

REPORT ON CAPITAL PLANNING AND BUDGET FOR 2010 OLYMPICS VENUES

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Executive Summary

Introduction

The Province of British Columbia (Province) and the Government of Canada (Canada) are major funders of the venues for the 2010 Olympic and Paralympic Winter Games (Games). Through the BC Olympic and Paralympic Winter Games Secretariat (the BC Secretariat), the Province oversees the Vancouver Organizing Committee's (VANOC) use of provincial contributions to venues. The BC Secretariat engaged Partnerships BC to review the venue development program in Spring 2006 and subsequently in December 2006 to complete a follow-up review. The Spring 2006 review resulted in a report issued by Partnerships BC in August 2006.

Partnerships BC's mandate for this December 2006 engagement was to review the project management and progress for the competition and accommodation venues, for which the combined federal and provincial funding contribution is \$580 million¹. This encompasses 15 venues, which are reviewed in detail within this report. Partnerships BC also assessed VANOC's reporting requirements to the BC Secretariat, within the context of the Performance and Accountability Agreement.

To fulfill this mandate, Partnerships BC reviewed overall project management and risk management processes and strategies, and reviewed the most up-to-date information available for each venue. Partnerships BC also conducted site visits and interviews with key personnel. VANOC senior management has reviewed and verified the information contained in this report.

Update on August 2006 Recommendations

As an initial step, Partnerships BC completed a review of VANOC's progress with respect to the recommendations made in Partnerships BC's August 2006 report. In general, Partnerships BC found that VANOC had responded appropriately to the recommendations and, as a result, has made substantial improvements to project management processes and strategies.

Conclusions and Recommendations

As of March 31, 2007, Partnerships BC has examined materials provided by VANOC, conducted interviews with key personnel, and reviewed VANOC's project and risk monitoring and control procedures. The review included the following VANOC-delivered and third-party delivered venues.

VANOC-delivered venues:

- Whistler Nordic competition venue;
- Whistler Sliding Centre;
- Whistler Athlete Centre;
- Hillcrest curling venue;

¹ In its public reporting, VANOC uses a total capital budget of \$586.8 million, which includes \$6.8 million value-in-kind contributions from its commercial sponsors. The figure of \$580 million is the total contribution from the federal and provincial governments to this capital budget. Throughout this report, except where noted, all venue figures include value-in-kind contributions.

- Hastings Park skating venue;
- Whistler alpine;
- Cypress freestyle and snowboard venue; and
- BC Place.

Third-party delivered venues²:

- Richmond Speed Skating Oval;
- University of British Columbia (UBC) ice hockey arena;
- Sledge Hockey Project (now part of UBC ice hockey arena);
- Whistler Olympic and Paralympic (Athletes) Village (Whistler Village);
- Vancouver Olympic and Paralympic (Athletes) Village (Vancouver Village);
- Whistler Media Centre; and
- Training venues - Trout Lake and Killarney.

Based on this review and with the understanding that strong project management support continues to remain in place; the anticipated solution to manage scope change at the Whistler Athlete Centre (see pages 33 and 34) can be achieved; and there are no additional significant scope changes, Partnerships BC finds that completing the Games venues within the \$586.8 million capital budget is an achievable objective. However, VANOC continues to face significant challenges in key areas that will require draw down of management reserves and individual project contingencies. The detailed conclusions and recommendations presented in this report identify and address these challenges.

Partnerships BC has reached the following specific conclusions:

- Since Partnerships BC's initial report was completed in August 2006, VANOC has made substantial progress in responding to the report's recommendations. For venues being delivered directly by VANOC, the essential elements of successful project and risk management are being implemented. For venues being delivered through third-party agreements, good project reporting elements are in place. This, combined with the third-party contractual agreements, provides reasonable assurance that these venues will be completed within VANOC's budget and schedule objectives.
- The risk management process, including a risk register, has been developed in accordance with provincial government best practices. See Section 3.4 for a detailed discussion.
- Five of the 15 venues reviewed for this report present a range of challenges for VANOC. These venues are the Whistler Sliding Centre, Hillcrest curling venue, the Whistler Village, the Vancouver Village, and the Whistler Athlete Centre. Although other venues have been categorized as presenting low risk, each venue does present unique challenges which VANOC must manage. See Section 4.2 for a detailed discussion.
- With the exception of the Whistler Athlete Centre, discussed in section 4, there is no evidence of material changes in scope for the VANOC-delivered venues reviewed, over and above those changes already anticipated.

² Third-party delivered venues are delivered by third parties through contractual agreements with VANOC. VANOC retains ultimate responsibility for provision of the venues.

- Scope increases have been observed on some of the third-party delivered venues; however, as a result of third-party agreements in place, these are the responsibility of third-party agencies and should not affect VANOC's venue capital budget. See Section 4 for detailed discussion.
- The Whistler Athlete Centre presents the most significant challenge. The current budget is based on early estimated construction costs and athlete accommodation numbers; the project scope is not well-defined and there has been a significant scope increase in the number of athlete accommodations. As a result, both the budget and schedule will be challenging. This venue will likely require a significant budget increase, which will lessen the remaining available contingency for other venues.
- Work progress in the 2007 building season will be critical in meeting proposed time lines for completion and commissioning of the Games venues.

Resulting from this review, Partnerships BC makes the following recommendations to support VANOC's achievement of its goals:

- VANOC should continue to monitor potential homologation risks. Experience from other Olympic events indicates that expenditures on monitoring International Olympic Committee (IOC) and sport federation needs throughout the construction process have a high payback in mitigating risk during the process. VANOC is encouraged to continue such activities and maintain and protect an appropriate management reserve for homologation risk.
- VANOC should continue to strive to secure value-in-kind contributions from private partners to reduce the burden to taxpayers.
- VANOC could use conventional definitions of the terms *project allowance*, *project contingencies* and *reserves* as they relate to construction budgets.
- Whistler Sliding Centre: VANOC should revise the risk register as discussed in section 4 of this report, in anticipation of the 2007 construction season which will require a high level of coordination between multiple contractors on the site.
- Hillcrest curling venue: VANOC should closely monitor this project for schedule management, as the construction process is still in very early stages.
- Whistler Village: key elements of the Project Execution Plan (PEP) have been completed, however, project managers should provide monthly updates to VANOC, and a comprehensive review of progress should be completed at the end of the 2007 construction season to confirm whether this project will meet its stated schedule and budget targets.
- Vancouver Village: a PEP, including implementation details, should be provided by the third-party delivery agent, the City of Vancouver, to VANOC by Summer 2007.
- Whistler Athlete Centre: VANOC is currently pursuing solutions to the scope increase for this venue. VANOC should implement a high level of due diligence in assessing potential solutions, to ensure that VANOC and the Province do not take on unacceptable risks.

Key Findings

Partnerships BC reviewed the systems and processes within VANOC's Venue Development group and also at the individual venue level for the Vancouver and Whistler Villages. Overall, the expertise, systems and processes that have been established by VANOC's Venue Development group appear to be robust. Partnerships BC recommends that these should be implemented in other areas of VANOC, such as those responsible for venue operations and commissioning, to ensure an ongoing level of due diligence in project management.

Project Controls

- VANOC's current project controls system provides management with the tools to monitor project processes associated with venue delivery. Project managers are accountable for determining which processes are appropriate for each project based on the scope, risk profile, and complexity of the project.
- The project controls system is heavily dependent on key staff knowledge and experience. A lack of support resources or the loss of key staff members could jeopardize the project controls system and its reporting functionality. Possible mitigation strategies for this risk at this stage of the venue construction process include ensuring sufficient staff capacity and cross-training in the project controls areas.
- The policies and procedures and daily practice of contract control and review and claims management meet industry standards and are satisfactory. In particular, there are controls in place to manage potential conflicts of interest where current owner/operators have been selected as managers of upgrades to their facilities. See further discussion of these controls in section 4.1.6 regarding the Cypress venue.
- VANOC's budget control and monitoring systems appear to be appropriate for the size and complexity of the venues. Although the systems in place rely on various manual entries and reconciliation, an audit trail can be constructed to monitor changes in both baseline budget and actual costs against budget. Approval of a contractual payment can only occur with sufficient unpaid, committed budget balances.
- The project accounting system is satisfactory for the scale and complexity of the venue construction projects. Ideally the project controls, accounts payable, accounts receivable and change management controls would be an integrated secure system. VANOC relies on less robust forms of data entry and retrieval systems.
- Notwithstanding the lack of integration of the project controls into the financial system, the skills and abilities of the management team are strong and the manual systems developed for recording and reporting on change orders limit the risk that unforeseen claims on the total authorized budget will occur.
- The Performance and Accountability Agreement (Agreement) between VANOC and the Province sets out conditions that VANOC must meet to obtain \$55 million of additional venue development funding from the Province. As required by the Agreement, VANOC delivered its first quarterly report to the BC Secretariat in January 2007.

Risk Management, Monitoring and Controls

- VANOC has a Risk Management and Assurance Services department and has completed and updated risk registers for each venue under its direct control in accordance with provincial government best practices.
- Top-ranked risks are identified and assigned to appropriate executive vice-presidents within VANOC to ensure ongoing scrutiny at the executive level.
- VANOC is using the risk register appropriately in that risks with project delivery, including the probability and severity of impact, are identified. As a result, VANOC now has greater certainty that the management reserve is adequate for VANOC-delivered venues; however project managers must continue to effectively manage their projects as a critical requirement of any risk mitigation strategy.
- The risk register is an active management tool which is updated on an ongoing basis. VANOC has updated the risk register, and is including risks related to third-party delivered venues in all future risk assessments, and assigning those risks to its executive for ongoing monitoring and management.

Scope

- With the exception of the Hillcrest curling venue and Whistler Athlete Centre, project scope has not increased materially as projects have moved from concept to reality. For all other venues, in comparing today's project scope with the original 2010 Winter Games Bid Book, Partnerships BC observed some scope changes, however these have not significantly affected VANOC's overall venue capital budget. Partnerships BC did observe some minor scope changes resulting from technical IOC requirements. These are being managed within the budget.
- The IOC has already required scope enhancements for accommodation venues as a result of an increase in the expected number of athletes and officials attending the games. These scope enhancements are being managed and solutions are currently being explored (see pages 33 and 34); however, the IOC may still make further changes to the scope of the accommodation venues. If the scope is increased further, this would likely require an additional draw on the management reserve and may present a challenge to VANOC's ability to complete the venue development program within the stated venue capital budget.
- Venue scope has been significantly reduced in three areas: moving the sledge hockey arena from Whistler - as originally planned - to UBC; removing the requirement to adapt the ice surface size at GM Place to international hockey ice rink size standards; and relocating the proposed international broadcast centre to the new Vancouver Convention and Exhibition Centre.
- Scope is being closely monitored by VANOC senior officials. As set out in VANOC's project management manual for venue delivery, any new deliverables beyond the approved scope are to be added only with executive and Board approval.
- For venues being delivered through third-party agreements and where work is well underway (UBC ice hockey arena and Richmond Speed Skating Oval), VANOC-defined scope is well-managed and remains consistent with the core Games requirements. In cases

where architectural features or additional community amenities are proposed, they are clearly the responsibility of the third-party organizations and are separate from the VANOC budget.

Budget

- VANOC is directly responsible for delivery of venues with a total construction budget of \$352 million. As of March 31, 2007, VANOC has a management reserve³ of \$55.3 million to manage scope changes and risks related to these venues. This is an increase of nearly \$20 million since Partnerships BC's August 2006 report. The management reserve increase is attributed to major reductions in scope with respect to sledge hockey and GM Place. The current \$55.3 million reserve represents 15.7 per cent of the total venue construction budget for VANOC-delivered venues. This reserve is considered by Partnerships BC to be reasonable for most construction projects of this size, risk and complexity, even in the current B.C. construction market. However, Partnerships BC notes that VANOC anticipates a draw-down of \$25 million from this reserve to fund scope change and budget increase at the Whistler Athlete Centre. Partnerships BC feels the remaining reserve should be sufficient, because many venues are well into the construction phase. In addition, VANOC continues to solicit value-in-kind contributions for venue development from sponsors. VANOC has established third-party agreements for the delivery of venues with a total contribution from VANOC of \$179.5 million.
- For VANOC-delivered venues, as of January 31, 2007, more than \$225 million of the total \$352 million construction budget has been contracted or committed to date. The percentage complete, based on submitted invoices, varies from a high of 52 per cent for the Whistler Sliding Centre to a low of two per cent for the Whistler Athlete Centre.
- For third-party delivered venues, as of March 31, 2007, more than \$146 million of VANOC's \$179.5 budget for third-party agreements has been funded by VANOC, with the greatest amount of completed work occurring at UBC where the venue is 55 per cent complete.

Schedule

- At this time, many venues are well under construction. Most venues face a combination of complex stakeholder dynamics, technically difficult construction, and harsh construction environments. Several venues are behind schedule, including the Hillcrest curling venue, Whistler Village, and the Vancouver Village. However, except as noted in this report, Partnerships BC believes that schedule delays do not currently impact reaching completion in time for the 2010 Games.
- VANOC made an early strategic decision to complete the competition venues well in advance of the Games – most venues are scheduled for completion and commissioning by 2008 and 2009. Early completion also means that athletes have time to practice at the venues and operations teams have time to fine-tune the venues prior to them being showcased internationally in 2010. This strategy also provides a cushion that should ensure VANOC remains well within a reasonable time frame for completion before the Games.

³ VANOC and the Performance and Accountability Agreement use the term central contingency.

1. Introduction

1.1 Background

The Province of British Columbia (Province) and the Government of Canada (Canada) are major funding bodies of the 2010 Winter Olympic Games (Games), initially committing \$235 million each to venue development in 2002. The Province established the BC Olympic and Paralympic Winter Games Secretariat (the BC Secretariat) to oversee, among other mandates, the Vancouver Organizing Committee's (VANOC) use of provincial contributions to the venues.

In April 2006, the BC Secretariat engaged Partnerships BC to undertake a review of the VANOC venue development program. The purpose of the review was to ascertain whether the BC Secretariat should recommend to the Province's Treasury Board to approve, with or without conditions, the proposed \$55 million provincial share of VANOC's request to the Province and Canada for an additional \$110 million. Partnerships BC recommended that the Province should release the funds, with a number of conditions, which were detailed in Partnerships BC's August 2006 report.

Subsequently, the provincial Treasury Board and the Cabinet approved an increase in the Province's financial commitment to venue development of \$55 million, subject to the terms and conditions of the provincial Performance and Accountability Agreement. Canada likewise approved its share of the VANOC request, subject to conditions.

Subsequently, the BC Secretariat engaged Partnerships BC to undertake a follow-up review of VANOC's progress in meeting the recommendations suggested in the August 2006 report, and in developing the competition and accommodation venues for the 2010 Olympic Winter Games. This report is the result of that follow-up review, which was carried out from December 2006 through March 2007.

1.2 Mandate

Partnerships BC's mandate, as of December 2006, was to review the project management and progress for the competition and accommodation venues, for which the combined federal and provincial funding contribution is \$580 million. The 15 venues reviewed are those that make up the \$580 million contribution:

VANOC-delivered venues⁴:

- Whistler Nordic competition venue;
- Whistler Sliding Centre;
- Whistler Athlete Centre;
- Hillcrest curling venue;
- Hastings Park skating venue;
- Whistler alpine;
- Cypress freestyle and snowboard venue; and
- BC Place.

⁴ GM Place is no longer a part of VANOC's venue development program because it is funded through VANOC's operations budget. This is due to the changed IOC requirements eliminating the need to convert the ice rink to international standards.

Third-party delivered venues:

- Richmond Speed Skating Oval;
- UBC ice hockey arena;
- Sledge Hockey Project (now part of UBC ice hockey arena);
- Whistler Olympic and Paralympic (Athletes) Village (Whistler Village);
- Vancouver Olympic and Paralympic (Athletes) Village (Vancouver Village);
- Whistler Media Centre; and
- Training venues - Trout Lake and Killarney.

Within VANOC, the Venue Development group is responsible for developing project controls and reporting, risk analysis, and the direct management of most of the venues listed above. The Accommodations and Villages group is responsible for oversight of the Vancouver Village and Whistler Village.

Partnerships BC's review included:

- Analysis of VANOC's project management processes at the Venue Development group level;
- Assessment of the project management and risk analysis processes at the individual venue level for the accommodations venues;
- Risk analysis processes;
- Management reserve development; and
- An update on recommendations made in Partnerships BC's August 2006 report.

The capital construction costs for competition and accommodation venues are just one piece of the overall development required to host the Games. VANOC is also responsible for venue operating budgets, overlay budgets for temporary improvements to facilities, and a number of non-competition related venues and facilities. These areas are outside of the scope of Partnerships BC's review.

The purpose of Partnerships BC's assessment, and this report, is to provide the BC Secretariat with an indication of the likelihood that the competition and accommodation venue program can be completed within VANOC's stated schedules and budgets, which are shown in this report.

1.3 Methodology

To develop this report, Partnerships BC worked directly with VANOC to review overall project management and risk management processes and strategies, and to review the most current information available on each venue, as it relates to budget and schedule.

Following up on the August 2006 report on capital planning and budget for the Games venues, Partnerships BC examined updated venue budgets, as well as the implementation strategies and project controls and procedures of VANOC's Venue Development group. In addition, Partnerships BC conducted interviews with key project managers and VANOC executive members responsible for delivery and oversight of capital venues at VANOC. This review differs from the initial one in that substantial progress has been made in the VANOC project delivery organization and in that Project Execution Plans (PEPs) and implementation strategies are now in place for almost all capital venues.

In addition, document reviews and interviews were conducted with VANOC project managers and the organizations that have the contractual responsibility to deliver the Games venues on VANOC's behalf. Partnerships BC also toured various facilities to view progress, and interviewed site managers. A list of interviews conducted is included in Appendix A.

Partnerships BC developed high level criteria to enable a rapid determination of the level of risk each venue presents in terms of meeting its budget and schedule. The criteria focused on the nature and use of project controls, the maturity and diligence of risk assessment, and the related management reserve budgets; the reasonableness of budget assumptions; the extent to which tender packages have been completed; and the progress of construction schedules to date.

Where the initial review suggested a venue presented higher risk, Partnerships BC completed further analysis, including interviews with project managers and site visits.

The conclusions and recommendations in this report rely solely on the information provided by VANOC and other parties interviewed. No formal audit of the information was conducted. VANOC senior management has reviewed and verified the information included in this report.

Partnerships BC acknowledges the time and resources required for VANOC to reply in a timely manner to requests for information, interviews and site visits, and thanks the entire VANOC team for its responsiveness.

1.4 Context

As noted earlier, the Province of British Columbia and the Government of Canada have agreed to equally contribute to the capital budget for competition and accommodation venue development. The total capital budget for venue construction at the time of the bid was estimated to be \$470 million, in 2002 dollars. This budget has increased to \$586.8 million in as-spent dollars, including \$6.8 million in value-in-kind contributions. The Province's share of this venue capital budget is \$290 million.

The Province and Canada will have a cost sharing agreement relating to security for the Games. The Province will provide funding toward medical costs, sport development legacy, First Nations legacy and municipal legacies. The Province's total contribution is budgeted at \$600 million.

The governance of Olympic Games is unique and has an impact on the project management and oversight for the construction of venues. The IOC determines the form and nature of the Games. The IOC determines which sports events will be included, the number of athletes, the number of officials and the length of the Games. The IOC required that the original bid budgets be provided in 2002 dollars. The IOC requires that the host city, Vancouver, set up an organizing committee (the Vancouver Organizing Committee – VANOC) to manage and operate the Games. The Province and Canada are funding bodies of the Games, and their rights and obligations are set out in a Multiparty Agreement between the Canadian Olympic Committee, Canadian Paralympic Committee, the Government of Canada, the Government of British Columbia, VANOC, the City of Vancouver and the Resort Municipality of Whistler (RMOW). VANOC has sole responsibility for developing the infrastructure and staging the Games.

Given the environment in which the Games facilities are being constructed, the VANOC team faces a daunting challenge. In Vancouver, the construction market is at a peak resulting in

supply and labour shortages and cost increases that have been well documented on many large projects. In Whistler, additional challenges of a shorter construction period, a smaller labour market and productivity issues, make the situation even more difficult.

Additionally, VANOC faces the challenge of delivering some extremely complex construction jobs, such as the sliding centre, and potential changes in scope and technical requirements from the IOC and sport federations who will be key users of the facilities.

VANOC maintains that the capital costs of venue construction will not exceed \$580 million (excluding value-in-kind contributions), and that the venues will be completed on time, according to schedules that have been developed. Venue completion dates range from Fall 2007 to Fall 2009.

2. Update on Recommendations from August 2006

The August 2006 Partnerships BC Report on Capital Planning and Budget for 2010 Olympics Venues reviewed capital costs and made a number of specific recommendations to the Province as to the conditions of release of additional funding requested by VANOC for venue development. Since that initial report, VANOC's share of the capital budgets for some venues has been revised as a result of changes related to sledge hockey and GM Place, and increasing cost certainty as project scope has been developed. However, there has been no net change in the total funding amount of \$580 million from the Province and Canada, as shown in the table below.

	Partnerships BC Report August 06 \$ millions	Partnerships BC Report April 07 \$millions	Budget Variance August 06 - April 07 \$millions
VANOC Delivered Projects			
Moderate Risk			
Whistler Sliding	99.90	104.90	5.00
Hillcrest Curling	37.10	38.00	0.90
Whistler Athlete Centre	16.00	16.00	0.00
Low Risk			
Whistler Nordic	115.70	119.70	4.00
Whistler Creekside (alpine)	26.20	27.60	1.40
Hastings Park	25.70	23.70	(2.00)
Cypress freestyle and snowboard	14.60	15.80	1.20
BC Place	3.80	3.30	(0.50)
Other	3.60	3.00	(0.60)
Total VANOC	342.60	352.00	9.40
Third-Party Delivered Projects			
Moderate Risk			
Vancouver Village	30.00	30.00	0.00
Whistler Village	37.50	37.50	0.00
Low Risk			
Richmond Speed Skating Oval	62.70	63.10	0.40
UBC Winter Sports Centre	37.60	38.50	0.90
Whistler Media Centre	3.00	3.00	0.00
Training venues	5.00	5.40	0.40
Sledge Hockey	20.00	2.00	(18.00)
GM Place	5.50	0.00	(5.50)
Total Third-Party	201.30	179.50	(21.80)
Other			
Total all Projects	543.90	531.50	(12.40)
Available Reserve	36.10	55.30	19.20
VIK	0.00	(6.80)	(6.80)
Total VANOC Capital Budget	580.00	580.00	0.00

Partnerships BC's August 2006 recommendations and an update on these recommendations as of March 2007 are summarized below.

Recommendation 1:

VANOC should complete Project Definition Reports (PDRs) and PEPs for all venues, including a quantitative risk register and analysis, by October 31, 2006. Through these documents, VANOC should demonstrate how it proposes to meet the budget and schedule objectives.

Update:

PDRs and PEPs, or equivalent documentation, are complete for all venues with the exception of those venues which have not progressed far enough in schematic design to estimate total budget (such as the Whistler Village and the Whistler Athlete Centre) or where scope and budget are very small (such as BC Place upgrades.)

VANOC has completed and updated a comprehensive risk register and implemented a risk management strategy for venue delivery and operations.

Through scope reductions and continued emphasis on finding Games partners to contribute value-in-kind capital, VANOC is confident that the \$586.8 million capital budget is adequate to deliver the venues.

Recommendation 2:

The Province should approve and release its share of funding immediately for venues where risk mitigation strategies are in place. Where PDRs and PEPs are not completed the Province should not release its share of additional funding until proper documentation and reporting is complete.

Update:

Since Partnerships BC's last report, the UBC ice hockey arena has been funded.

Recommendation 3:

The Province's share of additional funding should be contingent on VANOC's agreement to provide regular progress reporting of earned value and project contingencies taking into account the risk analysis.

Update:

VANOC has implemented a full set of project controls for venue delivery and has conducted a detailed analysis of the management reserve and forecasted draw-down to January 2009. VANOC has signed the Performance and Accountability Agreement with the Province and has provided its first quarterly report to the Province. The report includes an overview of the overall progress, costs to date, budget remaining, and information on schedule for each venue.

VANOC has not elected to report on an earned value basis, based on the costs to implement such a system and the relatively straightforward construction process for most venues. Adequate reporting requirements are in place with all major contractors.

Recommendation 4:

The Province should monitor, on a regular basis, VANOC's progress on implementing project support services and risk management plans to ensure they are implemented on time.

Update:

This report fulfills this recommendation to date.

Recommendation 5:

VANOC should seek opportunities to mitigate construction and schedule risks by transferring risks to third parties by providing a fixed contribution.

Update:

VANOC has indicated that the opportunities for transferring risk have been maximized.

Recommendation 6:

A capital works or construction advisory committee should be established to receive, review and make recommendations on monthly status of venue delivery and report out to the VANOC Board of Directors' Finance Committee.

Response:

A construction advisory committee has been formed and held its first meeting in January 2007.

Recommendation 7:

Where sole sourcing and construction management are the procurement methods employed, an approved value for money approach should be documented and supported by VANOC Finance Committee.

Response:

Where opportunities were still available to VANOC to limit exposure in construction management contracts, clauses have been incorporated to effectively limit cost plus arrangements with primary contractors.

VANOC has entered into sole sourcing arrangements with some suppliers and has developed a process requiring finance committee and Board approval for direct award contracts over \$50,000.

Recommendation 8:

VANOC should consider project contract delivery options that would mitigate potential claims in venue delivery.

Update:

VANOC has undertaken a number of initiatives to reduce disputes with construction contracts. These include taking price risk by pre-purchasing material; conducting value engineering sessions to reduce project scope; capping construction management contracts; establishing a robust claims management tracking system; and hiring experienced project control personnel.

3. Assessment of Project Management System

A thorough PEP and a rigorous project controls system are the basis of good project management and the foundation of any successful project.

Providing a brief description of the project, the PEP and its associated documents (such as PDRs, scope definition statements, and risk matrices) detail the scope, schedule, budget, risks and contract management strategies of a project and then describe in detail how each of these areas will be managed.

The PEP demonstrates that the project team has considered all foreseeable eventualities at the time of project planning. The PEP becomes a record of how the project was approached and serves as an audit trail for project management's intentions and decisions on project issues.

A rigorous project controls system is an absolute requirement for a successful project. It is typically based on the requirements of the project as described in the PEP and is detailed in a procedures manual that describes step by step how to manage the recurring aspects of project management such as month ends, monthly reporting, and contract changes.

This section provides an overview of PEPs and associated documents provided by VANOC. This section also provides a discussion of VANOC's project controls system and procedures. Overall, Partnerships BC found VANOC's project controls system and procedures to be satisfactory. Although the systems rely on manual processing, rather than integrated and automated systems, VANOC staff is implementing the necessary due diligence to ensure the integrity of these systems.

3.1 Project Execution Plans

The review of PEPs was an important component of this assessment. When Partnerships BC's first review of the VANOC Venue Development program was completed in August 2006 most of the projects did not have completed PEPs. For this report, Partnerships BC has reviewed PEPs for VANOC-delivered venues, and other project management reporting materials for third-party-delivered venues.

3.1.1 VANOC-delivered Venues

Most of the venues now have PEPs which meet the key requirements of project management. PEPs were received and reviewed for the following venues:

- Whistler Nordic competition venue;
- Whistler Sliding Centre;
- Hillcrest curling venue;
- Hastings Park skating venue;
- Whistler alpine; and
- Cypress freestyle and snowboard venue.

For the Whistler Athlete Centre, the final PDR and PEP have been delayed until VANOC develops a solution for the recent scope increase. The BC Place venue has not produced a

PDR or PEP; however, given the limited scope and budget of upgrades to the facility, these documents are not required.

The PEP documents appear to have been produced from a common template and, for the most part, provide adequate information for the projects given project size and scope. A typical Table of Contents includes the following areas:

- Purpose of Document;
- Project Participants;
- Project Delivery Plan;
- Project Design Plan;
- Project Risk;
- Project Financial Plan;
- Procurement Procedures;
- Project Construction;
- Project Reporting;
- Project Environmental Plan;
- Project Health & Safety;
- Project Quality Plan;
- Project Sustainability Plan;
- Project Communications Plan;
- Project Controls; and
- Measures of Success.

3.1.2 Third-Party Delivered Projects

The projects being delivered through third-party agreements are:

- Richmond Speed Skating Oval;
- UBC ice hockey arena;
- Sledge Hockey Project (now part of the UBC ice hockey arena);
- Whistler Olympic and Paralympic (Athletes) Village (Whistler Village);
- Vancouver Olympic and Paralympic (Athletes) Village (Vancouver Village);
- Whistler Media Centre;
- Training venues - Trout Lake and Killarney.

Partnerships BC reviewed project management and reporting systems for the Richmond Speed Skating Oval and UBC ice hockey and sledge hockey venues, and to the extent possible, the proposed reporting format for the two villages. PDRs for the training venues were also reviewed. The Whistler Media Centre has been completed and therefore has not been reviewed.

Richmond and UBC venues

Partnerships BC has reviewed monthly reports for the Richmond Speed Skating Oval and the UBC ice hockey arena which provide sufficient information for VANOC project controls to monitor these projects. This is detailed in the next section on project controls.

Whistler Village and Vancouver Village

Partnerships BC reviewed the most current village development agreements for the City of Vancouver and the Vancouver Village, and also reviewed PDRs or their equivalent. Partnerships BC found the City of Vancouver to be the most advanced in the execution of the project as a result of early signing of the development agreement and related approvals of the official development plan and development permits.

3.2 Project Controls

The best project controls systems are automated management tools that provide well defined audit trails. A good project controls system ensures that the project manager is accountable and that senior management is fully informed of project progress and corrective or preventative action can take place to support project performance. Although there are wide variations in project control systems, good systems generally concentrate on:

- Planning, scheduling and budgeting;
- Cost forecasting and financial management;
- Procurement management;
- Contract management;
- Document management; and
- Claims management.

The VANOC project controls system is based on manual systems that rely on individual expertise. The system lacks the automated resources which would ensure continuity and consistency of information flow.

As a result, Venue Development is at risk through its reliance on key personnel who provide budgetary and schedule control for all of the venue projects. A more automated project controls system would reduce this reliance on key personnel for project controls functions.

Best practices in project controls rely on certain components which ensure that a consistent flow of information to senior management can be maintained throughout the life of a project. Key components of VANOC's system were reviewed and are summarized below.

Consistent Reporting

Consistent reporting of scope, schedule and budget is an essential component of good project management. It assures that senior management is immediately informed of developing issues with budget, schedule, and contract disputes and contractual claims. This type of early warning provides senior management with maximum opportunity to mitigate issues as they arise, thus keeping the project on budget and on schedule.

Consistent reporting is especially important where project teams are managing and reporting on multiple projects. Ideally these reports deal with issues such as progress against schedules, budget status, change orders and other contract issues and are largely generated from an integrated project management system that tracks schedule against budget expenditures and commitments. The expenditures and commitments aspects of these reports would be generated directly from the financial system without any data re-entry.

Venue Development's reporting system is largely manual and assembled through the use of a series of spreadsheets. On occasion, this requires the manual re-entry of data from VANOC's accounting-based financial system. Data re-entry increases the possibility of error and impairs the establishment of a well defined audit trail for areas such as forecast to complete reports. Project controls personnel in Venue Development limit possible errors by having several stages of manual checking before report finalization.

Partnerships BC found that the reporting procedures developed by dedicated and experienced staff adequately monitor project progress and status and provide a well-developed structure for reporting to senior management on a regular basis.

Partnerships BC did however observe non-standard use of the term *contingency* as a cost component common to construction, project and program estimates. We recommend that VANOC's reporting system utilize The American Society for Testing & Materials Standard classification for *allowance*, *contingency* and *reserve* sums in building construction estimating and are summarized as follows:

- *Allowances*: as defined by an architect is the provision of a sum of money for a deferred design decision. Such sums are within control of the designer and cost consultant and with oversight by the project manager. An *allowance* is intended.
- *Project Contingency*: after the contract is signed many things can happen that incur additional cost and the owner/client is contractually bound to reimburse. Project managers should control these expenditures. The sum of money spent is therefore contingent upon these contractual needs arising. A project *contingency* is for the unintended.
- *Reserve*: or *management reserve* is a sum available to the owner/client and is at the control of the owner/client and cover a range of items including changes in scope or direction.

Established Audit Trails

Documenting the history of decision-making and reporting in areas such as forecast to complete, change orders and claims is an essential aspect of good project control. This is best accomplished through a computerized system in which single entry keying of data populates the system for use in all applications, largely eliminating human error and ensuring that all reports are generated using the same data.

Partnerships BC found that VANOC does not employ an automated system. However, staff members are aware of the need for audit trails and have done a commendable job of record keeping in an effort to keep clear and traceable audit trails.

Planning, Scheduling and Budgeting

Best practices in project management recommend that planning, scheduling and budgeting functions be integrated to ensure that financial reports include commitments and contractual obligations as well as actual cash outlays. This assists in the following:

- Establishment of project structure and type according to consistent policies and creation of new projects using consistent criteria;
- Development of consistent work breakdown structures (WBS);
- Allocation of budgets within consistent guidelines and according to schedule;

- Tracking of actual costs, commitments and cash flows against schedule; and
- Capitalizing costs at appropriate times and closing projects with a consistent process.

The establishment of consistent project structures when managing multiple projects is especially critical.

Partnerships BC found that although Venue Development relies on several manual processes to manage the project venues, it has committed to employ best practices in this area.

For example, consistent project structures are evidenced in the project PEPs and in project reporting. Project planning, in most cases initiated before the establishment of Venue Development within VANOC, has been adapted to achieve a consistent approach which meets the requirements of good project management. VANOC staff have also done an admirable job of updating the original project budgeting process.

Venue Development scheduling and the integration of various project venue schedules into the Venue Development Master Schedule is an example of best practice in project management. Baseline schedules are established and reviews are completed on a monthly basis. Comprehensive schedule logs are created for all projects and tracked in the Master Schedule according to Master Schedule codes. VANOC has employed experienced schedulers with contract management background and they work closely with project managers.

Document Management

A comprehensive and integrated document management system is essential for effective management of contracts, tracking of project progress and resolution of potential claims. A document control system relying on manual filing and tracking of documents can adequately serve most small organizations. Generally, a document control system which tracks all documents from receipt by the project through to archiving are required for successful project management. Specifically this involves:

- Development of consistent handling policies for documents;
- Centralized record keeping of all project documentation;
- Development of associations between documents and contracts, change orders and the WBS;
- Integration of data across the organization and between operations and project management; and
- Elimination of the duplicate entry of data.

Partnerships BC found that Venue Development's document management system is largely managed with the use of spreadsheets, and thus, is reliant on the knowledge of key employees. As such, Venue Development is at risk of losing key employees whose specific knowledge would be very difficult to replace.

All documents created or received in Venue Development are catalogued with a unique number and are mapped against the master schedule numbers for each project and contract. This allows easy retrieval and provides a well-established audit trail for not only project management decision-making but for contract management and claims management as well.

Financial Management and Cost Forecasting

Best practices in project management recommend that financial management and cost forecasting be based on integrated systems to minimize data re-entry errors to ensure consistency of reporting. Financial management system and cost forecasting processes should be based on policies and procedures that allow project managers access to the financial management system to:

- Review and analyze input from individual contract managers;
- Review predicted cost activity against budget estimates;
- Drill down through the project WBS, and report against the WBS task levels to provide project to date summaries for task managers;
- Conduct analysis of possible scenarios at the task level;
- Compare forecast to complete against original estimates; and
- Provide notifications to ensure that financial staff and project managers are alerted to monthly commitments and variations from previously expected events established in the budget, related contracts or schedule.

The Venue Development project controls financial system is part of the overall VANOC financial controls system and is based on Navision accounting software. This system is used for all accounts payable and contract administration and is accessible only by the VANOC financial services area. The use of this system means that Venue Development does not have the opportunity to apply a standardized WBS for its projects throughout all aspects of project controls.

Partnerships BC found that the financial management aspect of Venue Development's project controls system is based on data retrieved from the accounting system; data is then manually adjusted and formatted for use in developing a Forecast Cost to Complete for each project. VANOC's financial services staff has done a good job of mapping the Navision system accounts against the master schedule codes used in project controls. Data used for the forecasts is derived from the Navision system each month, reducing the risk of compounding errors accumulating on a month by month basis in the project controls reports.

Partnerships BC found that this manual system is robust and the expertise of the project controls staff in its application is consistent with good project management reporting practices.

Contract and Claims Management

Project management best practices recommend the collection and storage of information in a central area to ensure that all contract change management information is available in one place. This allows the linking of contract change order information from requisition stage through to project completion so that:

- All decision-making is governed by references to the contract and reasons for contract changes are readily available to project managers and senior management; and
- Budgetary and expenditure controls and notifications are employed to alert project managers and financial staff to cost overruns or other change order related implications.

Partnerships BC found that contract management and document management functions in Venue Development are well organized. Document management is accomplished by assigning unique document numbers to finalized contracts which are then filed accordingly with all

associated documents. Contract management keeps all contract revisions in its own system to assist in day-to-day contract management, claim resolution and contract close. Change orders and claim resolution are resolved through a rigorous system of approvals that escalates through Venue Development senior management.

To date this system has worked well and there is no reason to anticipate problems.

3.3 Third-Party Project Controls and Project Reporting

Partnerships BC reviewed project reports for the UBC and Richmond venues, but did not do an in-depth review of the systems through which these reports are produced.

These monthly reports provide detailed information and sufficient explanation of areas such as schedule progress, contract change orders, budget updates, project governance and general project progress. The reports provide ample evidence that these projects are well managed and that Venue Development receives the information required to keep informed of project progress and the status of the projects budgets and schedules.

UBC Ice Hockey Arena

The UBC venue monthly project reports for October and November 2006 contain detailed information on areas that VANOC should have regular access to develop a familiarity with the project. These reports identify project issues and discuss management of these issues.

Based on an interview with the VANOC and the UBC venue project managers there appears to be a close working relationship on this project between UBC and VANOC. This relationship substituted for formal project reporting until a revised Venue Agreement was signed. As part of this, UBC has provided VANOC with full access to weekly update meetings as well as meeting minutes. Now that the venue agreement has been finalized and funds have begun to flow, UBC has begun to forward adequate monthly progress reports to VANOC.

Richmond Speed Skating Oval

Partnerships BC reviewed construction management progress reports for this venue for September and October of 2006. These documents contain detailed information on areas that VANOC should have regular access to develop a familiarity with the project including:

- Work progress;
- Change orders and potential change orders;
- Budget update;
- Schedule update;
- Safety update;
- Quality assurance update; and
- Environmental issues update.

Whistler and Vancouver Olympic and Paralympic (Athletes) Villages

Design briefs, master schedules, PDRs or equivalent documents (such as business plans), reporting templates, organizational structure, development agreements and PEPs or equivalent were reviewed from material supplied by the City of Vancouver and the RMOW. Both accommodation projects are at the early stages of construction, with the Vancouver Village

further advanced as result of environmental remediation requirements that resulted in an early access to a clean building site. The developer rezoning and development permit process is also complete for the Vancouver site.

Construction of the Vancouver Village is scheduled to begin in Spring 2007 and construction of the Whistler Village is scheduled to begin in 2008. The development agreements for both projects highlight the specific commitments of all parties with respect to project delivery, project milestones, accreditation, and liquidated damages provisions. In both venues, Partnerships BC considers project float⁵ to be of critical importance. When project delivery schedules indicate minimal project float, the conclusion reached is that there is no excess time between construction packages and the project is therefore viewed as higher risk. An activity that has zero or minimal float is considered a critical activity and can affect the target delivery date. For both venues, commissioning and completion is scheduled for Fall 2009 and the float is estimated to be three to five months indicating a generally tight building schedule.

3.4 Risk Management, Monitoring and Control

In January 2007, Partnerships BC examined VANOC's preliminary risk management strategic plan and implementation process. This included detailed review of the application of the risk management methodology for specific venues.

Risk management includes conducting risk management planning, identification, analysis, responses and monitoring and control of projects. The risk management process is integral to the determination of the adequacy of the capital venue budgets and management reserves.

An overall strategic risk approach was considered with input from previous Games, including post-Games analysis. Partnerships BC has not reviewed these initial inputs, however, Partnerships BC is comfortable with VANOC's resulting approach and tolerances to risk-taking and risk avoidance.

Partnerships BC found that VANOC has made substantial progress in providing the key administrative tools to enable management to make an informed and educated assessment of the cost of the venues and the likelihood that the projects will be delivered within schedule and budget objectives. As of January 2007, VANOC's approach to risk management has matured considerably. The tools and processes are in place, and identifying, allocating and mitigating risk is a key part of daily management of each of the projects.

Since Partnerships BC's initial review in August 2006, VANOC has completed and implemented a comprehensive Enterprise Risk Management program for venue delivery.

The risk management plan, adopted by VANOC's Board of Directors, identifies the following corporate objectives:

- Establish a vision for risk management at VANOC as well as a well-defined and communicated risk management plan for use throughout VANOC's lifecycle;
- Support consistent and relevant application of risk management process across functions and among various levels of employees to support enterprise-wide risk management throughout the planning, development, operational and dissolution stages of VANOC;

⁵ Float refers to the amount of time that an activity can slip past its earliest completion date without delaying the rest of the project.

- Ensure that the Board of Directors and appropriate committees are properly informed of risks and associated strategies;
- Integrate into existing activities and processes the functions to enhance, rather than encumber, decision-making;
- Provide for the assignment of responsibility and accountability for risk management among VANOC employees; and
- Enable knowledge transfer to build a risk management legacy for future organizing committees.

VANOC's strategic risk management plan groups risks to the Games in four areas:

- Financial risk (revenue generation, financial loss);
- Operational risk (technology, staffing);
- Hazard risk (weather, natural disaster); and
- Strategic risk (reputation, political).

The risk management plan output includes the following:

- Common risk language and framework;
- A communications plan for introducing, implementing, monitoring and improving risk management;
- Establishment of VANOC's risk tolerance and materiality metrics by function;
- Data capture processes to aggregate risk issues revealed by monitoring of risk issues and resolutions;
- Identification, analysis, planning and implementation of risk strategies specific to VANOC's resources;
- Guidance for resource allocation through risk management strategies; and
- Overall integration of risk management processes in both the financial and operational areas of VANOC.

The risk management plan describes how risk management will be structured and performed on venue projects and how it is integrated with PEPs.

Through review of policies and procedures and interviews with project venue directors and executive sponsors, Partnerships BC found that VANOC's risk management process is well-developed. Further, the process continues to evolve as venue construction progresses.

Responsibility for risk management and control has been formalized with the addition of a full time risk management position at the executive level reporting to VANOC's chief financial officer. This position is supported by two internal auditors.

The risk register identifies the risks that could affect the successful delivery of the projects and documents the characteristics of those risks. Partnerships BC reviewed the venue risk register and found the elements and structure to be within current best practices.

The major elements of the risk register include:

- Risk description which includes in excess of 30 elements;
- Impact and severity which represents a measure of the potential magnitude of the risk should it materialize in any given fiscal year after recoveries are made from insurance or other third parties;

- Impact on non-financial criteria is also acknowledged and includes elements such as reputation and athlete performance;
- The likelihood of such risks occurring are applied to each element by a probability distribution;
- Current controls and additional risk mitigation measures are described; and
- The risk mitigation owner is identified.

Risks are rated according to the severity of impact and the likelihood of occurrence. Partnerships BC found that senior management works closely with venue project management teams to rate risks. This results in project managers having a significant involvement in the management of risk.

The Top Risks Register is used as an executive management tool to keep track of those projects that have risk ratings above a defined tolerance threshold, and these risks are assigned to executive vice-presidents for ongoing review.

The risk register is updated with information from the qualitative and quantitative risk analysis activities, and this information becomes part of the PEP for each project. VANOC reports that an updated risk register report for all venues was completed in January 2007 and that this update includes broad participation of key project individuals in the risk identification process. Partnerships BC strongly encourages this process.

Participants should, and in VANOC's case do, to a large extent, include the venue project manager, project team members, the risk management team, subject matter experts, users of the venue, project managers from other venues, stakeholders and risk management and insurance experts. Partnerships BC's experience in risk management suggests that for project managers to maintain ownership of and responsibility for the risks and response actions such open, transparent and inclusive meetings are required. Partnerships BC notes that VANOC is employing Marsh Ltd. as advisors in the risk process. Marsh has valuable insight, having been involved in risk management for many prior Games.

VANOC is using the risk monitoring process to update the project risk contingency calculation to determine if overall project risk for venues under their direct control has decreased and if trends indicate more or less risk management intervention.

4. Assessment of Venues

4.1 Low Risk Venues

Partnerships BC determined venues to be of low risk in terms of not meeting budgets or schedules where the following conditions were present:

- Capital budgets are small;
- Schematic design has progressed to working drawings and shop drawings;
- Schedule has significant float;
- Venue is significantly complete;
- Venue is currently on schedule and on budget; or
- Third-party agreement effectively transfers risks away from VANOC.

Based on a review of information current as of March 2007, the following venues have been determined to be at low risk. Each venue is discussed briefly below.

Venue ⁶	VANOC Capital budget ⁷	Anticipated Completion Date
Whistler Nordic competition venue	\$119.7 million	Fall 2007
Richmond Speed Skating Oval	\$63.1 million	Fall 2008
UBC ice hockey arena and Sledge Hockey	\$38.5 million	Summer 2008
Whistler alpine	\$27.6 million	Fall 2007
Hastings Park skating venue	\$23.7 million	Fall 2007
Cypress venue	\$15.8 million	Fall 2007
Training venues (Killarney/Trout Lake)	\$5.4 million	Fall 2008
BC Place upgrades	\$3.3 million	Winter (December) 2008
Whistler Conference Centre (media)	\$3.0 million	Complete

4.1.1 Whistler Nordic Competition Venue

VANOC is directly delivering the Nordic venue.

The venue construction work is not complex. Development includes building 14 kilometres of competition trails and eight kilometres of training trails for cross-country and biathlon; two ski jumps (normal hill and large hill) and an additional 20 to 25 kilometres of recreational trails. The scope of this venue has not changed materially.

⁶ Numbers and dates are taken directly from Vancouver 2010 Interim Financial Statements for period ending January 31; released March 15, 2007. Page 13.

⁷ These figures include value-in-kind contributions and thus the total venue budgets sum to \$586.6 million. Figures throughout Section 4 include value-in-kind contributions.

The budget for this venue is \$119.7 million. Approximately 76 per cent of contracts have been awarded, and approximately 48 per cent of the work has been completed⁸. The biathlon venue and ski jump run-out are substantially complete. The major element to be constructed includes the ski jumps and related facilities.

The venue could face budget pressures on the ski jump and related facilities as the construction market in Whistler will be very active in the 2007 construction season.

The project is currently behind schedule; however, the project managers expect to make up this delay and meet the projected Fall 2007 completion. This date is not critical and provides for plenty of float time to have the venue completed and operational for 2010. The schedule delay could lead to contractor claims after the project is completed.

4.1.2 Richmond Speed Skating Oval

The Richmond Speed Skating Oval is being delivered through a third-party agreement between VANOC and the City of Richmond.

The project will be a 33,750 square metre facility which will house a 400 metre track; state-of-the-art ice plant and air quality and climate controls. The VANOC contribution for the venue is \$63.1 million and completion is scheduled for Fall 2008. Through the third-party agreement, VANOC has successfully transferred most of the financial risk for this project to the City of Richmond. VANOC's contribution was provided with the understanding that no additional funds will be provided.

The scope for this project has been increased by the City of Richmond. However, due to the nature of the third-party agreement, VANOC does not bear the risk of additional costs related to this type of scope increase.

The total construction budget is \$151 million. More than 91 per cent of the contracts for construction work have been signed and as a result, the project team has a significant level of cost certainty.

Based on VANOC's \$63.1 million, more than 96 per cent of contracts for construction work have been signed.

Construction began in September 2005. VANOC has noted that the current scheduled completion date of Fall 2008 is behind the original schedule of Summer 2008. VANOC is working with the project management team to review options to advance the schedule. The project management team is confident the venue will be ready for the first event scheduled for December 2008.

The City of Richmond announced in March that it had reached an agreement to sell and lease the 18.6-acre Oval Riverfront Lands to ASPAC Developments Ltd. for a total of \$141 million. The City required \$43 million from the project lands agreement proceeds to support the completion of the project. This agreement exceeds that requirement and fulfils the City Council's commitment that no borrowing or property tax increase would be used to fund the

⁸ Percentage committed or awarded figures provided by VANOC. For VANOC-delivered venues, percentage complete is measured as work for which invoices have been received and paid.

construction of the project. The balance of the funds will be applied to community legacy projects.

4.1.3 UBC Ice Hockey Arena/Sledge Hockey Arena

The UBC ice hockey arena, the venue for ice hockey and sledge hockey, is being delivered through a third-party agreement with UBC. UBC is developing the centre on the site of the existing Thunderbird Winter Sports Complex. The redevelopment includes the refurbishing of the existing competition arena and the construction of two new rinks. One of these will be used for training, the other will be a 7,000-seat competition facility. Construction began in April 2006 and will be substantially completed by Summer 2008.

Construction of the facility is well underway and the contractor reports that more than 90 per cent of the work has been sub-contracted. Although there has been no formal reporting relationship between VANOC and UBC, VANOC has been very involved throughout the construction process. UBC is expected to begin providing monthly reports to VANOC for the duration of the project.

Budget risk is limited through the third party venue agreement, whereby VANOC has provided a fixed amount of \$38.5 million.

Based on September 2006 reports from the project management team, venue construction is on, and in some areas ahead, of schedule. There is some indication that ice installation may be delayed as a result of delays related to the installation of the refrigeration plant.

4.1.4 Whistler Alpine

The alpine venue is being developed directly by VANOC. The capital budget is \$27.6 million.

Olympic and Paralympic events will take place on the Dave Murray Downhill and Franz's Run. Improvements for the Games include contouring and reshaping both courses, additions to the existing snowmaking system and an enhanced reservoir for snowmaking.

Intrawest, the current operator of this recreation area, has been contracted by VANOC to act as the construction manager for this project. VANOC has adopted specialized project management strategies to mitigate the potential conflict of interest that arises when the current owner/operator is also the project manager. The potential conflict arises because the owners, who will benefit from the improvements, are responsible for improvements being done at taxpayers' expense. VANOC's experienced project manager works closely with Intrawest, and in general, it is VANOC entering into contract agreements with the parties who will complete the improvements.

The scope of the project consists mostly of changes to the courses and it is not a technically challenging project to construct. Enhancements to the snowmaking infrastructure are the most complex piece of work; however, Intrawest, the operator of the current ski hill operation, is also the contractor for upgrades. This benefits the project because Intrawest is experienced and knowledgeable, and has access to local and experienced subcontractors.

The project is on budget with almost 70 per cent of contracts for construction signed or committed and over 48 per cent of the planned work completed. However, pressures remain on integration of pump station design with snowmaking equipment.

Improvements began in Summer 2006 and are to be completed, on schedule, by Fall 2007.

4.1.5 Hastings Park Skating Venue (Coliseum)

Upgrades to the Coliseum are being delivered directly by VANOC. The capital budget for upgrades is \$23.7 million.

Upgrades include structural and cosmetic renovations to address Games and community needs. The replacement of nearly 16,000 seats at the Coliseum and the expansion of the ice surface to international size have been completed. The balance of the building and technical changes for the Coliseum include ice plant improvements and upgrades to washroom facilities, concession space, building Heating Ventilation Air Conditioning (HVAC) and dehumidification systems. Approximately 25 per cent of contracts for this work have been signed or committed and work is approximately 20 per cent complete.

There is considerably flexibility in the scope, in terms of the structural and cosmetic upgrades, many of which are not strict requirements for the Games. Since the scope has considerable flexibility, the budget is not considered to be a material risk to VANOC's overall budget.

The project is on schedule for completion in Fall 2007.

4.1.6 Cypress Freestyle and Snowboard Venue

The Cypress Freestyle and Snowboard venue is being delivered directly by VANOC. The capital budget is \$15.8 million.

VANOC has contracted with Cypress Bowl Recreations Limited Partnerships (CBR), the current operator, to be the construction manager for this project. As such, CBR will report on all aspects of project management, and VANOC's project control system will monitor and report on the project.

VANOC has adopted specialized project management strategies to mitigate the potential conflict of interest that arises when the current owner/operator is also the project manager. The potential conflict arises because the owners, who will benefit from the improvements, are responsible for improvements being done at taxpayers' expense. VANOC's experienced project manager works closely with CBR and in general, it is VANOC entering into contract agreements with the parties who will complete the improvements.

Venue upgrades include modifications to existing runs, a new in-ground halfpipe, a full snowmaking system and water reservoir, lighting, a new freestyle site for aeriels and moguls, and a re-graded parallel giant slalom course. The scope has not changed materially.

Contract commitments are approximately 72 per cent of the budget; and work completed is approximately 47 per cent. Partnerships BC suggests this venue may require a draw on the management reserve. However, given the overall budget for this venue, any such draw is not likely to materially affect VANOC's total venue budget.

Construction began in May 2006 and is currently ahead of schedule for completion by Fall 2007.

4.1.7 Training Venues

Ice rinks at Killarney and Trout Lake will be used as skating practice surfaces. VANOC's capital budget for upgrades to these facilities is \$5.4 million and they are scheduled for completion by Fall 2008 for Killarney and Spring 2009 for Trout Lake.

PDRs for each venue indicate potential budget and schedule pressures. Both training venues will be built to Leadership in Energy and Environmental Design (LEED) Gold standard, which results in a cost premium over conventional building techniques. However, the VANOC contribution is fixed and therefore, these venues are assessed as having low risk of impacting VANOC's overall budget. Because these are slated as training venues, there is minimal risk associated with schedule.

4.1.8 BC Place

BC Place, planned to house the opening and closing ceremonies, is being delivered directly by VANOC. The budget for upgrades is capped at \$3.3 million and the venue is expected to be complete by Winter of 2008.

Although recent events have turned the public's attention to the ability of this site to host the opening and closing ceremonies, VANOC does not bear contractual risk associated with the existing state of the roof of the venue.

4.1.9 Whistler Media Centre

The Resort Municipality of Whistler undertook upgrades to the Whistler Conference Centre to serve as the Whistler Media Centre. The facility will include the press centre and the mountain broadcast centre. The Whistler Conference Centre provides 3,258.5 square metres of functional space for the 2010 Games broadcast and press operations.

The Whistler Conference Centre underwent a \$12 million upgrade in 2003. Under the terms of the venue agreement for the Whistler Conference Centre, VANOC provided a capital contribution of \$3 million in respect of the cost of these improvements.

4.2 Venue Challenges

Partnerships BC determined that venues faced moderate risks where:

- Capital budgets are high;
- Work is at a preliminary stage; or
- Current progress indicates significant challenges with budget or schedule.

Partnerships BC concluded the following venues should be considered as moderate risk venues at this time. For these venues, Partnerships BC completed more in-depth assessment. The following discussions point out areas requiring ongoing high levels of diligence to ensure challenges can be met.

Venue	VANOC Capital Budget	Anticipated Completion
Whistler Sliding Centre	\$104.9 million	Winter 2007 (December)
Hillcrest curling venue	\$38.0 million	Fall 2008
Whistler Village ⁹	\$37.5 million	Fall 2009
Vancouver Village	\$30.0 million	Fall 2009
Whistler Athlete Centre	\$16.0 million	Fall 2008/Fall 2009

*These figures include value-in-kind contributions and thus the total venue budgets sum to \$586.6 million. Figures throughout Section 4 include value-in-kind contributions.

4.2.1 Whistler Sliding Centre

VANOC is directly delivering the sliding centre. The capital budget is \$104.9 million and the scheduled completion date is Winter 2007 (December).

Venue development includes construction of a new 1.7 kilometre concrete sliding track, refrigeration facilities and access road, rock cuts and large retaining structures and refrigeration buildings and other games related structures.

Construction began in June 2005. Almost 90 per cent of the contracts have been awarded or committed. Approximately 52 per cent of total planned work has been completed. It is significant to note that 10 of 23 sections of the track have been successfully constructed on schedule. Early quality management issues have been rectified to VANOC's satisfaction and the project management is confident they now understand the methodology required to produce the remaining sections.

Both the budget and schedule are considered to be at moderate risk. There are a large number of contractors working on the site, and this could lead to issues with contractor coordination which may result in claims related to delays and/or quality of integrated work. In addition, quality control issues with respect to the track are likely to continue to be complex. The tolerances and quality requirements of the track require highly skilled workers who can lay concrete over a steel frame and refrigerant tubing. As a result, the level of productivity achieved in 2006 may not be replicated in 2007 if new work crews must be trained. The back-end commissioning of this site, including timing mechanisms, broadcast media requirements and refrigeration, is extremely complex; however, VANOC believes the schedule has enough float to allow for testing and rework.

Partnerships BC completed its own risk analysis of this venue and determined that there is a strong likelihood that specific risks may result in claims on the project budget after completion. Overall, Partnerships BC reviewed five areas of risk: cost of materials; fire hazard; adverse weather affecting construction seasons; contractor coordination; and homologation (approval from IOC). For the first three risks, Partnerships BC's analysis resulted in a reduction of the expected value of the risk, compared to VANOC's analysis. However, for the last two risks, Partnerships BC concluded the expected value of the risk is significantly higher. Overall the differences in conducting a risk analysis using Partnerships BC approach would not result in a material difference from VANOC's methodology.

⁹ Includes First Nations Housing component.

4.2.2 Hillcrest Curling Venue

The Hillcrest curling venue is being delivered through a third-party agreement between VANOC and the City of Vancouver.

The scope of the project has changed from the bid book phase from a standalone building to a consolidated building including both the Hillcrest curling rink and the Percy Norman Aquatic Centre. The buildings are now joined by a shared concourse.

Construction is scheduled to start in Spring 2007 with a completion date of Fall 2008. VANOC's contribution to the facility is \$38 million, including \$28 million as a construction contribution and \$10 million for changes to the venue after the Games.

The curling venue is being constructed as part of a community aquatic and recreation centre, and as such, there are architectural complexities related to both the physical integration, and the decision-making structure for the venue. The total project costs are estimated to be \$79.1 million in as-spent dollars (with escalation). The project is currently at an early stage with 30 per cent working drawings complete. Approximately 11 per cent of the contracts have been awarded or committed.

The post-Games conversion includes some 9,600 square metres of building area. The post-Games conversion project involves renovation to the existing building. The major elements would include partitions and doors, mechanical and electrical and interior finishing.

The City estimates the cost of the conversion if completed in 2011, at \$10 million. This figure does not include costs for planning and administration, contingency and past mid-point escalation. These costs could add an additional \$2 million to the project.

Partnerships BC has reviewed the estimated costs per square metre to convert such a facility in current dollars and finds the costs to be reasonable.

The risk that the conversion will exceed \$10 million has been passed to the City of Vancouver. The City of Vancouver may alter the scope of the project; however, VANOC's commitment is fixed through the third-party agreement. For example, the City expects to build the facility to a LEED Gold level, although this was not contemplated in the original scope. If the City makes this decision, it will be responsible for associated costs.

The VANOC portion of the budget is not expected to be at risk for this project. The schedule presents a challenge because the project is in early planning stages. However, given the planned completion for Fall 2008, the project is not at risk of being incomplete for the Games.

VANOC will update its risk assessment related to this project in future risk analysis as design advances to working drawings.

4.2.3 Whistler Village

The Whistler Village will accommodate athletes and officials participating in Olympic snow and sliding competitions and Paralympic Games. As agreed to by VANOC, the RMOW, and the IOC, the village will include 2,050 beds and will be located in the Lower Cheakamus Valley.

In 2005, the RMOW created Whistler 2020 Development Corporation (Whistler 2020) as the project delivery agent. VANOC has entered into an agreement with RMOW and Whistler 2020 to provide a financial contribution to the capital costs of design and construction of the permanent facilities and for site servicing in the amount of \$31 million. A final agreement regarding \$6.5 million for First Nations housing, as part of this venue development, is under discussion.

Whistler 2020's mandate is to manage the design and development of the Whistler Village. All of the shares of Whistler 2020 are owned by the RMOW; the Whistler 2020 management team reports to a volunteer Board of Directors which oversees strategic management and detailed delivery of the project. The Board membership includes elected members and staff of RMOW, Whistler community representatives, and a board member from Whistler Housing Authority and VANOC. The Board is chaired by two respected Whistler-area property development professionals. Whistler 2020 is also charged with establishing a legacy neighborhood for Whistler. At this time it is assumed that the accommodations will be permanent in nature and that a high percentage of accommodation will be used after the Games for Whistler resident housing.

Partnerships BC considers the Whistler Village venue to be at moderate risk for both budget and schedule. At the time of this review, the scope for this project was not as well defined as other third-party delivered venues. Critical elements of a PEP have been prepared and outstanding items, such as risk management, will be reviewed with VANOC on a monthly basis. Building design and construction approach are not yet finalized

Although the technical aspects of housing development are well understood by Whistler 2020, Partnerships BC finds the Whistler Village to be moderate risk venue for the following reasons:

- The scale of the project is in excess of \$131 million dollars and 350,000 square feet. The building of apartments and townhouses in such scale brings new challenges with coordination of work forces;
- The building season in Whistler is shorter than other locations in B.C. and the remoteness and access to the site is an additional risk; and
- Labour availability and productivity is an acute problem for all construction projects in B.C., and is especially acute in a remote area with limited labour supply.

Whistler 2020 has acknowledged the risks associated with the construction environment in Whistler, and proposes to mitigate these risks as follows.

- The scale complexities of the project will be addressed by splitting the tender packages into smaller packages to encourage competitive tenders and local contractors, resulting in best prices overall with less exposure to providing for living expenses for crews brought in from outside the community.
- Whistler 2020 proposes to use its own forces as much as possible where risk can be best managed by the owner.
- Whistler has accelerated the civil engineering for site services to enable work to commence as soon as site conditions are favorable.
- Value engineering for road works has made the site more cost effective.
- Site preparation work has been completed and is under budget and stockpile of material is available for easy access for utility installation and foundation material for buildings and roads.

- Local development companies have been approached to build and sell some of the development parcels thereby transferring construction and market risk,
- Transferring risk is being explored, possibly by building some housing units on a cost plus agreement with interested third parties,
- Costs are being lowered through design considerations like slab on grade construction with repeat design elements.

Partnerships BC supports Whistler 2020's risk mitigation strategies and the strong governance structure. However, given the progress to date in the proposed construction schedule it is premature to view the venue as low risk. An assessment of the risk of this venue should be completed at the conclusion of the 2007 construction season.

The scheduled completion date is only three months in advance of the Games. As such, this project will face considerable schedule pressures which may result in budget increases related to acceleration for on-time completion. The critical path element at this time is the preparation for site servicing and installation and must be completed in the 2007 building season for the project to mitigate any subsequent construction pressures in the following building season.

4.2.4 Vancouver Olympic and Paralympic (Athletes) Village

The Vancouver Village, which will house approximately 2,800 people, is being delivered through a third party agreement with the City of Vancouver. VANOC's fixed contribution for the village is \$30 million; the venue is scheduled for completion in the Fall of 2009.

Through a competitive process, the City of Vancouver has chosen a developer to design and construct the Village which will consist of low and mid-rise accommodations. After the Games, the developer will sell the accommodation units.

A Village Advisory Committee was created in 2006, as stipulated in the bid agreement between the City of Vancouver and VANOC. The committee meets monthly to make recommendations and decisions on project representatives. The City's project manager provides written reports to the committee each month and VANOC's project manager meets with the City's project manager weekly.

VANOC's budget contribution is limited through the third-party agreement. Because of the nature of VANOC's role, and the early stage of development of this project, detailed budget information was not available for analysis at the time of this review.

Schedule is a moderate risk area for this venue. The City of Vancouver's Urban Design Panel has approved the developer's plan and the development permit process is complete. Review of the construction schedule and site visits confirm that substantial progress has occurred at the site. The site servicing is on schedule and preparation of the False Creek waterfront is underway. Construction is scheduled to be complete by Fall 2009. If construction begins as scheduled, there will be considerably more certainty about the schedule for this venue.

4.2.5 Whistler Athlete Centre

The Whistler Athlete Centre is being delivered directly by VANOC.

The preliminary scope for the Centre calls for a high performance centre, a lodge that will house 200 athletes and townhouses to house 150 athletes and coaches during the Games.

The preliminary budget for construction and site servicing is \$16 million and the venue was scheduled for completion by the Fall of 2008.

Since the Athlete Centre will be built within the building site of the Whistler Olympic and Paralympic Village, VANOC has entered into an agreement with RMOW to fund \$4.5 million from the Athlete Centre budget for site servicing.

Partnerships BC reviewed VANOC's updated January 2007 risk register and noted that the current estimated cost to complete this venue as originally scoped could be as high as \$36.5 million, including project contingency. This increase is largely attributable to construction inflation and pressures of a short construction season.

Subsequent to Partnerships BC's review, VANOC has indicated that the IOC has requested an additional 800 beds beyond the current scope. VANOC is currently investigating solutions, such as temporary accommodations, to meet this need. VANOC is working to finalize a solution before Fall 2007. The scope increase will result in an additional budget increase.

VANOC anticipates drawing an estimated \$25 million from the management reserve to fund the original scope and current estimated costs including the additional 800 beds.

The scheduled completion date of Fall 2008 for the 350 beds and the high performance centre, as outlined in the preliminary scope, must be met as these facilities will provide accommodation for athletes training in advance of the Games. The scheduled completion date for the additional 800 beds is Fall 2009.

The schedule for this venue is aggressive and will be complicated by factors specific to the Whistler construction environment, which have been discussed previously. The scope of the project is also complicated by its co-location with the Whistler Village, which is being developed through a third-party agreement.

This project requires a PDR and a PEP, including a contracting strategy. Partnerships BC understands these are currently under development.

Aspects of the project are under review due to scope and schedule concerns and VANOC has indicated that this project will be tightly managed from inception to completion in order to address schedule and costs risks. The VANOC project control system is adequate and should provide sufficient monitoring and reporting to VANOC Venue Construction and thus to the VANOC Board of Directors.

4.3 Venue Assessment Summary

The following tables present a summary of the Games capital venue budget. The tables separate VANOC direct delivered venues and partner-delivered venues and classifies venues according to Partnerships BC's assessment of low or moderate risk.¹⁰

	VANOC Capital Construction Budget \$ millions ¹¹	Construction Substantial Completion	% Committed ¹²	Budget Challenges	Schedule Challenges
VANOC Delivered Projects					
Moderate Risk					
Whistler Sliding Centre	104.9	Winter 2007	88.7	Moderate	Moderate
Hillcrest curling venue	38.0	Fall 2008	11.0	Moderate	Difficult
Whistler Athlete Centre	16.0	Fall 2008/Fall 2009	2.5	Difficult	Difficult
Low Risk					
Whistler Nordic competition venue	119.7	Fall 2007	75.9	Manageable	No
Whistler alpine	27.6	Fall 2007	69.8	Manageable	No
Hastings Park skating venue	23.7	Fall 2007	25.4	No	No
Cypress freestyle and snowboard venue	15.8	Fall 2007	72.2	No	No
BC Place	3.3	Winter 2008	0	No	No
Other	3.0	N/A	N/A	N/A	N/A
Total VANOC	352.0				

¹⁰ Capital budget and completion dates are from VANOC Business Plan March 2007; percentage committed provided by VANOC during course of review.

¹¹ Includes Value-in-Kind.

¹² Percentage committed reflects signed contracts and firm commitments, as tracked in VANOC costing reports, as of January 31, 2007.

	VANOC Capital Construction Budget \$ millions¹³	Construction Substantial Completion	% Funded¹⁴	Budget Challenges	Schedule Challenges
Third-Party Delivered Projects¹⁵					
Moderate Risk					
Vancouver Village	30.0	Fall 2009	100.0	No	Yes
Whistler Village	37.5	Fall 2009	82.7	No	Yes
Low Risk					
Richmond Speed Skating Oval	63.1	Fall 2008	60.6	No	Moderate
UBC ice hockey arena	38.5	Spring 2008	90.0	No	No
Whistler Media Centre	3.0	Completed	100.0	No	No
Training venues (Killarney & Trout Lake)	5.4	Fall 2008	92.6	No	Yes
Sledge grant RMOW	2.0		100.0		
Total Third Party	179.5				
Total All Projects	531.5				
Available Management Reserve	55.3				
Total Capital Budget	586.8				

¹³ Includes Value-in-Kind.

¹⁴ For third-party venues, percentage funded reflects funds released by VANOC as of March 2007.

Appendix A: List of Interviews

VANOC

Stacy Bjornson, Manager, Document Control
Bill Colguhoun, Project Scheduler
Mark Cutler, Project Manager (Whistler Village, Vancouver Village)
Dan Doyle, Executive Vice-President, Venue Development
John Eastman, Vice President, Capital Construction
John English, Director, Project Controls
Geoff Freer, Project Director (indoor venues)
Ron Holton, Vice-President Risk Management and Assurance Services,
Jan Jansen, Project Manager (Whistler Sliding Centre, Cypress)
Joe Jensen, Project Director (Whistler venues)
Rod McLeod, Project Manager (Whistler Alpine)
Tom Ng, Project Manager (Whistler Athlete Centre, Hastings Park)
Nejat Sarp, Vice-President, Villages and Accommodations
Barry Thorson, Project Manager (UBC and Richmond venues)
Jim Waugh, Project Manager (Hillcrest)
Kathy Young, Manager of Venue Finance

City of Richmond

Greg Scott, Senior Project Manager

City of Vancouver

Jody Andrews, Project Manager

UBC Properties Trust

Daniel Bock, Senior Project Manager

Whistler 2020 Development Corporation

Neil Godfrey, Project Director
Eric Martin, Chairman

Resort Municipality of Whistler

Jim Godfrey, Executive Director, 2010 Winter Games Office

Appendix B: Glossary

Allowances: the provision of a sum of money for a “deferred design decision”. Such sums are within control of the designer and cost consultant and with oversight by the project manager. An *allowance* is “intended”.

Homologation: the process of review, approval and certification of the venues as suitable for competition.

Management Reserve: sums available to the owner/client and at the control of the owner/client and cover a range of items including changes in scope or direction.

Project Contingency: after the contract is signed many things can happen that incur additional cost and the owner/client is contractually bound to reimburse. Project managers should control these expenditures. The sum of money spent is therefore contingent upon these contractual needs arising. A project contingency is for the unintended.

Project Definition Report (PDR): reports which lay out in a comprehensive way, the scope of the project to be delivered in a form that is generally accepted in the project management field.

Project Execution Plan (PEP): provides a brief description of the project and details the scope, schedule, budget, risks and contract management strategies of a project.

International Olympic Committee (IOC): the supreme authority of the Olympic Movement. Its role is to promote top-level sport as well as sport for all in accordance with the Olympic Charter. It ensures the regular celebration of the Olympic Games and strongly encourages, by appropriate means, the promotion of women in sport, that of sports ethics and the protection of athletes.

Vancouver Organizing Committee (VANOC): a not-for-profit corporation incorporated under Part II of the Canada Corporations Act.

Work Breakdown Structure (WBS): the way in which a project may be divided by level of tasks into discrete groups for programming, cost planning and control purposes.