disruption/congestion during construction and the Games themselves, and displacement of existing activities from some facilities.
- While there would be user benefits from advancing improvements on the Sea-to-Sky highway, they are lower per dollar spent than improvements on widely recognized higher-priority projects in the Lower Mainland and elsewhere.
- On balance, in terms of the resident/consumer account, one could expect that there would be a net benefit to BC residents—particularly for those who would attend events and use the facilities. The economic question is what *value* do British Columbians place on these benefits—how much are they willing to pay in higher taxes, increased public debt, or displaced government spending on other investments. This question is fundamental to the economic evaluation of the Games, but has yet to be clearly put to the public.

### **Environmental Account**

(Impacts on the environment)

- The Bid Corporation and its member partners have made extensive environmental commitments. If those commitments are kept, environmental impacts may be minimized. However, little detail is provided about what specific measures would be taken, what they would cost, and whether those costs have been fully budgeted for.
- The negative environmental impacts of the development and expansion of facilities and increased accessibility to new sites such as the Callaghan Valley will be difficult to effectively mitigate.
- The urgency of meeting the 2010 deadline may reduce the opportunity to delay, alter or abandon any Olympic project because of environmental concerns.

## **Economic Development Account**

(Income and employment effects)

- Claims by some proponents that the Games will generate over \$10 billion in provincial GDP and more than 200,000 jobs grossly exaggerate the likely impacts. These estimates include the benefits of an expanded Vancouver Trade and Convention Centre, even though the convention centre is not part of the Bid, hasn't been included in the estimate of Games-related costs, and will go ahead with or without the Games. In addition, the employment estimates incorrectly assume that Games-related projects would only hire British Columbians who would otherwise be un- or underemployed.
- The extent to which the Games will result in increased economic activity (referred to as "incremental effects") is inherently uncertain, depending not simply on the success of the Games and complementary marketing efforts, but also on what would or could have occurred without them.
- The incremental employment generated by the Games is estimated to range between the equivalent of 1,500 and 5,600 full-time, continuing jobs over the seven years the Games are estimated to have an impact. The lower figure of 1,500 is the estimate of a forthcoming CCPA study by UBC economist David Green. The 5,600 estimate is based on the InterVISTAS "medium visits" scenario.
- Based on a net cost of \$1.2 billion dollars for hosting the Games, the effective public subsidy would be \$220,000 per job, and possibly as high as \$820,000 per job.
- The Games would concentrate economic benefits in the Lower Mainland and Whistler, where economic help is less needed than elsewhere in the province.

## **Social Account**

(Community and social impacts)

- The Games pose social risks, such as the displacement of low-income tenants and rising housing costs.
- The Bid Corporation and its member partners have committed to minimizing negative social and community impacts associated with the Games, while maximizing opportunities for British Columbians, and in particular, low-income individuals.
- While some funding has been committed to and accounted for in the budget, additional funding would be needed to ensure that the commitments are fully realized. It is unclear whether needed additional funding will be made available.
- Some proponents argue that the Games are needed in order to leverage provincial and federal support for much-needed social infrastructure, such as social housing and public transit. This view is questionable. Positive social ventures have merit and are worth pursuing with or without the Games. Both social housing (after a concerted national campaign) and public transit (in the wake of Kyoto ratification) seem now to be firmly on the public agenda, with or without the 2010 Winter Games.

## **Conclusion**

The purpose of this cost-benefit evaluation is not to tell policymakers or the public whether the 2010 Games should be undertaken. The Games will carry substantial net financial and other costs and risks, but will also bring benefits. Whether the benefits outweigh the costs is a matter of individual opinion. What is clear, however, is that to date, trade-offs implied by the cost and benefits of the Games have not been fully acknowledged or explicitly addressed.

# Cost-Benefit vs. Economic Impact Analysis

PROPONENTS OF THE VANCOUVER BID for the 2010 Winter Olympic and Paralympic Games claim that hosting the Games would “provide major economic benefits to British Columbia”<sup>1</sup> Estimates as high as \$10.7 billion in economic activity and 244,000 jobs are cited as ample justification for undertaking the investment in facilities, infrastructure and operating expenditures required for the Games.

Notwithstanding all of the numbers and rhetoric, the fact is that neither the Vancouver 2010 Olympic Bid Corporation nor any of its member partners (Vancouver, Whistler, the provincial and federal governments) has undertaken a systematic economic evaluation of the costs and benefits of the investments and other commitments required to hold the 2010 Winter Olympic and Paralympic Games.

The provincial government has commissioned and extensively relied upon two economic impact studies to justify its support for the Olympics. However, as the author of one of those studies explicitly recognized, an economic impact study does not provide an assessment of net benefits or costs: “The [impact] study was not a cost-benefit study—that is, it was not intended to address the question as to what the net balance would be between economic and social benefits from hosting the Games and the costs incurred. The study measures impacts, but was not intended to address the issue of the return per dollar spent.”<sup>2</sup> It is not just that economic impact studies do

not consider costs (in fact, they treat costs as benefits—the greater the costs the greater the impacts will be). The more fundamental problem is that they do not provide an accurate measure of economic benefit.

Economic impact studies indicate how projects, like the construction of new facilities, or activities like tourism, directly and indirectly affect the demand for different goods, services and labour in the economy. However,

they neither attempt to estimate the value or benefit of what is produced, nor the economic cost of producing it. Value or benefit in economic cost-benefit studies is measured by willingness to pay—what people are willing to pay (or give up) to get what a project provides. Economic costs are measured by “opportunity cost”—what people or a society give up by investing capital and employing workers in one project or activity as opposed to any other.

To equate economic impacts with benefits and to ignore opportunity costs, one has to assume, incorrectly, that whenever and wherever the impacts occur, the economy is underutilized and all of the workers hired and facilities used would otherwise be unemployed. As stated in the government’s own study of the economic impacts of the Olympics: “The input-output approach [used to estimate impacts] assumes all of the inputs required to complete the project, workers, machinery, steel beams and so forth would be unemployed if not engaged in the Games project.”<sup>3</sup> The same holds for all of the goods and services purchased by tourists—the hotel rooms, res-

taurants, transport services—they are all assumed to be available without displacing any other potential demand or use. Economic impact analysis essentially assumes there are no capacity, labour or other constraints—there are no opportunity costs in supplying the goods and services that governments, tourists or others may purchase.

There are circumstances when economic impacts do represent significant benefit. That can occur during a recession, or in regions suffering from industry closures, government cutbacks or other disruptions to the economy. However, this is not generally the case, and it is not the case in Vancouver and particularly Whistler, where capacity utilization is high and unemployment relatively low (compared to the rest of BC). And it is not an assumption one would want to make for relatively long periods of time.<sup>4</sup>

Government guidelines for the economic evaluation of major investments or projects, in British Columbia and elsewhere, do not call for the estimation of expenditure-driven economic impacts to measure benefits. Even when there is reason to believe some of these impacts will be beneficial, considerable caution is recommended.<sup>5</sup>

The reason is simple. Once one assumes that expenditure-driven economic impacts are benefits, virtually all projects and government expenditures appear attractive.<sup>6</sup> A project may look beneficial, and ignoring all alternatives perhaps it should proceed, but there could well be better things to do. As John Maynard Keynes wrote:<sup>7</sup>

*If the Treasury were to fill old bottles with banknotes, bury them at suitable depths in disused coal-mines which are then filled up to the surface with town rubbish, and leave it to private enterprise on well-tryed principles of laissez-faire to dig up the notes again (the rights to do so being obtained of course by tendering for leases of the note-bearing territory), there need be no more unemployment, and with the help of repercussions, the real income of the community, and its capital wealth also would probably become a good deal greater than it actually is. It would indeed be more sensible to build houses and the like but if there are political and practical difficulties in the way of this the above would be better than nothing.*

Thus, while spending to create economic stimulus may provide benefit, it may not be the most 'sensible' way to do so. Economic impact analysis will not differentiate between \$10 million spent on seismic upgrading of a

school, \$10 million to build a new hospital wing, or \$10 million to dig a hole in the ground.<sup>8</sup> Yet, clearly selecting the hole project over the hospital or school would constitute a waste of resources, given the other opportunities available.<sup>9</sup>

In contrast, cost-benefit evaluations do not focus, or significantly depend, on estimated impacts. Rather, they focus on the value and opportunity cost of what is produced. They are intended to distinguish between more and less valuable or efficient use of resources—to assess whether there are better opportunities or investments to make. The premise is that resources are limited, not free. A benefit-cost evaluation of the investments and other commitments for the 2010 Winter Olympic and Paralympic Games requires a formal assessment of the value that British Columbians place on what it provides relative to the opportunity cost of the investment and other expenditures it entails.<sup>10</sup>

There are different ways this can be done, but commonly in British Columbia, a "multiple account evaluation" framework is used.<sup>11</sup> Multiple account evaluation frameworks attempt to capture all of the factors that should be considered in a social benefit-cost analysis, but present the results in several distinct evaluation accounts. This is done to indicate clearly the different types of consequences and trade-offs an investment or project can have. It also recognizes the difficulty of trying to assign a dollar value for all of the different consequences (including consumer or user benefits, and environmental and community impacts) and aggregate them into one overall measure of all net benefits.

The purpose of this paper is to present a multiple account evaluation of the costs and benefits of the investments and other commitments required to hold the 2010 Winter Olympic and Paralympic Games. It is based on publicly available information and is only an overview. Time and data constraints preclude a more detailed analysis. However, it does serve, much more than the impact studies upon which the government and Bid Corporation have been relying, to indicate the trade-offs and benefits and costs that holding the Games would entail. Our analysis, while incorporating the commitments of the federal and municipal government, focuses primarily on the costs, benefits and risks from a provincial perspective, as it is the provincial government that is to serve as the principal sponsor and underwriter of the Games.<sup>12</sup>



# Scope of the Evaluation

IDEALLY, AN INITIATIVE like holding the Olympic and Paralympic Games should be developed in the context of a strategic plan (whether that be to promote tourism, support amateur sport, or provide an economic stimulus) and careful consideration of the alternative ways in which the plan's objectives could be achieved. As stated in the BC Government's

Multiple Account Evaluation Guidelines: "The most important step in the evaluation of any proposal is developing a clear understanding of the problem or opportunity it is intended to address and then identifying the full range of alternatives to which it should be compared."<sup>13</sup>

It is doubtful (certainly there is little evidence) that the previous government considered such a broad strategic approach when the Olympic initiative was first developed, or that the current government undertook such an assessment when it decided to aggressively support the bid. In any event, at this point in time the question is much narrower. Regardless of what alternatives could have been considered for each of the major objectives that the Games are intended to serve, the question now is: what are the implications to British Columbia of going forward with the Games as compared to what could be expected without them, and what costs and benefits do they entail?

This evaluation, therefore, must focus on those investments and activities that will be different with the Games as opposed to without them. These include:

- Construction and upgrade of facilities to hold the sporting events and house athletes
- Preparation for, marketing and staging of the Games
- Provision of government services required for the Games (e.g., security, medical, customs and immigration)
- Disposition or operation and maintenance of Olympic facilities after the Games
- Improvements in transportation infrastructure and provision of additional service for the Games, and
- Development and execution of complementary marketing programs to enhance the tourism impact of the Games.

For the most part, this evaluation assumes the same scope of Olympic activities as the provincial Auditor General's review of the Games.<sup>14</sup> The investment in sporting venues, housing, and other Games-related facilities, and the activities required to prepare for, market and stage the Games include what the Bid Corporation has put forward and costed. Government services include provincial responsibilities for medical services and security. Post-Games disposition of assets is as set out in the Bid Book, and operating and maintenance costs for selected facilities are recognized in the legacy fund that is to be provided. The transportation component of the evaluation includes the advancement of capacity and safety improvements on the Sea-to-Sky highway committed to in the Bid, as well as the construction of the required road to

The fact is that neither the Vancouver 2010 Olympic Bid Corporation nor any of its member partners (Vancouver, Whistler, the provincial and federal governments) has undertaken a systematic economic evaluation of the costs and benefits of the investments and other commitments required to hold the 2010 Winter Olympic and Paralympic Games.

Callaghan Valley. No specific review of the cost or likely effectiveness of complementary marketing is included, since no details of such a program are available, except to note that the funding and successful execution of a marketing program over and above that planned for the Games is assumed in the government and Bid Corporation's estimates of the impacts of the Olympics.

The construction of new convention centre facilities is not included in this evaluation because, as the Auditor General recognized, it has long been proposed on its own merits and funding is already committed with or without the Games. This is quite different from the improvements on the Sea-to-Sky highway. While some have stated those improvements are needed in any event, there was no commitment to undertake them without the Olympics, and certainly not in the timeframe required for the Games. At a minimum the Games will advance the timing of the construction program.

This scope, while broad, may not capture all of the significant consequences of holding the Games. While not included in the Bid, there would appear to be considerable interest in developing a Richmond/Airport-Vancouver rapid transit line in time for the Games. There are also plans for a streetcar line in Vancouver. The priority and timing for those initiatives may be affected by the Games. There are plans for additional transit service for the Games, and there are additional government services and support for the Games (including contributions of land and use of public venues at no charge) that have not been explicitly identified or accounted for. Except for the potential implications of advancing the timing of the Richmond/Airport-Vancouver rapid transit line, and a conservative provision for unbudgeted government contributions and support, these other consequences are not addressed in this evaluation.

## Evaluation Accounts

Holding the Games, with all of the investments and activities that go with it, will have a wide range of effects on British Columbians. These effects are assessed within five evaluation accounts:

- Government financial account: This account serves to indicate the net financial effect of all of the investments and activities required for or resulting from the Games on government—in effect the net return or cost to taxpayers;
- Resident 'consumer' account: This account is intended to indicate the value that BC residents place on the facilities and services the Games provide and the costs of the adverse impacts it may entail—in effect the net benefit to British Columbians as consumers of what is provided;
- Environmental account: This account is intended to indicate the environmental consequences of the construction and operation of Games-related facilities;
- Economic development account: This account is intended to indicate the magnitude and economic significance of the income and employment effects of the investments and activities required for or resulting from the Games; and
- Social account: This account is intended to indicate the nature and significance of the community impacts of the investments and activities required for or resulting from the Games.

# Government Financial Account

## Net return or cost to taxpayers

IN HIS REVIEW OF THE FINANCIAL consequences of holding the 2010 Olympic and Paralympic Games, the Auditor General concluded that the total costs would be a minimum of \$2.892 billion. The net cost to the provincial government after taking Games revenues and federal government contributions into account would be a minimum of \$1.248 billion.

The Auditor General noted that these estimates do not include inflation (they are based on 2002 price levels) nor do they include financing costs, the accumulated cost of capital for construction, and other expenses that must be incurred prior to the Games.

In benefit-cost evaluations, the timing of revenues and expenditures (or benefits and costs) are taken into account by applying a discount rate to calculate the “present values” of the expenditures and revenues according to the year in which they occur. These present values express dollar values in different years in equivalent terms, recognizing that \$1 spent today is more costly than a dollar that will be spent in one year’s time<sup>15</sup>; and a dollar received in one year’s time is worth less than \$1 received today.<sup>16</sup> Present value adjustments directly account for the opportunity cost of capital—the cost of dedicating capital to one project as opposed to whatever else the capital could be used for.

In Table 1, the 2010 net present value (NPV) costs of holding the Games, based on the cost estimates in the Auditor General’s report, are shown applying a 6 per cent

discount rate. (A more detailed cash flow model is provided in the appendix.)<sup>17</sup> The 2010 NPV estimates in effect add in the cost of capital for expenditures prior to 2010 and discount expenditures after that date. They equivalently credit pre-2010 revenues and discount post-2010 revenues. The timing of expenditures and revenues was estimated on the basis of cash flow forecasts in the Bid Book, as well as the

pattern of construction and tourism impacts shown in the InterVISTAS study.

As shown in the Table, the 2010 NPV estimated minimum cost of holding the Games is \$3.247 billion at a 6 per cent discount rate. The estimated minimum net cost to the provincial government after taking Games revenues and federal government contributions into account is \$1.458 billion. These 2010 NPV estimates are higher than the costs reported by the Auditor General because of the cumulative capital costs of investing hundreds of millions of dollars prior to the Games.

To some extent, the net cost to the government would be offset by taxes from the tourism and other economic activity generated by the Games. InterVISTAS estimated the direct, indirect and induced incremental provincial government tax impact at between \$214 and \$538 million.

The Auditor General, however, did not include estimated incremental taxes in calculating the net cost to the government. He cautioned that these impact estimates are highly uncertain.<sup>18</sup> What makes the tax impacts esti-

mates so uncertain is that they depend on the many factors governing the state of the economy, with and without the Olympics. Economic impacts may simply change the regional and sectoral mix of economic activity in the province (moving jobs from different places and/or industries to tourism and construction in Vancouver and Whistler). A change as opposed to an overall increase in economic activity will not generally give rise to an increase in tax revenues. Also, any increased demand for workers may cause some in-migration to the province. This in turn can cause government expenditures to increase, offsetting the revenue effect.

Despite the uncertainty, there would likely be some positive tax impact from the Games and some credit for

this is appropriate to take into account in calculating the net cost of the Games. The BC Multiple Account Guidelines and the InterVISTAS report both suggest including only the direct impacts.<sup>19</sup> The direct provincial government tax impacts estimated in the InterVISTAS report range from \$135 million to \$373 million, with the higher end contingent on an 'exemplary' marketing program, the costs of which are unknown. In the medium visits scenario, the direct tax impact is \$175 million.<sup>20</sup>

Even the direct impacts likely overstate the actual benefit to the government. As suggested above and discussed in Part 5, there is significant uncertainty about what spending is in fact incremental and what spending might be displaced as a result of the Olympics. In this evalua-

**Table 1: Estimated Financial Costs of Games to Province of BC**

Net Present Values based on Auditor General estimates 2010 NPV @ 6 per cent discount rate; expressed in constant 2002 Canadian dollars		
	AUDITOR GENERAL'S ESTIMATE \$ million	2010 NET PRESENT VALUE \$ million
<b>Operating costs</b>		
Net OCOG* costs to stage the Games (bid estimates)	(\$1,354)	(\$1,438)
Provincial costs: Medical	(\$13)	(\$14)
Provincial costs: Security	(\$88)	(\$93)
<b>Total operating costs</b>	<b>(\$1,455)</b>	<b>(\$1,545)</b>
<b>Venues</b>		
Construction of athletic facilities and athlete villages	(\$510)	(\$612)
Legacy costs for ongoing operations of facilities after Games	(\$110)	(\$110)
<b>Total capital costs (venues)</b>	<b>(\$620)</b>	<b>(\$722)</b>
<b>Other related costs</b>		
Sea-to-Sky upgrade	(\$600)	(\$720)
Callaghan Valley Road	(\$14)	(\$17)
Contingency fund	(\$139)	(\$167)
Other	(\$64)	(\$77)
<b>Total capital costs (other)</b>	<b>(\$817)</b>	<b>(\$980)</b>
<b>Estimated minimum Games-related costs</b>	<b>(\$2,892)</b>	<b>(\$3,247)</b>
To be funded by:		
Net OCOG revenue from staging the Games	\$1,314	\$1,393
Federal government contribution	\$330	\$396
<b>ESTIMATED GAMES-RELATED COSTS TO PROVINCE</b>	<b>(\$1,248)</b>	<b>(\$1,458)</b>

\* Organizing Committee of the Olympic Games

It is common in public commentary on the Games and other initiatives to treat federal government contributions as if they were free for British Columbians. This perspective is not only inappropriate from a public policy perspective (a project is not good or bad depending on which level of government pays for it), it is fundamentally incorrect.

tion, 50 per cent of the direct tax impact is assumed to be truly incremental net of displaced spending impacts and possible increases in general government costs. Based on the estimated timing of the tax impacts, the 2010 NPV benefit would be \$85 million.<sup>21</sup>

Another factor serving to reduce the net cost of the Games concerns the Sea-to-Sky expenditures. While there was no commitment or firm plan to undertake a major upgrade of the Sea-to-Sky highway without the Games, it is likely upgrades would be done at some point in time. Ministry of Transportation officials have reportedly indicated that the effect of the Games would be to advance the upgrade program by some four years. Given the very limited capital expenditure budget that the Ministry has, and the large number of widely recognized higher priority projects that need to be undertaken, it is unclear on what basis Ministry officials have suggested a four year advancement. Other transportation specialists suggest that major upgrades to the Sea-to-Sky without the Games would be eight years later (possibly longer) than now planned to meet the 2010 Olympic date.

In this evaluation it is assumed that the Games would advance Sea-to-Sky upgrades by six years—a mid-point between the shorter and longer advancement periods that different sources suggest. The 2010 NPV of the avoided<sup>22</sup> upgrade costs would be \$507 million—thereby reducing

the net costs of the Sea-to-Sky upgrade and the overall net costs of the Games.

Table 2 shows the effect of taking into account the potential increased tax revenues and future Sea-to-Sky highway expenditures that would have been made, though several years later, without the Games. This reduces the net cost to the province to some \$866 million. This very much represents the minimum or lower bound estimate of the overall financial impact of the Games to the provincial government. For a number of reasons, discussed below, the net cost would likely be considerably greater than shown in Table 2.

As noted in Part 1, the scope of this evaluation does not include all of the costs that would be incurred by the provincial government and its agencies. It does not include, for example, government contributions of land or use of existing venues. It doesn't include all of the support and service different ministries would provide for the Games. It doesn't include government funding for the complementary marketing program that both InterVISTAS and the Auditor General state would be required for the tourism potential of the Games to be realized. In Table 3, where additional costs are identified, a conservative figure of \$50 million is assumed for such unbudgeted support and service, for a 2010 NPV of \$54 million. This almost certainly underestimates the true

**Table 2: Minimum/Lower Bound of Games Related Costs**

2010 NPV @ 6 per cent discount rate; expressed in constant 2002 Canadian dollars	
	\$ million
<b>Estimated Games Related Costs to Province</b>	<b>(\$1,458)</b>
Incremental taxes to provincial government	\$85
Present value of future Sea-to-Sky costs (avoided costs)	\$507
<b>MINIMUM/LOWER BOUND ESTIMATE OF NET COST TO PROVINCE</b>	<b>(\$866)</b>

cost, considering the additional costs for government agencies and Crown corporations in terms of land transfers, complementary marketing, and government staff time.

Another cost that should be taken into account is the opportunity cost of federal government contributions and support. It is common in public commentary on the Games and other initiatives to treat federal government contributions as if they were free for British Columbians. This perspective is not only inappropriate from a public policy perspective (a project is not good or bad depending on which level of government pays for it), it is fundamentally incorrect.

At a minimum one should include in the net provincial cost British Columbians' share of federal taxes required in support of the Games or any other related initiative. Arguably, one should include all of the federal government's contribution to indicate the impact on British Columbians. One cannot assume that the federal government will let individual projects markedly change the share of its total spending going to any region.<sup>23</sup> More spending on the Games in BC would either reduce the amount of federal government spending available for other initiatives in the province or cause the federal government to increase its spending elsewhere in the country. There is an opportunity cost associated with the federal government's contribution to the Games—not only the well-recognized \$330 million contribution for Games facilities, but also other contributions federal departments and agencies would no doubt make (e.g., in additional customs and immigration, security, promotion and other Games-related expenses). For this analysis, only the opportunity cost of the \$330 million contribution net of estimated incremental federal government taxes is taken into account. The 2010 NPV of the \$330 million, net of incremental federal government taxes, is some \$308 million.<sup>24</sup>

As shown in Table 3, providing for unbudgeted costs and the opportunity cost of the federal contribution results in a 2010 NPV financial cost to British Columbians of \$1.23 billion.

Not included in the net costs shown in Table 3 is the advancement of other major expenditures, most notably the Richmond/Airport-Vancouver Rapid Transit line. There is no commitment to construct this line for the Games, but if Vancouver wins the Bid there would no doubt be increased pressure to construct the line in time for the Games. If the line were advanced, it would greatly increase the net financial cost to government. Even taking incremental transit revenues and avoided bus costs into account, the 2010 NPV financial loss for the Richmond/Airport-Vancouver rapid transit line would be \$1.7 billion with a 2010 in-service date.<sup>25</sup> The 2010 NPV loss for a 2021 in-service date (assuming the same type of line would be built) would be approximately \$1 billion. In other words, the financial cost of simply advancing the line from 2021 to 2010 would be approximately \$700 million. If the line would not otherwise be built until later than 2021, or if less expensive options would otherwise be pursued if not for the Games, the cost of advancing it would be much greater.<sup>26</sup>

## Financial risk

Also not included in the costs shown in the tables is any reflection of the financial risk that the provincial government is assuming by being the sole financial guarantor for the Games. While the Auditor General concluded that the estimates for the Games were “reasonable,” he cautioned that there are numerous reasons why the financial cost to the government could increase and the contingency in the estimates could prove inadequate. It is interesting to note that from January until November

**Table 3: Estimated Net Financial Costs to British Columbians**

2010 NPV @ 6 per cent discount rate; expressed in constant 2002 Canadian dollars	
	\$ million
<b>Minimum/Lower Bound Estimate of Net Cost to Province</b>	<b>(\$866)</b>
Provision for unbudgeted items	(\$54)
Opportunity cost of federal government contribution	(\$308)
<b>ESTIMATED NET FINANCIAL COST TO BRITISH COLUMBIANS</b>	<b>(\$1,228)</b>

While the Auditor General concluded that the estimates for the Games were “reasonable,” he cautioned that there are numerous reasons why the financial cost to the government could increase and the contingency in the estimates could prove inadequate.

2002, the time period between the two economic impact studies undertaken for the Games, capital cost estimates increased by 28 per cent, and operating by 11 per cent.<sup>27</sup> The cost estimates for many of the construction projects are still preliminary. A recent study of more than 250 transportation projects throughout the world documented systematic bias in cost estimates, finding “costs are underestimated in almost 9 out of 10 projects.”<sup>28</sup>

Some of the risks or uncertainties include:

- The costs of the environmental and social commitments made by the Bid Corporation and its member partners have not all been accounted for.
- The estimates do not include any provision for inflation. At 2 per cent per year this could add \$40 million to the cost of constructing the Olympic venues, and over \$200 million to the cost of staging the Games. Rising construction costs (which can be expected during a pre-Games construction boom) could increase capital costs even more than the general rate of inflation. Ticket prices may be increased with inflation too, but this is more uncertain and subject to other external factors (e.g., exchange rates, demand for tourism) that are beyond the control of the Vancouver Organizing Committee.
- Broadcast revenues are determined by the International Olympic Committee (IOC). Sponsorship revenues depend on economic conditions and corporate assessments of the benefits Olympic sponsorships offer relative to less costly opportunities.
- There is also the risk of terrorism (which could increase the current budget for security), adverse weather conditions, and natural catastrophes.

In short, hosting the 2010 Olympic Games represents a risky business venture.

The probability of individual adverse events may be small, but the cost of assuming all of the risks can be very high. It is not clear what insurers or other parties would charge to assume the risks of incurring higher costs or realizing lower revenues than currently forecast. It is very probable, however, that the charge would be very high.<sup>29</sup>

It is impossible to put a precise dollar figure on the net cost of the Games to the province. There are uncertainties about some of the estimates and some of the consequences of the Games relative to what otherwise would have occurred. Some costs and contributions have not been included in the budget estimates, including the monetary value of the province’s financial guarantee, which could be substantial. However, whatever the exact amount, it is clear that the provincial government faces a significant net cost—The 2010 Games will not “pay for themselves.” The Auditor General concluded that the net cost would be \$1.25 billion. The minimum or lower bound estimate in this report is a 2010 NPV of some \$870 million. Taking some provision for unbudgeted costs and the opportunity cost of federal funding into account, the 2010 NPV cost would be over \$1.2 billion. If the Richmond-Airport/Vancouver rapid transit line were advanced for the Games, the total net cost would be in the order of \$2 billion. Adding a provision for the cost of assuming all financial risk would increase the net cost substantially more.

# Resident/Consumer Account

## Net benefit to British Columbians as consumers of what the Games provide

THE GAMES AND RELATED INITIATIVES would have a number of impacts on British Columbians as residents and ‘consumers’ of what is provided.

The Games themselves would have both positive and negative impacts. The positive impacts include the pride and enjoyment British Columbians would derive simply from hosting the Games.

Canadian athletes have excelled in winter sports and hosting the Winter Games would no doubt add to feelings of nationalism, pride, and community spirit.

There would as well be the opportunity to attend Games events—an opportunity that would be enhanced by the commitment of the Bid Corporation to make some 50,000 tickets available to social agencies for distribution to low-income residents. The high cost people incur to visit Olympic and Paralympic Games from distant countries indicates how much some people value the opportunity to attend these events—it suggests that the net benefit (or ‘consumer surplus’) from being able to attend events without incurring high travel costs could be considerable.

There would, with the Games, be the construction of new sports facilities—a Whistler Nordic Centre for Nordic skiing, ski-jumping and Nordic combined events; a Whistler Sliding Centre for bobsled, skeleton and luge; an

SFU Speed-Skating Oval; and new hockey, speed-skating and curling facilities. There would be the construction of the athletes’ villages, with components of both the Vancouver and Whistler facilities to be used for market and non-market housing after the Games, though at considerable additional expense.<sup>30</sup> There would also be upgrades to existing ski, skating other facilities. The ongoing operating costs of the Whistler Nordic Centre,

the Whistler Sliding Centre and the SFU Speed Skating Oval would be supported by a \$71 million Endowment Trust established by the federal and provincial governments. Other facilities would likely need operating subsidies for their ongoing maintenance and use.

Negative impacts would also be experienced. There would be road closures, traffic congestion, and restricted use of designated areas and venues reserved for the Games. Not only would residents be inconvenienced, there could also be negative impacts on businesses whose clientele or suppliers could not readily access their site. Also, as experienced in Atlanta and Salt Lake, restaurants and retailers can lose sales not because of actual congestion, but because of anticipated traffic problems and security concerns.<sup>31</sup>

There would also be negative effects to the extent that the new or upgraded facilities displace existing activities



To cover \$1.2 billion in Games costs, the Province will have to raise taxes, increase debt or reduce spending. If, as is more likely under the current administration, spending is reduced, the question would be: how much spending for hospitals, schools, or other services would British Columbians be willing to forego?

and alternative uses. Concern has been raised, for example, about the plan to demolish the UBC Winter Sports Complex (with four rinks) to make way for a new UBC hockey arena (with two rinks and seating) resulting in the potential displacement of Minor Hockey use before and after the Games.

On balance one could expect that the holding of the Games and the construction and upgrading of facilities would be of net benefit to BC residents—particularly those residents who value these types of events and would access the Games and the facilities they provide. The economic question, however, is *how much* do British Columbians value these ‘products’ of the Games.

As discussed in Part 2, the Games will have a substantial net financial cost to British Columbians—over \$1.2 billion. To pay for this, the Province will either have to raise taxes, increase debt or reduce spending in other areas. If the government were to raise taxes or incur debt to pay for the net financial cost of the Games, the question would be: how much are British Columbians willing to pay in additional taxes (now or later) for the pleasure of hosting and attending the Games and of acquiring the sporting and housing facilities available as a result of the Games? If, as is more likely under the current administration, the government would reduce other government spending to pay for the net financial cost of the Games, the question would be: how much spending for hospitals, schools, or other government services would British Columbians be willing to forego in order to realize the benefits of hosting the Games? These questions have not been explicitly asked, but are central to the economic valuation of the Games.

The advancement of transportation facilities, while disruptive during the construction period, would benefit residents. Users of the Sea-to-Sky highway would have an improved highway sooner than otherwise, and users and other travelers in the Richmond/Airport-Vancouver corridor would face less congestion and shorter travel times with the new service.

The capacity benefits from upgrading the Sea-to-Sky highway are small relative to improvements that are needed in more congested corridors (e.g., Highway 1 across the Port Mann, Highway 99 south of Vancouver, the crossings of Burrard Inlet). The safety benefits may be more significant, but these depend on enforcement of speed limits, something that could be done in any event to reduce the number of accidents on this highway. Overall, there would be benefits from advancing Sea-to-Sky, possibly equal to the costs of advancing construction, but the benefit-cost ratio for this project is almost certainly smaller than other pressing transportation projects.

There would be significant time-savings and other benefits of advancing the Richmond/Airport-Vancouver rapid transit line. The 2001 Multiple Account Evaluation of the line suggested these benefits could in fact equal or exceed the costs of advancing its in-service date. There is, however, significant doubt about the magnitude of the user benefits estimated in the 2001 study.<sup>32</sup> There are technical questions about the dollar value assigned to the estimated time-savings; there certainly is no market evidence that people really would value the time-savings afforded by the new service as much as the 2001 study assumed. If they would, significantly higher fares could be charged, and the line wouldn’t need to incur financial losses in the order of \$1.7 billion (2010 NPV) as the 2001 Multiple Account Study suggested it would. Also, there has been no attempt to date to assess and value the time-savings of the fully grade-separated line currently being proposed relative to an optimized use of the new rapid bus service (including, for example, service on Cambie as well as Granville) or an optimized development of a less expensive, partially grade-separated light rail system. Overall, the benefit of advancing the line, particularly the very expensive grade separated system (e.g., SkyTrain) currently being planned, is questionable and warrants careful consideration. It bears directly on whether the line should be advanced, with or without the Games.

# Environmental Account

## Impacts on the environment

THE BID CORPORATION and its member partners have committed to creating environmentally, socially and economically sustainable Games. An Environmental Working Group was established and developed an environmental sustainability framework. To achieve the goal of creating environmentally, socially and economically sustainable

Games, the use of existing facilities and infrastructure would be maximized and social and environmental assessments would be conducted to minimize negative and maximize positive impacts.

**TRANSPORTATION:** While certain groups (such as athletes and IOC members) would have dedicated transportation services, spectators and volunteers would be expected to use public transportation systems in both Whistler and Vancouver. The spectator and volunteer transportation system would make use of boats, trains, highway buses, as well as existing transit systems in Vancouver and Whistler. During the Games, an estimated 1,000 buses, 16 boats, two trains, 600 vans and 2,000 other vehicles would be used. The Bid Corporation has budgeted \$87 million for transportation costs.

Estimates of the emissions associated with these transportation requirements are not available. The Bid Corporation, however, notes that TransLink is adding low emission vehicles to its fleet and replacing its existing elec-

tric trolley fleet with new trolleys. The Bid also cites plans by the City of Vancouver to develop a central Vancouver streetcar system by 2010 and states that hydrogen fuelling infrastructure to support hydrogen fuel cell buses and vehicles would be created in Vancouver and Whistler. It is not clear what the total costs would be for these initiatives and other transportation items such as an additional SeaBus or a Vancouver streetcar and what portion of that cost is included in the \$87 million transportation budget. It is clear, however, that not all of these initiatives have been budgeted for as part of the Bid.

**VENUES AND FACILITIES:** While the Games would rely as much as possible on existing facilities, a number of new venues and facilities would have to be constructed specifically for the Games, including the new Whistler/Callaghan Valley Nordic Centre, Callaghan Valley Road, and the Olympic Villages in Callaghan Valley and South East False Creek.

Plans submitted to the IOC for these and the other new facilities are, at this point, conceptual only. They are still subject to environmental impact assessments. While the Bid Corporation is confident that the proposed new and renovated venues would have minimal impact on the environment, mitigation measures would likely be required.

South East False Creek has undergone some initial environmental impact assessments, but it is unclear

Overall, the Bid Corporation and its member partners have made extensive environmental commitments. If those commitments are kept, many impacts may be minimized. However, the negative environmental impacts of the development and expansion of facilities and increased accessibility to new sites such as the Callaghan Valley, for example, will likely be difficult to effectively mitigate.

whether these assessments have been approved. South East False Creek was once an industrial property so soil remediation would likely be required.

To date, the environmental impact assessment for the proposed Whistler Olympic Village in the Callaghan Valley has consisted of field surveys to identify regionally significant or provincially or federally listed wildlife and vegetation. The assessment has identified potential environmental impacts, the extent of the impact and means to avoid, mitigate or manage those impacts. The cost of strategies to avoid, mitigate or manage the impacts is not available.

Any improvements to existing facilities and new buildings would incorporate green building design and construction, using the Leadership in Energy and Environmental Design (LEED) rating system. All preliminary design and cost estimates for Game facilities and venues are based on a silver LEED rating. It is not clear how much it would cost to upgrade from a silver to gold LEED rating as is the Bid Corporation and its member partners' desire.

**SOLID AND LIQUID WASTE MANAGEMENT:** The Bid Corporation plans to pursue a zero solid waste management strategy during the Games. With respect to liquid waste management in venues and the two athletes' villages, it would introduce "concepts for leading-edge technology and practices to minimize volume of liquid waste introduced into the existing system." What those technologies are, or what the costs would be, is not clear.

**AIR QUALITY AND GREENHOUSE GAS MANAGEMENT:** The Bid Corporation's goal is to be "climate neutral" by pursuing zero net emissions during the Games. A number of emission reduction strategies have already been identified and a spreadsheet tool has been developed to evaluate options and help set emissions reduction targets. It is

difficult to foresee a "climate neutral" Games, however, when the Bid Book plans for an additional 700 motor coaches to carry spectators between Whistler and Vancouver.

The 2010 Winter Games would derive its power from renewable, green energy sources including micro-hydro installations, photovoltaic technology, fuel cell generators, solar heating and ground-source heat pumps. Funding and budgeting arrangements for this are unclear.

The most significant environmental impacts caused by the Olympics may be in the development of new areas (i.e. Callaghan Valley) and the expansion of tourism activities in Whistler and the surrounding mountain areas. These are not issues that can easily be mitigated (once a paved road, housing and other sport and recreational facilities are installed in the Callaghan, that development is effectively irreversible).

Overall, the Bid Corporation and its member partners have made extensive environmental commitments. If those commitments are kept, many of the environmental impacts may be minimized. However, the negative environmental impacts of the development and expansion of facilities and increased accessibility to new sites such as the Callaghan Valley, for example, will likely be difficult to effectively mitigate. The initial environmental assessments that have been completed for the proposed plans for the 2010 Winter Games are conceptual only. As a result there is little detail on what specific measures would be taken and what they would cost to effectively mitigate any adverse environmental impacts. And, if Vancouver were awarded the Games, the urgency of meeting the 2010 deadline may reduce the opportunity to delay, alter or abandon any Olympic project because of environmental concerns.

# Economic Development Account

## Income and employment effects

THERE ARE TWO KEY QUESTIONS under the economic development account. First, what amount of income and employment is likely to be generated as a result of the Games? Second, and more important for the benefit-cost evaluation, what is the significance of these impacts—what *net benefit* do they provide?

Claims by some proponents that the Games will generate over \$10 billion in provincial GDP and more than 200,000 jobs grossly exaggerate the estimated impacts. First, over half of those estimated impacts stem from the convention centre project, even though the convention centre is not part of the Bid, hasn't been included in the estimation of Games-related costs and will go ahead with or without the Games. Second, the estimates that proponents have consistently used are the highest of a wide range that have been estimated, even though realizing these high impacts depends on the implementation of a marketing program that has not yet been developed, costed or funded. Further, even with an 'exemplary' marketing program, there is no guarantee the highest of the estimated impacts will be achieved—that will depend on many factors, including global economic and political conditions over which BC has no control.<sup>33</sup>

The most recent economic impact study by InterVISTAS estimated Games-related direct, indirect and induced GDP impacts ranging from \$2.0 billion to \$4.2 billion and employment impacts ranging from 45,000 person years of employment to 99,000 person years of employment. The direct impacts, which InterVISTAS recommended focusing on because of the uncertainty about realizing indirect and

induced impacts, ranged from \$1.2 billion to \$2.7 billion in GDP and 32,000 and 71,000 in person years of employment.<sup>34</sup>

The impacts estimated by InterVISTAS and an earlier government report attempt to measure the effects of incremental spending in British Columbia due to the Games. The objective is to estimate income and employment impacts that wouldn't otherwise be realized in the province.

InterVISTAS included as incremental spending in BC the construction of facilities funded by the federal government. The assumption is that federal funding for the Games would have no impact on federal funding of other projects in the province. All spending at the Games by out-of-province visitors is assumed to be incremental—the visitors wouldn't otherwise have come to the prov-

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ince or spent their money elsewhere in the province. Over 80 per cent of the corporate sponsorship revenue is assumed to be incremental—it is assumed that these sponsorships wouldn't displace or reduce the level of sponsorship of other events or activities in the province. Then there is the incremental tourism—the number of visitors assumed to come to the province over an extended period of time only as a result of the Games. For this InterVISTAS used a range from 1 million additional visitors in the low scenario to 4.3 million in the high. InterVISTAS' preferred medium high scenario assumes that 2.7 million visitors would be attracted to BC because of the Games, with Games year visits more than double what was experienced at the Salt Lake Games and total 'incremental' visits almost three times what Australia expected from its summer Games. All of these assumptions are questionable and, in many respects, clearly unrealistic.<sup>35</sup>

The point is that the impact estimates are highly speculative. The incremental effects of the Games are inherently uncertain depending not simply on the success of the Games and complementary marketing efforts, but also on what would or could have occurred without them.

- Whistler is already a world-renowned destination resort. It is not at all clear how many additional tourists could be attracted with 'exemplary' marketing programs even without the Games.
- It is not clear how much of the federal funding for the Games could otherwise have been secured for other projects.
- What would be displaced by the Games is not clear—how much tourism and other activities would not occur because of the road and venue closures before and during the Games, and the commitment not to hold other major events during the Games period.<sup>36</sup>

It is not just the amount of the incremental spending that is highly uncertain. Equally uncertain is the economic effect any incremental spending would have. Whistler tourism facilities are not currently underutilized in peak periods. Unless capacity were to expand to meet the increased demand for goods and service, prices would likely increase in response to the limited supply. Expanding capacity for a relatively short impact period, however, is not generally economic. Therefore, some increase in prices (including, for example, reductions or the elimination of promotional rates) would likely occur. The models used to estimate economic impacts assume no capacity constraints and consequently no impact on wages or prices.

Whatever the impacts turn out to be, the question remains: what net economic benefit do they provide? The textbook examples that InterVISTAS used to illustrate the impact of an increase in demand<sup>37</sup> show that there would be no net benefit to suppliers if prices remain the same—the additional revenues they receive would be offset by the additional costs they incur to satisfy the increase in demand. Suppliers would benefit if prices increase (there would be an increase in what economists term 'producers surplus'), but these would be largely offset by the additional cost consumers would face (a loss of 'consumer surplus'). There would be winners and losers, but the overall impact on net benefit would be small.

The main potential for net benefits is from the impacts on employment. There would be net benefits to the extent that the increased demand for goods and services results in the employment of British Columbians who would otherwise be un- or underemployed. This net benefit is measured by the difference between what those workers would earn as a result of the Games and what

Unemployment rates in Whistler and Vancouver are relatively low compared to other areas in BC and it is unlikely a large percentage of the local workers hired as a result of the Games would otherwise be un- or underemployed. The more likely effect would be to attract local workers from other activities, or to attract un- and underemployed people from other regions within BC and from out-of-province. The direct employment estimate would be the equivalent of some 5,600 continuing jobs. Thus, the effective subsidy would be some \$220,000 per job.

they would otherwise have earned (or what value they would place on whatever else they would do) without the Games-related employment.

Neither economic impact study estimated whether, nor to what extent, the Games would result in the hiring of British Columbians who would otherwise be un- or underemployed. Unemployment rates in Whistler and Vancouver are relatively low compared to other areas in BC and it is unlikely a large percentage of the local workers hired as a result of the Games would otherwise be un- or underemployed. The more likely effect would be to attract local workers from other activities, or to attract un- and underemployed people from other regions within BC and from out-of-province. There would be some net benefit, but it would be far less than the total Games-related employment income reported in the impact studies.<sup>38</sup>

To many people, the justification for subsidizing the Games—incurring a minimum net cost of some \$860 million and potential net cost in excess of \$2 billion—is because of the employment it will generate. InterVISTAS

estimated that the direct employment impact of the Games in the medium visits scenario would be 39,000 person years of employment over a seven year period. If one thinks in terms of sustained jobs over that period, that is, jobs lasting the full seven year impact period, the direct employment estimate would be the equivalent of some 5,600 continuing jobs. Thus, the effective subsidy (the net financial cost to British Columbians of \$1.23 billion divided by 5,600 jobs) would be some \$220,000 per job. A recent study by UBC economist David Green looked at actual employment data from regions in North America to isolate the effects of the Lake Placid (1980), Calgary (1988), and Salt Lake (2002) Winter Olympics.<sup>39</sup> The study estimated that the Vancouver Olympic Games would increase employment by the equivalent of 10,200 person years or 1,500 continuing jobs. This in turn equates to an effective subsidy of some \$820,000 per continuing job. That is what the net benefit from the employment would have to be to justify the Games on the basis of the employment it creates.<sup>40</sup>

# Social Account

## Community and social impacts

AS NOTED IN PART 4, the Bid Corporation and its member partners have committed to creating environmentally, socially and economically sustainable Games. In turn, they have committed to minimizing negative impacts, while maximizing opportunities for British Columbians, and in particular, low-income individuals.

The Bid Corporation and its member partners established an Economic Development Working Group, an Inner-City Working Group, as well as a number of other working groups to achieve these ends. The work of the Inner-City Working Group resulted in the creation of an Inclusive Intent Statement (IIS) to address specific concerns associated with Vancouver's inner city. The IIS has been included in the guarantees of the Bid Book. As a show of commitment to inner-city residents, a \$10 million "Opportunities Starting Now" fund has been created to identify, develop and build positive legacies for the inner-city neighbourhoods prior to the Games (accounted for in the budget). In addition, a number of initiatives developed through the working groups have been incorporated into the Bid Book.

**HOUSING:** Market-driven evictions were identified as a major concern for inner-city neighbourhoods, given the experience in previous host cities, and Vancouver's own

experience during Expo '86. During the 1988 Calgary Winter Games, roughly 740 tenants were displaced from two rental apartment buildings. While offered moving assistance and financial incentives to move, the tenants really had little choice.<sup>41</sup> A number of long-term Single Room Occupancy Hotel tenants were also relocated (without incentive) to make room for tourists. As well, roughly 1,450 students were temporarily displaced from residences.<sup>42</sup> In

the 1996 Atlanta Games, 30,000 low-income housing tenants were reportedly evicted to make way for Olympic venues, and police detained some 9,000 homeless people for the duration of the Games. During the 2000 Sydney Games, it was reported that evictions increased, and rents skyrocketed due to a chronic housing shortage. Furthermore, residents of the poor Aboriginal suburb of Redfern were evicted to make the Olympic environs more attractive for tourists.

The IIS includes a number of commitments to protect low-income inner-city tenants: protect rental housing stock; provide many alternative forms of temporary accommodation for Winter Games visitors and workers; ensure people are not made homeless as a result of the Winter Games; ensure residents are not involuntarily displaced, evicted or subjected to unreasonable increases in rent due to the Winter Games; provide an affordable housing legacy; and start planning now.

The experience of other host cities has in some cases shown that prior to the Games, many individuals migrate to the host city, lured by potential employment opportunities in construction and other game-related developments. Typically, these individuals look for inexpensive accommodation such as SROs. This influx of individuals seeking low-income housing can lead to displacement of existing SRO tenants.

While the Bid Corporation has assured inner-city residents that no market driven evictions would result from the 2010 Winter Games, it does not have the legal jurisdiction to do so. It would be the responsibility of the member partners—the three levels of government—to enact the appropriate legislation to protect tenants and to provide funding for the ongoing creation of non-market housing, as well as fulfilling other Bid Book commitments that require additional funding.

After the Games, approximately 250 units of non-market housing are planned for the Vancouver Olympic Village, which will be owned and operated by a non-profit housing society. The City of Vancouver, in conjunction with the private sector, would cover the \$107.9 million to construct the permanent facilities,<sup>43</sup> while the province would contribute \$30 million to offset the costs of operating the non-market housing.<sup>44</sup>

The Bid Corporation assures the International Olympic Committee that there are sufficient hotels to accommodate spectators and the Olympic family during the 2010 Winter Games. However, the perception that the Games would generate a need for budget and hostel accommodation could convince some Single Room Occupancy (SRO) hotel owners to convert their buildings for tourist use. The experience of other host cities has shown that many tenants are subject to substantial rent increases or eviction for minor cosmetic renovations. This displacement enables landlords to benefit from Games-related temporary residents willing to pay inflated rents. To protect low-income SRO tenants, several measures have been proposed including a bylaw to control the conversion and demolition of SROs; rent increase protection; and the closing of loopholes in the Residential Tenancy Act permitting eviction for cosmetic renovation.

Finally, the experience of other host cities has in some cases shown that prior to the Games, many individuals migrate to the host city, lured by potential employment opportunities in construction and other Games-related developments. Typically, these individuals look for inexpensive accommodation such as SROs. This influx of individuals seeking low-income housing can lead to displacement of existing SRO tenants. In turn, increases in homelessness can occur and additional strain is put on shelters and other social services.

**ACCESSIBLE AND AFFORDABLE GAMES:** The Bid provides for 50,000 sporting event tickets to be distributed to social agencies so that individuals who couldn't otherwise afford to attend the Games (such as Vancouver's low-income inner-city residents, including at-risk youth and children) can participate. Furthermore, the Bid Corporation has stated that the cost of attending medal ceremonies will be nominal to ensure accessibility for all. That said, the cost of many events will be prohibitive for a large segment of the local population.

**COMMUNITY ECONOMIC DEVELOPMENT:** The Bid Corporation is committed to developing opportunities for local businesses and artisans to promote their goods and services and to develop potential procurement opportunities for inner-city businesses that employ local residents. There is also a commitment to provide training and employment opportunities for First Nations and low-income individuals. To this end, the Whistler Nordic Centre Project team would develop venues in the Callaghan Valley and include participation from both the Squamish and Lil'wat First Nations. Part of its mandate would be to provide contracting opportunities for First Nations people.



Contractors are also encouraged to participate in existing site skills development programs that “provide meaningful job training and skills development opportunities to disadvantaged individuals in the community.”<sup>45</sup> The costs and funding for these commitments is unclear. Furthermore, the provincial government has effectively abandoned requirements for employment equity and training in its other capital spending programs. It is therefore unclear how these commitments to provide training and employment for low-income individuals would be implemented, monitored or enforced.

**AFFORDABLE RECREATION AND COMMUNITY SPORT:** The Bid Book outlines a number of commitments to maximize inner-city residents’ access to the new and upgraded facilities after the Winter Games and to support and enhance the current sport delivery infrastructure for at-risk youth and children. For this, \$18.2 million has been budgeted for the 2010 Winter Games Cultural Programs; an additional \$17.7 million has been allocated to the Olympic Flame Relay and Olympic Medal Ceremonies; \$18.7 million has been dedicated for the Olympic Opening and Closing Ceremonies; and a \$13 million Olympic Arts Fund has been committed to by the provincial government.

Some proponents argue that the Games are needed in order to leverage provincial and federal support for much-needed social infrastructure, such as social housing and public transit. This view is questionable. Positive social ventures have merit and are worth pursuing with or without the Games. Both social housing (after a concerted

Both social housing (after a concerted national campaign) and public transit (in the wake of Kyoto ratification) seem now to be firmly on the public agenda, with or without the 2010 Winter Games.

national campaign) and public transit (in the wake of Kyoto ratification) seem now to be firmly on the public agenda, with or without the 2010 Winter Games.

The ultimate social impact of the Games will depend on many factors. To date, the Bid Corporation has worked with the community to address potential social impact concerns and to develop mitigation measures. While some funding has been committed, and accounted for in the budget, additional funding would be needed to ensure that the commitments are fully realized. Whether or not that funding will be made available is unclear. In addition, there are a number of commitments that require follow-up implementation by the three levels of government. The meaningful implementation, enforcement and monitoring of a number of commitments made has yet to be seen.<sup>46</sup>

# Overall Assessment

TABLE 4 PROVIDES A SUMMARY of the evaluation of the Games under each account. As summarized in the table, the Games will entail a significant net cost to British Columbian taxpayers. The minimum net financial cost estimated in this study is \$860 million (2010 NPV). It is more likely to be over \$1.2 billion and could reach or exceed

\$2 billion if the Richmond/Airport-Vancouver rapid transit line is advanced for the Games. Moreover, the Games face numerous risks, any of which could significantly increase the costs of hosting the Games.

There are benefits that British Columbians would derive from hosting, attending and acquiring facilities from the Games, particularly those residents who would access the Games or the facilities they provide. The Games would likely boost community pride. How much British Columbians value these ‘products’ of the Games—how much they are willing to pay in taxes or forego in other government infrastructure or services to pay for them—is not known. This critical economic question has not been addressed. In some sense, the Vancouver plebiscite poses the question of supporting the Games to the wrong people, as Vancouverites will realize a large share of the benefits that do occur—especially the greatest opportunity to participate and use the facilities afterwards—while the costs are borne by all British Columbians.

Significant environment commitments have been made to ensure the Games and related initiatives do not

have negative environmental effects. However, details of how the commitments would be achieved, what they would cost and how they would be funded are not generally clear.

Incremental spending from the Games and related initiatives was estimated (by InterVISTAs) to directly generate some \$1.2 billion to \$2.7 billion in GDP and 32,000 and 71,000 in person years of employment. There is considerable uncertainty, however, over the extent of incremental spending and the impact it would have on the economy. Whatever the impact, the *benefit* would depend on hiring persons who would otherwise be un- or underemployed. The effective public subsidy per equivalent continuing job over the estimated seven-year impact period is estimated at \$220,000; it could be as high as \$820,000 (based on a study by UBC economist David Green of the likely incremental employment from the Games).

Extensive commitments have been made to avoid adverse and enhance positive social impacts from the Games. However, government follow-up and additional funding is required for full implementation. And notwithstanding these efforts, the Games continue to pose social risks, such as the displacement of low-income tenants and rising housing costs.

Multiple account evaluations are not intended to answer whether a project should or should not be undertaken. That is for policymakers and the public to decide. However, this evaluation can and should inform the policy choice.

The main potential justification for the Games is the benefit British Columbians would derive as hosts and spectators of the Games and users of the facilities they provide. Whether these benefits are higher priority than other services or investment is the central public policy issue that should be addressed.

In the case of the Games, three key implications of this evaluation should be taken into account.

1. The Games are not attractive from a financial point of view. There would be a substantial net cost to the public treasury that would have to be offset by less government spending in other areas or increased taxes or increased debt.
2. The Games cannot be justified on the basis of the estimated economic impacts. The jobs would not be generated in regions of the province where unemployment is highest and additional employment opportunities most beneficial. The impacts would

be of limited duration and the effective subsidy per job would be very high.

3. The main potential justification for the Games is the benefit that British Columbians would derive as hosts and spectators of the Games and users of the facilities they provide. Whether the value of those benefits outweighs the cost and risks—whether these Games’ benefits are higher priority than the government services or investment that would be displaced, or disposable income that would have to be taxed to pay the net cost of the Games—is the central public policy issue that should be addressed. 🌐

**Table 4: Multiple Account Evaluation Summary**

Government Financial	2010 NPV
Net Financial Cost to BC	(\$1.228 billion)
· Minimum/Lower Bound Estimate	(\$860 million)
· Potential Net Cost with advancement of Richmond Vancouver Rapid Transit	(\$2 billion) or more
Financial Risk: Unanticipated costs/inflation/revenue decline	Not estimated
Resident “Consumer”	
<ul style="list-style-type: none"> <li>· community pride</li> <li>· attendance at Games</li> <li>· use of facilities</li> <li>· disruption/congestion during construction and Games</li> </ul>	
Environment	
<ul style="list-style-type: none"> <li>· extensive commitments to limit impacts (details unclear, mitigation may increase financial cost)</li> <li>· impacts of development of new areas and expansion of tourism in Whistler may be difficult to mitigate effectively</li> </ul>	
Economic Development	
<ul style="list-style-type: none"> <li>· direct impacts estimated at \$1.2 billion to \$2.7 billion in GDP and 31,000 to 71,000 person years of employment</li> <li>· considerable uncertainty over magnitude, effect and net benefit of impacts</li> <li>· employment impact (medium visits scenario) equivalent to 5,600 continuing jobs over 7-year impact period; other estimates much lower</li> <li>· effective subsidy is \$220,000 per continuing job, possibly as high as \$820,000 per equivalent job</li> </ul>	
Social	
<ul style="list-style-type: none"> <li>· extensive commitment to mitigate negative social impacts and create positive benefits, particularly for low-income individuals (follow-up required by OCOG and government to realize commitments; additional funding also required)</li> </ul>	

# Notes

- <sup>1</sup> News Release, Province of B.C., November 22, 2002.
- <sup>2</sup> InterVISTAS Consulting Inc., *The Economic Impact of the 2010 Winter Olympic and Paralympic Games: An Update*, November 2002, p. ix.
- <sup>3</sup> Capital Projects Branch, BC Ministry of Competition, Science and Enterprise, *The Economic Impact of the 2010 Winter Olympic and Paralympic Games*, January 2002, section II.
- <sup>4</sup> The provincial government makes forecasts of economic growth only to 2005 and gives no indication it anticipates a slowdown in that period (growth in real GDP of 2.7 per cent in 2003 rising to 3.2 per cent in 2005. See BC Ministry of Finance, *Second Quarterly Report on the Economy, Fiscal Situation and Outlook*, September 2002). There is no reason to assume there would otherwise be widespread unemployment when the Games and related initiatives are undertaken, and no basis to assume that Vancouver or Whistler, in particular, would otherwise be in a cyclical downturn at that time.
- <sup>5</sup> For example, the federal Treasury Board's original benefit-cost guidelines (*Benefit-Cost Analysis Guide*, March 1976) recommend, as a general practice, that the analyst should assume that resources used in a project would otherwise be fully employed.
- <sup>6</sup> Even government expenditures supported entirely by taxes would appear beneficial because of the net stimulative effect of an equal increase in spending and taxes in an unconstrained economy.
- <sup>7</sup> Quoted by C. Blackorby et. al., "Expo 86: An Economic Impact Analysis", in *Restraining the Economy*, edited by R. Allan and G. Rosenbluth, 1986.
- <sup>8</sup> Even 'incremental' impact assessments like the ones conducted for the Games would not differentiate between any of these activities if funded by the federal government.
- <sup>9</sup> Economic impact analysis could be used to argue that construction of the fast ferries in BC was economically successful (made even greater by the large cost overruns).
- <sup>10</sup> The federal government's "Hosting Policy" (appended to the multiparty agreement to support the 2010 Bid) indicates that "the federal government requires a cost-benefit analysis to judge whether the financial support requested is justified," and notes "economic benefits usually examined in cost-benefit studies, are an indication of whether there will be a positive return on the investment. Economic impact studies attempt to demonstrate how spending related to the event (e.g., by visitors) circulates through the economy. The federal government is interested in both types of studies, but the two should not be confused nor should the results be combined."
- <sup>11</sup> A multiple account approach is recommended for project assessments in the BC government's May 2002 *Capital Asset Management Framework*. A detailed multiple account approach was also recommended in the government's 1993 *Multiple Account Evaluation Guidelines*, prepared by the Crown Corporations Secretariat.
- <sup>12</sup> It should be noted that several municipalities may incur additional costs that have not been identified and are not reflected in this analysis.
- <sup>13</sup> BC Crown Corporations Secretariat, *Multiple Account Evaluation Guidelines*, Feb. 1993, p.6. The provincial government's *Capital Asset Management Framework: Guidelines*, Ministry of Finance, May 2002, similarly states: "The province supports a multiple criteria (accounts) approach to systematically and objectively assessing value for money and public interest in the planning stages ...", p. 42.
- <sup>14</sup> Office of the Auditor General, *Review of Estimates Related to Vancouver's Bid to Stage the 2010 Olympic Winter Games and Paralympic Games*, January, 2003.
- <sup>15</sup> At a 6 per cent discount rate or cost of capital a one dollar expenditure today would be equivalent to \$1.06 in one year's time.
- <sup>16</sup> At 6 per cent it would be worth \$0.94.
- <sup>17</sup> The government's Multiple Account Guidelines call for an 8 per cent discount rate to ensure that government projects are evaluated on the basis of a cost of capital comparable to what the private sector

would face. BC Hydro uses 8 per cent when evaluating its potential investments. Private sector investments with levels of uncertainty and risk comparable to the Olympics would typically be evaluated at substantially higher discount rates. The higher the discount rate the greater would be the accumulated capital cost by the time the Games take place and the less would be the present value of the revenues expected after that date. A 6 per cent discount rate is used in this evaluation, as it is closer to the cost of capital that government actually faces; it provides conservative estimates of the NPV opportunity costs of the Games.

<sup>18</sup> “Readers should be aware that all of these [impact] estimates are future oriented: actual results achieved will vary from estimates and the variations may be material”, Office of the Auditor General, *Review of Estimates...* p. 5.

<sup>19</sup> As InterVISTAS stated in its report, “The realisation of [indirect and induced] multiplier impacts depends on economic conditions and it is recommended that primary focus be placed on the direct impacts.” See *The Economic Impact...* p xi.

<sup>20</sup> Without the marketing program defined and costed it would be inappropriate to use the tax impact associated with higher visits scenarios. How any additional tax in these scenarios compares to the required program costs is simply not known.

<sup>21</sup> It is worth noting that under Canada’s equalization formula, so long as BC is a “have-not” province, increased tax revenues due to increased economic activity (as opposed to increased tax rates), are offset by reduced federal transfers. Under such circumstances, there would be little or no incremental revenues for the BC government.

<sup>22</sup> Given our assumption that the Sea-to-Sky highway would have been upgraded without the Olympics (though six years later) these future costs are “avoided.”

<sup>23</sup> If one assumes there is no opportunity cost of federal funds (that federal spending on the Games would not otherwise have been spent here), one would have to assume that the federal and provincial government are incapable of negotiating support for any local projects without the Olympics. In fact, the federal and provincial governments have agreed to

share funding on the new convention centre. Several other proposals for federal funding have also been raised including urban transit, social housing and highways. The two governments have been negotiating cost-sharing for major upgrades to the Trans-Canada highway through Kicking Horse Canyon (a higher priority highway improvement project than the Sea-to-Sky highway) that could involve a federal contribution of more than \$300 million.

<sup>24</sup> The direct impact on federal taxes was estimated at \$181 million in InterVISTAS’ medium visits scenario. As with the provincial impact, 50 per cent of these are assumed to be truly incremental.

<sup>25</sup> Based on the financial estimates for a grade-separated line in IBI Group, *Richmond/Airport-Vancouver Rapid Transit Project Multiple Account Evaluation*, April, 2001.

<sup>26</sup> As noted above, funds contributed from other sources, such as the Vancouver Airport, are not free to the BC taxpayer, and thus must still be reflected in the total costs.

<sup>27</sup> InterVISTAS, *The Economic Impact...* p.10.

<sup>28</sup> Flyvbjerg et al, “Underestimating Costs in Public Works Projects: Error or Lie?” *APA Journal*, Summer 2002, V. 68 No.3.

<sup>29</sup> The principal argument the current government puts forward in defense of privatizing the delivery of government infrastructure and service, even where this entails greater cost, is that the higher costs properly reflect and make transparent the risk the infrastructure or service entails. There has been no effort to estimate or make transparent the cost of the risks that the Games would entail.

<sup>30</sup> An estimated 250 units of non-market housing are planned for the Vancouver Olympic Village that will, in keeping with City requirements, be owned and operated by a non-profit housing society. According to the Bid Book, the city, in conjunction with the private sector, will pay \$107.9 million to construct the permanent facilities (Vol. 2:193) and senior levels of government will contribute \$30 million to offset the costs of providing non-market housing. The cost of constructing the permanent Whistler Olympic Village facilities (located in the Callaghan Valley) and infrastructure is estimated at

\$63.2 million. The provincial government is transferring provincial Crown Land to the Resort Municipality to create resident housing. It is unclear how much of the government's contributions have been included in the Games' budget. Pre-manufactured facilities used during the Games will be moved off site and donated to First Nations, and the permanent accommodations will become non-market housing for Whistler employees (Vol 2: 195).

<sup>31</sup> See Ference, Weicker and Company, *Community Assessment of the 2010 Olympic Winter Games and Paralympic Games on Vancouver's Inner-City Neighbourhoods* (Commissioned by the Vancouver Agreement), 2002, p. 27.

<sup>32</sup> A 1995 study of rapid transit in three major corridors noted that none were justified on time-savings and environmental benefits alone; benefits from land-shaping (concentrated growth in target areas) were necessary to justify the investment. The Richmond-Vancouver corridor has limited land-shaping potential. See *Multiple Account Evaluation of Rapid Transit Options in Greater Vancouver*, Crown Corporations Secretariat, 1995.

<sup>33</sup> The expected impact, weighting each possible outcome by the probability of its occurrence, would clearly be much less than the highest estimate.

<sup>34</sup> InterVISTAS, *The Economic Impact...* p.42.

<sup>35</sup> Hosting a major event is no guarantee of good publicity. At the Atlanta Games, the media "focused a great deal of attention on inconveniences in transportation and accommodations ... IOC President Samaranch did not proclaim the Games 'the best ever,' leading to negative speculation in the media about Atlanta's performance as host and its status as a world-class city." G. Andranovich, M. Burbank and C. Heying, "Olympic Cities: Lessons Learned from Mega-Event Politics," *Journal of Urban Affairs*, Vol. 23, No. 2, 2001. Even with exemplary management, uncontrollable factors—such as too much rain or too little snow—can provide unflattering images to a worldwide audience.

<sup>36</sup> During the 1984 Los Angeles Olympics, "the region's big tourist draws—Disneyland, Universal Studios, and Six Flags Magic Mountain—reported lower attendance and fewer non-local visitors than usual." Andranovich et al, 2001.

<sup>37</sup> InterVISTAS, *The Economic Impact...* p.52-53.

<sup>38</sup> Any incremental spending due to the Games would be concentrated in the Whistler and Vancouver region. Had the spending been in other more disadvantaged regions, the benefits per dollar spent would have been higher.

<sup>39</sup> David A. Green, "Olympic Impacts: Should We Expect an Employment Boom?" Canadian Centre for Policy Alternatives, February 2003.

<sup>40</sup> It is extremely doubtful that one could justify subsidies of anywhere near these amounts, particularly since the impacts would at best affect employment opportunity but not labour productivity. This is quite different from investments in education and training, for example, which can affect productivity and consequently future earning potential. See Robert Allen "The Education Dividend", Canadian Centre for Policy Alternatives, 1999.

<sup>41</sup> *The Alberta Landlord Tenant Act* permits eviction without cause.

<sup>42</sup> Chris Olds, "Hallmark Events, Evictions and Housing Rights," *MacLeans*, 1988, p.13.

<sup>43</sup> Bid Book, Vol. 2, p.193.

<sup>44</sup> While this government support would leave a lasting legacy for low-income tenants, it does take place in an environment where senior levels of government are no longer providing funding for affordable housing. In addition, proposed changes to the provincial Residential Tenancy Act will give landlords the ability to dramatically increase rents. Increasing homelessness between now and 2010 would undoubtedly put more pressure on the existing affordable housing stock.

<sup>45</sup> Bid Book Vol. 2, p.137.

<sup>46</sup> A follow-up study of the Atlanta Olympics noted, "Perhaps the greatest lesson from Atlanta's experience is that large-scale events provide only limited opportunities to remake a city." See "Atlanta and the Olympics: A One-Year Retrospective", French & Disher, *Journal of American Planning Association*, Vol. 63. No. 3, Summer 1997.

## Appendix: Vancouver Winter Olympics 2010 Multiple Account Evaluation Cash Flow Model

Net Present Values based on Auditor General estimates (2010 NPV @ 6 per cent discount rate; expressed in constant 2002 Canadian dollars) Reference year 2010

	Auditor		Timing														
	General's Estimate	2010 NPV	assumptions														
	\$ million																
			2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
<b>Operating costs</b>																	
Net OCOG* costs to stage the Games (bid estimates)																	
Provincial costs: Medical	(\$1,354)	(\$1,438)	(a)	(3)	(11)	(26)	(47)	(67)	(174)	(411)	(589)	(11)	(16)				
Provincial costs: Security	(\$13)	(\$14)	(a)	(0)	(0)	(0)	(1)	(2)	(4)	(6)	(0)	(0)	(0)				
Total operating costs	(\$88)	(\$93)	(a)	(0)	(1)	(2)	(3)	(4)	(11)	(27)	(38)	(1)	(1)				
	(\$1,455)	(\$1,545)															
<b>Venues</b>																	
Construction of athletic facilities and athlete villages	(\$510)	(\$612)	(b)	(5)	(16)	(56)	(120)	(128)	(104)	(80)							
Legacy costs for ongoing operations of facilities after Games	(\$110)	(\$110)									(110)						
Total capital costs (venues)	(\$620)	(\$722)															
<b>Other related costs</b>																	
Sea-to-Sky upgrade	(\$600)	(\$720)	(b)	(6)	(19)	(66)	(142)	(151)	(123)	(94)							
Callaghan Valley Road	(\$14)	(\$17)	(b)	(0)	(0)	(2)	(3)	(4)	(3)	(2)							
Contingency fund	(\$139)	(\$167)	(b)	(1)	(4)	(15)	(33)	(35)	(28)	(22)							
Other	(\$64)	(\$77)	(b)	(1)	(2)	(7)	(15)	(16)	(13)	(10)							
Total capital costs (other)	(\$817)	(\$980)															
Estimated minimum Games-related costs	(\$2,892)	(\$3,247)															
<b>To be funded by:</b>																	
Net OCOG revenue from staging the Games	\$1,314	\$1,393	(c)	1	0	95	83	132	445	498	39	22					
Federal Government contribution	\$330	\$396	(b)	3	10	36	78	83	67	52							
Estimated Games-related costs to province	(\$1,248)	(\$1,458)															
Incremental taxes to provincial government	\$85	\$85	(d)					6	9	43	8	6	6	5	4		
Present value of future Sea-to-Sky costs (avoided costs)	\$507	\$507	(e)						6	19	66	142	151	123	94		
Minimum/lower bound estimate of net cost to province	(\$866)	(\$866)															
Provision for unbudgeted items	(\$54)	(\$54)	(f)				(4)	(5)	(24)	(4)	(4)	(3)	(2)				
Opportunity cost of federal government contribution	(\$308)	(\$308)	(d)	(3)	(10)	(36)	(78)	(83)	(61)	(42)	44	8	7	7	5	4	
Estimated net financial cost to British Columbians	(\$1,228)	(\$1,228)															

\* Organizing Committee of the Olympic Games.

Timing of cash flows are based on: (a) Operations cash flow projections, Bid Book, p. 84-85; (b) Construction costs in "Summary of Gross Spending - Medium-High Visits" Chart, InterVISTAS (p. 39); (c) Cash inflow projections (net of bank financing), Bid Book, p. 84-85; (d) Visitor spending in "Summary of Gross Spending - Medium-High Visits" Chart, InterVISTAS (p. 39); Construction costs (with six year delay) in InterVISTAS (p. 39); (f) Visitor spending (with two year advance) in InterVISTAS (p. 39).

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