

Due Diligence Review of the 2010 Winter Games Venue Program

May 19, 2006

Submitted to:

Canadian Heritage

International and Intergovernmental Affairs and Sport Sector

Government of Canada

Prepared by

Pacific Liaicon and Associates Inc.

Member of the SNC-Lavalin Group

Note: This is a summarized version of the PLA report to the federal government, dated May 19, 2006. Commercially confidential and personal information was removed in this public version.

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1.0 Introduction

The Vancouver Organizing Committee for the 2010 Olympic and Paralympic Winter Games (VANOC) has estimated an increase in cost of \$110 million over the current estimate of \$470 million to build the 2010 Winter Games venues in Vancouver and Whistler, British Columbia. The Government of Canada and the Government of British Columbia have been asked to agree to increase their contribution to the venues by \$55 million each. The Government of Canada has retained Pacific Liaicon and Associates Inc. (Pacific Liaicon), a subsidiary of SNC-Lavalin Inc., to provide a due diligence review of VANOC's application for compensation for additional funding.

The mandate of this study is to undertake a detailed review of the information provided by VANOC in connection with the application for the additional contribution to the capital budget, and to provide the Government of Canada with conclusions and recommendations on VANOC's capacity to build the 2010 Winter Games capital plan on time and on budget. The review included an assessment of the Engineering, Estimating, Project Management, Construction Management and Project Cost Control capacity of VANOC in each of the 15 venues.

The assessment, conclusions and recommendations included in the report have been based on the following:

- Review of VANOC project material
- Interviews with VANOC management
- Interviews with VANOC project managers
- Telephone conversations with the quantity surveyor and the Bid Book 2002 author
- Collaboration with Partnerships BC personnel who are providing a similar assessment and report on behalf of the Province of British Columbia.

The project deliverable required under this agreement is a summary report on the study findings, conclusions and recommendations for VANOC in going forward. They are all duly contained in the relevant sections of this report.

Acknowledgements

This review was carried out with the full cooperation of John Furlong and his team at VANOC, and in collaboration with Partnerships BC, which is providing a similar due diligence report to the Province of British Columbia. We would like to thank the management, project managers and other VANOC personnel who made their time available to us and guided us through volumes of information, and to the personnel of Partnerships BC with whom we collaborated on this review and assessment.

2.0 Review Process and Methodology

2.1 Review of VANOC Materials

The due diligence review process commenced on May 4, 2006, with the review of relevant documents provided by VANOC. A list of the materials provided by VANOC and reviewed by Pacific Liaicon is provided in Appendix 2.

2.2 Meetings and Interviews

Following review of the documents provided by VANOC, Pacific Liaicon contacted Partnerships BC, VANOC management and project managers to arrange meetings or interviews by telephone. A list of the meetings and interviews is provided below. For the purpose of brevity, Pacific Liaicon's attendees are not included in the list below. Meetings and telephone conversations were generally attended by at least two of Pacific Liaicon's review personnel.

Detailed records of some of the telephone conversations and minutes of meetings are being provided separately.

List of Meetings and Telephone Conversations

M = Meeting T = Telephone	Attendees	Subject
M#001	Partnerships BC Al Sakalauskas Eva Hage BC Olympic Games Secretariat Annette Antoniak Jeff Garrad	Partnership BC's due diligence review on behalf of the Province of British Columbia
M#002	VANOC John Furlong, CEO Rex McLellan, Senior VP and CFO Dave Cobb, Senior VP, Revenue, Marketing & Communications John McLaughlin, VP & Controller Terry Wright, Senior VP, Service Operations and Ceremonies Steve Matheson, Senior VP, Venue Construction Partnerships BC Al Sakalauskas Eva Hage	Status of projects with VANOC senior management

M = Meeting T = Telephone	Attendees	Subject
M#003	VANOC John McLaughlin, VP & Controller Todd Kobus, Financial Manager Kathy Young, Manager Venue Finance John English, Director Project Control Steve Matheson, Senior VP, Venue Construction BC Ministry of Economic Development, Olympic Secretariat Chris Lee Partnerships BC Al Sakalauskas Eva Hage	Additional venue project budget and cost control details
M#004	VANOC Steve Matheson, Senior VP, Venue Construction Kathy Young, Manager Venue Finance John English, Director Project Control Terry Levens, Procurement Manager Stacy Bjornson, Document Control Carol Rowan, Scheduling BC Ministry of Economic Development, Olympic Secretariat Chris Lee Partnerships BC Al Sakalauskas Eva Hage	Venue project control with Project Services staff
T#001	Concert Properties Inc. Bob McKay, Senior Vice President	2002 Bid Book Development
T#002	BTY Group Joe Rekab Toby Mallinder	2002 Bid pricing
M#005	VANOC Erica Bowers, Contract Administrator, Whistler Sliding Centre	Whistler Sliding Centre
M#006	VANOC Steve Matheson, Senior VP, Venue Construction Doug Ewing, Project Manager	Whistler Nordic Centre
M#007	VANOC Steve Matheson, Senior VP, Venue Construction Barry Thorson, Project Manager	UBC Ice Hockey Arena
M#008	VANOC Steve Matheson, Senior VP, Venue Construction Barry Thorson, Project Manager	Hastings Park Skating Venue

M = Meeting T = Telephone	Attendees	Subject
M#009	VANOC Steve Matheson, Senior VP, Venue Construction Barry Thorson, Project Manager	Richmond Speed Skating Oval
M#010	VANOC Steve Matheson, Senior VP, Venue Construction Jim Waugh, Project Manager Kathy Young, Manager, Venue Finance Partnerships BC Mark Miles	Hillcrest Curling Rink
M#011	VANOC John Eastman, Director, Outdoor Venues Rod MacLeod, Project Manager	Whistler Alpine (Creekside) Venue
M#012	VANOC John Eastman, Director, Outdoor Venues Jan Jansen, Project Manager Ed Gohl, Site Manager Kathy Young, Manager, Venue Finance	Whistler Sliding Centre
M#013	VANOC John Eastman, Director, Outdoor Venues Rod MacLeod, Project Manager	Cypress Freestyle and Snowboarding Venue
M#014	VANOC Steve Matheson, Senior VP, Venue Construction Jim Waugh, Project Manager Kathy Young, Manager, Venue Finance Terry Wright, Senior VP, Service, Operations and Ceremonies	Vancouver Training Venues, Sledge Hockey Arena, Vancouver Village and GM Place

2.3 Evaluation of Findings

Following the meetings and telephone conversations with Partnerships BC, VANOC and others as noted above, Pacific Liaicon held internal meetings to discuss, analyze and evaluate the findings.

2.4 Reporting/Deliverables

Verbal progress reports on Pacific Liaicon's findings and preliminary conclusions and recommendations were provided to the Government of Canada throughout the study period. This enabled Pacific Liaicon to keep the Government of Canada abreast of the study findings and to obtain early feedback. As such, this report provides written confirmation and detailed documentation of Pacific Liaicon's due diligence review, conclusions and recommendations provided earlier.

3.0 Assessment – Findings

3.1 Venues – Scope, and Budget

Based on our interviews with VANOC management and project managers and a review of relevant documents, we have addressed each of the major venues and have provided our assessment of the “Current Status” of those venues.

The issue of the project going over the \$580 million figure is that a large portion of the contingency included in the \$580 million, has already been consumed. In a meeting on April 13, 2006, the Senior VP, Service Operations and Ceremonies indicated there was only about \$13 million left. Our past experience in managing large projects is that the contingency starts coming into play in the construction and check-out stages of the project, not in the beginning of the conceptual engineering stage. Another issue is that only three venues are completed or are close to completing their engineering – the UBC Ice Hockey Arena, Whistler Nordic Centre and the Whistler Sliding Centre. The rest of the venues are either in the conceptual diagram stage or just starting detailed engineering, which means there is not enough information to develop a good estimate and a procurement plan. The procurement plan must be married with the estimate to develop the Capital Cost Budget. This is a crosscheck of the estimate to see that all of the goods and services are accounted for to complete the project. The budget and a meaningful cost reporting system are the tools to control the cost throughout the project and this is not yet in place. The enthusiasm of the venue project managers about their value engineering review can and has led to optimism; however, our past experience is that conceptual diagrams or schematics for estimating have many missing items. The design of Olympic venues is only undertaken every four years, so there is not much past estimating data to rely upon. Therefore, an appropriate contingency is required to cover the following items:

- Demands by the stakeholders during and after final negotiations
- Overlooked items that are clearly required to complete the original scope and size of the venue
- Soft spots in equipment and materials quantities
- Soft spots in site preparation and piling quantities
- Soft spots in structural configurations quantities
- Late delivery or shortage of critical materials
- Premium time
- Construction labour inefficiency
- Adverse weather conditions during construction on the outdoor venues
- Inevitable design changes which will be proposed by the Sports Federations and IOC upon final inspection and/or trials.

All of the information we have reviewed seems to have lumped contingency and escalation together. Contingency for the total project should be removed from all the individual cost items and combined and designated as a separate cost item with very rigid procedures, policies and

approval process on its access by the individual venue project managers. In terms of escalation, this is a real unknown and will only become clearly defined when VANOC receives its tenders and awards its contracts.

In the meantime, the best one can develop in terms of an escalation forecast should be to cover anticipated specific increases to the base costs used in the estimate wherein every escalation rate is product and delivery time specific. Examples of specific items are:

- Unit prices on earth and rock
- Unit prices on trenching
- Unit prices on concrete
- Structural and reinforcing steel
- Wood products
- Electrical materials
- Labour.

All of the venues being assessed depend upon each project manager to complete them on schedule and, on or under budget. Some managers have to contend with the contract strategy that has adopted the “construction management without risk” approach and therefore no real incentive on the part of these contractors to control costs. Some venues also have large unit price contracts and the final cost will not be known until the work has been completed. Due to the importance of having the project managers committed and focused on the objectives of budget and schedule, it is suggested that VANOC consider setting up a bonus incentive for the key project personnel who meet their goals, so that they keep continuous pressure on the contractors.

1. Richmond Speed Skating Oval Venue

Scope: A new facility that is being built in Richmond along the river on unstable soil that requires extraordinary foundation preparation, including preloading to minimize long-term and differential settlement and piles to support the structure.

* Cost to VANOC: \$62.7 million grant
(Bid Book amount was \$63.7 million)

2. UBC Ice Hockey Arena Venue

Scope: Two new rinks and the renovation of one existing rink.

Current Status: A design-build contract has been awarded to Bird Construction. Work has just started.

*Cost to VANOC: \$37.6 million grant
(Bid Book amount was \$35.8 million)

3. Hillcrest Curling Venue

Scope: A 5-sheet curling rink for the Olympics, to be retrofitted to a 4-sheet curling rink, a hockey rink and a recreational centre for the City of Vancouver.

This facility will be built in conjunction with the City's swimming pool and other recreational facilities. The management responsibility for the combined project is with VANOC.

*Cost to VANOC: \$37.1 million
(Bid Book was \$28.3 million)

Current Status: Conceptual design will be completed in May for a re-estimate completion date of May 22, 2006.

Accordingly construction drawings have not started.

Plan is to complete site preparation construction November 2006.

VANOC is to manage the entire complex including the City's portion.

* Based on the assumption that the \$580 million budget will be approved and additional funding provided by the Federal and Provincial Governments. This note applies to all venues.

4. Whistler Sliding Centre (WSC) Venue

Scope: Bobsled, luge and skeleton runs
Refrigeration plant, control buildings and guest building.

*Cost to VANOC: \$99.9 million
(Bid Book was \$55 million)

Current Status: Buildings are left to award.
Construction started in 2005, clearing and excavation for the sliding track.
Work will be shut down in the winter months.

5. Whistler Athletes Village

Scope: Village is to house 2,050 athletes.

*Cost to VANOC \$37.5 million grant
(Bid Book amount was \$32.5 million)

Current Status Very little progress.

The Whistler Group wants to be in the ground this spring.

Even though time is fast running out on this greenfield site, with its inherent soils and permitting issues that need to be addressed, engineering has not started pending Provincial approval on other financing arrangements.

6. Whistler Nordic Competition Venue

Scope: Two ski jump hills
Cross country stadium and trails
Biathlon stadium/shooting range and trails

*Cost to VANOC: \$115.7 million
(Bid Book was \$102 million)

Current Status: 5 contracts let. The two large ones, the north and south sites civil works,

were awarded as unit price contracts.

The remaining 9 contracts will be let by the end of June 2006.

Extensive value engineering has been done to reduce costs to keep it within budget.

7. Whistler Athletes Centre

Scope: Long-term accommodations, training, administration and service space for athletes.

*Cost to VANOC: \$16 million
(Bid Book was \$13 million.)

8. Whistler Alpine Venue

Scope: Widening the race courses, developing new training courses, installing snowmaking systems on the race and training courses.

VANOC is responsible, but Intrawest, based on this being their hill and being familiar with the requirements and contractors, are acting as Construction Manager, but are not at risk for any cost overruns.

*Cost to VANOC: \$26.2 million
(Bid Book was \$23.1 million)

Current Status: Engineering is complete except for the pump and compressor stations.
\$11.2 million has been contracted, much of it in equipment, and it came in \$2 million under budget. Much of the snowmaking equipment comes from the USA and VANOC benefited from the strong Canadian dollar.

9. Hastings Park Skating Venue

Scope: Widen ice sheets and related changes in the Pacific Coliseum and Agrodome.

*Cost to VANOC: \$25.7 million
(Bid Book amount was \$23.1 million)

Current Status Coliseum ice sheet is out for tender. The rest of the project is in conceptual stage.

10. GM Place Upgrades

Scope: To convert the GM Place ice rink from an NHL-size rink to the larger Olympic requirement, including additional refrigeration equipment and realignment of the seating, and then returning it to its original condition after the Olympics.

*Cost to VANOC: \$14.5 million
 (Bid Book was \$5.0 million)

Current Status: Negotiations with IOC are ongoing to have them approve the use of NHL-size rinks, which could eliminate the need for the planned conversion. Possible decision by IOC in next couple of weeks.

11. Training Venues (Killarney and Trout Lake)

Scope: City of Vancouver providing use of new ice rinks at Killarney and Trout Lake.

*Cost to VANOC: \$5 million contribution (\$2.5 million for each facility)
 (Bid Book was \$7.10 million)

12. General Venue Planning

Scope: Venue planning and scope development over life of the venue program.

*Cost to VANOC: \$2.6 million
 (No budget in Bid Book.)

Current Status: \$600,000 spent to date.

 VANOC anticipates requiring a further \$2 million for various cost, design and business planning consultants to optimize venue planning and designs.

13. Cypress Freestyle and Snowboarding Venue

- Scope: Facilities for snowboard races, moguls, aerials, and halfpipe.
VANOC is responsible but Cypress Mountain is the construction manager, although not at risk for any cost overruns. This arrangement is similar to and for the same reason as retaining IntraWest at Whistler.
- *Cost to VANOC: \$14.6 million
- Includes a \$2.5 million contribution to the chair lift being built by Cypress.
(Bid Book was \$10.9 million)
- Current Status: Drawings are complete.
No contracts awarded.

14. Vancouver Athletes Village

- Scope: Athletes Village to be built in South False Creek by the City of Vancouver.
- *Cost to VANOC: \$30 million
(Bid Book was \$30 million)

15. Whistler Paralympic Arena (Sledge)

- Scope: Hockey arena for paralympic athletes.
- *Cost to VANOC: \$20 million
(Bid Book was \$20 million)

16. Whistler Media-Conference Centre

- Scope: Expansion of Whistler Convention Centre.
- *Cost to VANOC: \$3 million
(Bid Book was \$3 million)

17. BC Place Upgrades

Scope: Site of opening and closing ceremonies and award presentations.
Increasing accessibility to building for persons with disabilities.

*Cost to VANOC: \$3.8 million
(Bid Book was \$2.5 million)

18. International Broadcast Centre

Scope: Was to be an International Broadcast Centre in Richmond. Now relocated to Vancouver Convention & Exhibition Centre.

*Cost to VANOC: \$0
(Bid Book was \$15 million)

3.2 Schedule

Progress to date and the latest completion dates are shown in the schedule in Appendix 2.

It should be noted that there has been a concerted effort on the part of VANOC to have the venues completed early in order to test and commission the facilities at least the winter before the Olympics and in other cases two years before in order to provide Canadian athletes with the advantage of practicing on actual Olympic venues, prior to 2010.

For example, the Whistler Sliding Centre and Nordic Competition are scheduled to be completed and ready for operations in the winter of 2007/2008, as are the Whistler Alpine and Cypress Freestyle and Boarding Venues. Appreciating that the weather and availability of experienced trades people could dictate otherwise, the jumpstart on these venues and having the experienced project management personnel in place, bodes well for VANOC achieving these dates.

The Speed Skating Oval which has been assigned to the City of Richmond is scheduled for a Winter 2008/2009 completion. The initial delays, coupled with the extended preload requirements and the fact that design is falling behind, leaves this project schedule in an "extremely tight" situation.

The UBC Ice Hockey Rink has been awarded by UBC directly as a design-build contract to a reputable contractor. As long as VANOC does not keep insisting on further design changes, UBC should be able to complete the venue by May 2008 as scheduled.

Some of the other venues however have fallen behind for reasons noted hereunder:

1. Capital cost estimate overruns due to escalation have necessitated redesign.
2. Negotiations not completed with:
 - City of Vancouver – Hillcrest
 - Orca Bay – GM Place
 - Paralympics Athletes Village – Whistler
 - Sledge Hockey – Whistler
 - Pacific Coliseum/Agrodome Upgrades to Olympic Standards – PNE
3. Awaiting CEAA (Federal Government) approval to proceed on outdoor venues.

VANOC has assembled a very experienced team of schedulers. However, as is inevitably the case, they do not dictate the schedule. They format the individual venue schedules for sequencing and time durations, but need contractors to confirm the do-ability of meeting the interim and final milestone dates. To date, there has been minimal input on most venues as the contracts have not yet been awarded.

In terms of implementation strategy, VANOC has attempted to push the detail design/Project Definition Report on the Whistler Sliding Centre and the Nordic Centre in Callaghan Valley, as these facilities have a very short construction season (due to the inability to do construction work in the winter months).

In today's construction market, schedule delays impact directly on the final cost of the venue. As such, it is critical that the outstanding negotiations be formalized, permit approvals expedited, schedule completion dates finalized and on-schedule completion be effectively forced on the project teams. Failure to do so will impact on both cost and schedule. It should, however, be noted that in the worst cast scenario, similar to Torino 2006, the venues could be delayed to just prior to the Olympic events. This would, however, result in Canadian athletes not being able to do practice runs on the actual Olympic venues as presently planned. In addition, another downside effect is that additional escalation that is presently not provided for in the \$580 million budget would be incurred.

3.3 Project and Construction Management Team

Our suggestion with regard to the organization is that it be restructured so that direction comes from the President of VANOC directly to a single Senior Vice President Venue Construction. This person is to be totally dedicated to the venue construction and given the authority and responsibility to deliver within an approved budget and schedule. In order that this Senior Vice President Venue Construction can be totally focused on delivering the venues, he or she will

have assistance from a Senior Vice President Stakeholder Negotiations and Regulatory Approvals, who will offload from the Senior Vice President of Venue Construction, the responsibility of dealing with all the stakeholders as well as, governments and regulatory agencies in terms of their involvements and permitting/approvals.

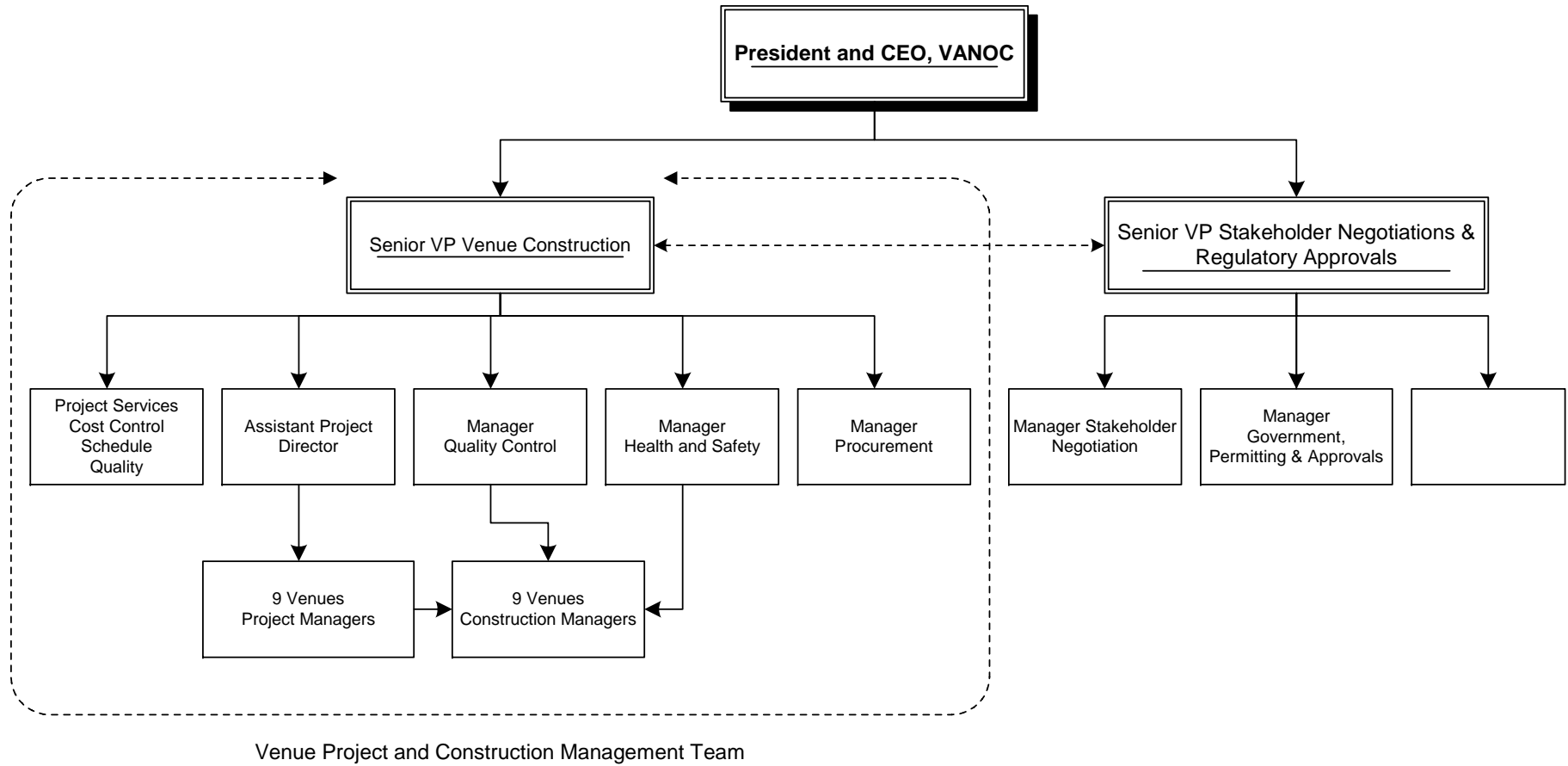
We believe the role of the Senior Vice President Venue Construction requires a person who has managed projects of similar magnitude and complexity and whose total focus would be in personally driving the design, engineering, procurement, construction, cost, schedule, safety and quality to completion.

In addition to the appointment of a new Senior VP Venue Construction, essential project policies and procedures must be developed and implemented. It is absolutely essential that the Senior VP Venue Construction, with a thorough understanding of engineering and construction, contracting, and cost and schedule control take responsibility for implementing the policies and procedures, and if it has not already been done, push to have them implemented. He needs this tool to manage the project in its entirety and especially the budget, which is still referred to as being in the “development” stage. It is also essential that the procurement plan and schedules be developed to be totally compatible with the budget structure, as cost, procurement and schedule, go hand in hand with each other.

VANOC is well aware, there is a need to expeditiously fill the remaining Project Manager vacancies. In this regard, recent experience on all major projects indicates that they are all facing the same shortage. As in these other projects, VANOC needs to be aware that it is not a matter of hiring “bodies” but engineers with experience in project and construction management. It may be too late, but if a capable team can be developed within VANOC, the present “Construction Manager Without Risk” approach adopted for a number of the venues needs to be revisited and replaced with an approach utilizing VANOC personnel committed to its objectives of on-budget and on-schedule project delivery.

Pacific Liaicon’s recommended project organization is illustrated in Figure 1.

Figure 1
Recommended Project and Construction Management Restructuring



3.4 Monthly Progress Report

We have had access to VANOC's Monthly Financial Reporting Package but a more comprehensive Project Progress report, including both financing and design/construction progress, would be the preferred approach given the evolution of scope, costs and schedule to date and the concerns resulting therefrom, and the need to keep the two Governments and the Olympic Committee formally updated on a regular basis. A suggested Table of Contents is provided below.

**Olympic 2010 Capital Project
Monthly Progress Report _____ Date _____**

Table of Contents

1. Introduction
2. Project Progress
 - Design Progress (per venue)
 - Construction Progress (per venue)
3. Environmental Impact Assessment and Management
4. Procurement
 - Consulting Contracts
 - Construction Contracts
 - Purchase Orders
5. Cost and Budget Control – A Suggested Format is attached as Attachment I
 - Forecast to Complete
 - Variance Report (Actual versus Budget)
 - Contingency Activity
6. Schedule
 - Progress Curve
 - Key Scheduling Issues
7. Status of Permits
8. Safety
9. Photographs

**Attachment I
Olympic 2010 Venues
Monthly Cost Report**

Projects	Budget	Committed This Period	Committed to Date	Forecast to Complete	Final Forecast Cost	Variance	Expenses Incurred This Month	Invoiced to Date
Direct Cost								
Richmond Speed Skating Oval								
UBC Ice Hockey Arena								
Hillcrest Curling Venue								
Whistler Sliding Centre								
Whistler Athletes Village								
Whistler Nordic Competition Venue								
Whistler Athletes Centre								
Whistler Alpine								
Hastings Park Skating Venue								
GM Place Upgrades								
Training Venues								
General Venue Planning								
Cypress Freestyle and Snowboarding								
Vancouver Athletes Village								
Whistler Paralympic Arena (Sledge)								
Whistler Media-Conference Centre								
BC Place Upgrades								
International Broadcast Centre								
Subtotal Direct Cost								
Indirect Cost								
Subtotal Indirect Cost								
Corporate Contingency								
Total Cost of Project	580,000,000							

4.0 Conclusions

Although the time for the review and assessment was fairly limited, we do not believe our conclusions would have been materially different, even if we had more time.

In terms of the request for the additional funding of \$55 million each from the Federal Government and the Government of British Columbia, we have concluded that given the present approach, VANOC will have difficulty in being able to deliver a minimally acceptable (to the IOC) package of Olympic venues within the additional capital budget funding requested. The Recommendation Section deals with how some of this concern could be mitigated.

One of the key premises for this conclusion and a very basic one is the methodology used to reassess the 2002 Bid Book Budget of \$470 million to reflect the November 2005 request for an additional \$110 million to arrive at the revised \$580 million total. During the re-estimate in early 2005 of the UBC Ice Hockey Arena and the Hillcrest Curling Rink due to design changes necessitated for these venues, the impact of an unprecedented escalation was uncovered.

In reviewing this approach with the person responsible for preparing the venue estimates for the Bid Book and given the opportunity to review the quality of those estimates, we, together with this person, questioned the approach taken to develop the \$580 million estimate.

The Bid Book documentation for each of the venues was very comprehensive with detailed estimates based on costs provided by a quantity surveyor and reputable contractors, with the two estimates being reconciled to arrive at a composite budget for the respective venues.

A copy of the Table of Contents from the 1½-inch looseleaf binder of the Hillcrest Nat Bailey Stadium Park (Curling) is attached as Figure 2. A Table of Contents format was basically provided for each of the venues and is included in this report to indicate the extent to which the Bid team went, to produce meaningful designs and estimates.

Figure 2
Extract from Bid Book Documentation

Hillcrest/Nat Bailey Stadium Park (Curling)		1
January 6, 2003		
Table of Contents		
Tab 1	Venue Fact Sheet & Bid Book Description	
Tab 2	Venue Agreement	
Tab 3	Venue Program	
	Preliminary Space Program	
	I.F. Requirements	
Tab 4	Rendering & Concept Drawings	
Tab 5	Project Definition	
	Site Analysis	
	Accessibility	
	Site Services	
	Permits	
	Building Specifications	
	Site preparation	
	Foundations	
	Structure	
	C.Y. Loh Associates letter	
	Mechanical Systems	
	Keen Engineering Summary	
	Sustainability LEEDS Summary	
	Electrical Systems	
Tab 6	Project Costing	
	BTY Budget Summary	
	Budget Notes & Assumptions	
	Going for Gold – LEEDS budget premium	
	Costing Methodology	
	Schedule “D” of the Venue Agreement	
	BTY Detailed Estimate	
	Contractor’s letter – Ledcor Construction	
Tab 7	Project Schedule	
Tab 8	Fitout Budget	
Tab 9	FF&E Summary	
Tab 10	Transportation	

Whether the revised enhanced (\$580 million) budget will be sufficient to deliver a venue package that meets IOC satisfaction is questionable. The reason for this conclusion can be best illustrated with the following examples, namely the Whistler Sliding Centre and the Nordic Centre at Callaghan Valley which are the most advanced of the venues. They have experienced the following budget adjustments:

Sliding Centre – Stantec

- Bid 2002 \$55 million
- July 2005 \$68.9 million
- 75% Design – December 2005 \$80.4 million
- Cost Report – April 2006 based on \$99.9 million
95% contracts tendered and/or awarded

Nordic Centre – Sandwell

- Bid 2002 \$102 million
- July 2005 \$117.3 million
- PDR – December 2005 \$111.341 million
- Cost Report – April 2006 based on \$115.7 million
35% contracts tendered and awarded

Even though there are contingencies in their latest estimates of the Whistler Sliding Centre and Nordic Centre, respectively, and 95% and 35% of the work has been awarded, they are not all lump sum contracts, but one or more of the following contract formats:

- Lump Sum
- Construction Management
- Unit Price
- Time and Material

Another concern regarding the venues in Whistler is availability and cost of accommodation. Whistler presents a very unique housing problem, which could necessitate contractors having to house their trades at Squamish, Pemberton and other “out of town” locations. In this very hot B.C. labour market where, even in Vancouver, it is difficult to hire qualified workers to a job, the Whistler projects with their accommodation problems could become even more of an issue. Even with the attraction of premium hours (understand the contractors are now working 60 hours), the high cost of accommodation could be a deterrent to hiring for all the Olympic and related projects once they are all underway. However, in discussion with VANOC, they seem comfortable that their work is mostly in the summer when Intrawest, the ski hill operators, do not need their employee accommodation and have provided them to VANOC. However, with all the 2010 Olympic activity, this could still be an issue.

5.0 Recommendations

It is likely that VANOC will not be able to achieve its program of venues for \$470 million. It is also abundantly clear that VANOC is not far enough along on design, completion of Project Definition Reports, or tender and award of contracts for all their venues, to be able to state unequivocally that they can deliver Olympic 2010 venues within the revised \$580 million total budget.

We therefore recommend that the Government of Canada may wish to provide the \$55 million in principle so that VANOC can move forward knowing that the \$580 million is the budget, but with funding to be released subject to the following actions being implemented:

1. Confirmation of Budget/Schedule

Confirmation by VANOC no later than December 1, 2006 (in six months) that, based on completion of outstanding Project Definition Reports and updated results of tender/award of contracts, the \$580 million is sufficient to meet the venue completion dates and all other necessary Olympic 2010 requirements.

2. Scope Management

To ensure the ability to achieve the \$580 million completion, adopt the following approach to build up further in-budget contingency to conventional levels usually provided for in projects at this stage:

- Build the Hillcrest Curling Rink within the \$28 million (Bid Book Estimate) plus reasonable escalation, and if not achievable, cancel this project and move the curling to another venue.
- Continue to push for scope reductions and still meet IOC minimum requirements. The negotiations with IOC to obtain their approval to provide NHL-size rinks as opposed to Olympic-size rinks is the type of scope reduction that needs to be pursued. Another suggestion is to negotiate for a more reasonable Leeds requirement, one that is more specific to Olympic venues, as opposed to the present requirements which were designed to be applied to more conventional use buildings.
- Continue to push for value in-kind donations from the signed and yet to be committed Corporate Sponsors.

Regardless of the recommendations noted being implemented and regardless of any success they may have in building up their in-budget contingency, with only \$13 million in contingency left at this time and with very little construction started except for the

outside Whistler venues, unless VANOC can, under the IOC rules, divert part of their \$2 billion operating budget to cover capital cost overruns including escalations, the Government of Canada may be facing an additional funding request before completion of the venues.

3. Schedule

The venue schedules are in many cases set to be completed one to two years ahead of the actual Olympic 2010 events. The reason, as noted earlier, is to allow Canadian athletes to train on “the actual venue facility.” Therefore, it is possible to accept delays in the presently planned completion dates and still meet IOC’s objectives. In addition to the negative impact on the Canadian athletes’ training program, a one or two year delay will also impact on the overall budget, given the escalation burden inherent in a delay. Also, forcing all the venues into a shorter time frame could further affect the ability to build up the necessary workforces on all the projects with sufficient skilled trades people to complete on schedule.

4. Project and Construction Management Team

As all the project venues transition into their critical stage of design and construction, we would strongly suggest that VANOC implement the restructuring approach to its Project and Construction Management team as detailed in Section 3.

The tandem of the Director, Outdoor Venues, and the Senior VP, Venue Construction, reporting directly to the President and CEO should be given the direct and total responsibility and the authority necessary to deliver the Olympic venues within the \$580 million budget and schedule as now committed.

To facilitate the reporting format and concurrently provide the Board of Directors with a more “hands-on” knowledge of the venue construction progress, it would be advisable to have the Director, Outdoor Venues, and the Chief Executive Officer report directly to a newly formed Capital Projects subcommittee of the Board.

5. Monthly Progress Report

It has been our experience that the requirement for project management to prepare and deliver a comprehensive monthly report forces individual project managers to regularly reassess in a formal forum their respective venues in terms of progress and cost on a monthly basis. It also forces them to identify issues and how they intend to deal with them.

We would recommend that such a monthly report as described in Section 3.4, with an Executive Summary provided by the Senior Vice President Construction be a further conditional requirement to be provided to the Federal and Provincial Governments.

6.0 Summary Comments and Final Recommendation

Escalation continues to run rampant in British Columbia as a result of higher material and labour costs, and the lack of competitive bids and skilled trades people, especially in the Lower Mainland. Unfortunately the Olympic venues are most vulnerable in this respect, because of their profile, schedule constraints and the fact that they are funded by the two Governments.

Projects, both public and private in which our company is involved, are also faced with the escalation factor, but in addition to the fact that the contractors are constantly being reminded of the long-term and ongoing prospects of work with our clients, creative contracting strategies are being implemented to mitigate these increasing cost factors. Critical in this approach is the need to complete design, tender and award in conventional packages, but most importantly get on with construction earlier than later. The longer construction starts are delayed, the worse the escalation and non-productivity could get.

A final recommendation to the Government of Canada, and also the Province of British Columbia, is that consideration be given to retaining an experienced construction agent to ensure that VANOC delivers on the recommended actions over the next six months, as well as having this agent oversee construction methodology, costs and schedules through to completion.

Appendix 1
List of Materials Reviewed

List of Materials Reviewed

1. Bid Book 2002 (complete set).
2. *Vancouver Organizing Committee for the 2010 Olympic and Paralympic Winter Games, Business Plan, Version 1, June 27, 2005.*
3. *2005 Venue Program, Draft, September 21, 2005.*
4. *VANOC – Project Services Overview, April 26, 2006.*
5. *Whistler Athlete Neighbourhood, Project Information Binder, April 2006.*
6. *Whistler Athlete & Legacy Neighbourhood Project Overview, Athlete & Legacy Neighbourhood Master Plan, April 2006.*
7. *Vancouver Organizing Committee for the 2010 Olympic and Paralympic Winter Games, Partnerships British Columbia Information Update, April 2006, (VANOC Venue Development Information Update to PBC), April 7, 2006.*
 - i. Project Execution Plan (PEP) – Whistler Sliding Center Venue, Whistler, BC, prepared December 19, 2005
 - ii. Project Execution Plan (PEP) – Whistler Nordic Competition Venue, Callaghan Valley, BC, prepared December 19, 2005
 - iii. Project Definition Report – Volume 1 – Final Report, Whistler Sliding Center, prepared February 17, 2005
 - iv. Project Definition Report – Volume 1 – PDR B, Nordic/Competition Venue – Draft – March 4, 2005
8. *Project Execution Plan (PEP), Whistler Creekside Alpine Skiing Venue, prepared April 11, 2006.*
9. *Project Execution Plan (PEP), Cypress Freestyle Skiing and Snowboard Venue, Cypress Mountain, BC, Draft, prepared May 3, 2006.*
10. Sample Procurement Documents:
 - i. VANOC RFP/EOI/Contract Approval Sheet
 - ii. Procurement Summary
 - iii. Request for Proposals
 - iv. Service Contract (General)
 - v. Request for Expressions of Interest and Statements of Qualifications
 - vi. Construction Management Agreement

- vii. Services Agreement, Vancouver Organizing Committee for the 2010 Olympic and Paralympic Winter Games and [Service Provider].
- viii. Contract, Vancouver Organizing Committee for the 2010 Olympic and Paralympic Winter Games and [Contractor]

11. Games Venue Agreement – UBC Winter Sports Centre (Games Venue Agreement between The University of British Columbia and Vancouver Organizing Committee for the 2010 Olympic and Paralympic Winter Games)

12. 2010 Games Venue Agreements (binder)

- i. Vancouver Hastings Part Figure Skating and Short Track Speed Skating
- ii. Vancouver Ice Hockey Practice Facility
- iii. Vancouver Hillcrest Curling and Community Centre
- iv. Vancouver Athletes Village
- v. Cypress Mountain
- vi. Whistler Athletes' Village
- vii. Whistler Sledge Hockey and Curling Venues
- viii. Whistler Nordic Centre (Callaghan Valley)
- ix. IntraWest (Whistler Blackcomb) includes Bob/Luge letter
- x. UBC Winter Sports Centre
- xi. SFU Olympic Speedskating Oval
- xii. BC Place Stadium
- xiii. Press Center (VCEC)
- xiv. Richmond Curling Club
- xv. GM Place

13. Miscellaneous Documents

- i. Organization Charts
- ii. Schedules

Appendix 2
IOC/Vancouver 2010 Venue and
Infrastructure Construction Schedule

IOC / VANCOUVER 2010 VENUE AND INFRASTRUCTURE CONSTRUCTION SCHEDULE

COMPETITION VENUES

Report No. 05 (updated May, 2006)



LOS TEAM	VENUE	SPORTS	CONSTRUCTION TYPE	CONSTRUCTION APPROACH	CONTRACTOR OR RESPONSIBILITY	DATES	FEASIBILITY STUDY	DESIGN						CONSTRUCTION TENDERING AND AWARD		CONSTRUCTION PHASE			FUNDING SOURCE	OVERLAY INSTALLATION		TEST/OPENING CEREMONY	CURRENT OWNER	FUTURE OWNER								
								PRELIMINARY		SCHEMATIC		DETAILED		CALL FOR TENDERS	AWARD	START	FINISH	RECOVER USE START		START	FINISH											
								START	FINISH	START	FINISH	START	FINISH												START	FINISH						
WINTER	Ilwaco Park (Expansion New Community Centre, temporary seating for Olympic)	Curling (2)	New	Design/Bid/Buy	MRCC	ACTUALLY FORWARDED	JUL 06	JUL 06	Feb 05	Jun 05	Jul 05	Aug 05	Sep 05	Oct 05	Nov 05	Dec 05	Jan 06	Feb 06	Mar 06	Apr 06	May 06	Jun 06	Jul 06	Aug 06	Sep 06	Oct 06	Nov 06	Dec 06	City of Vancouver	City of Vancouver		
	Pacific Coliseum (Expanded seating, new & expanded ice system, updated change rooms)	Figure Skating (2) Short Track Speed Skating (2)	Renovate	Design/Bid/Buy	MRCC	ACTUALLY FORWARDED	Oct 04	Jan 05	Jan 05	Apr 05	May 05	Jun 05	Jul 05	Aug 05	Sep 05	Oct 05	Nov 05	Dec 05	Jan 06	Feb 06	Mar 06	Apr 06	May 06	Jun 06	Jul 06	Aug 06	Sep 06	Oct 06	City of Vancouver	City of Vancouver		
	Cypress Mountain (Generate seating, lift area and lift cover/wall)	Para-skiing (2) Biathlon (2)	Renovate	Design/Bid/Buy	MRCC & OWNER	ACTUALLY FORWARDED	Nov 04	Nov 05	Nov 05	Nov 05	Dec 05	Jan 06	Feb 06	Mar 06	Apr 06	May 06	Jun 06	Jul 06	Aug 06	Sep 06	Oct 06	Nov 06	Dec 06	Jan 07	Feb 07	Mar 07	Apr 07	May 07	June 07	Opened for Paralympic Games (2010)	Opened for Paralympic Games (2010)	
	General Motors Place (Generate ice surface)	Ice Skating (4) (2)	Change	Design/Bid/Buy	MRCC	ACTUALLY FORWARDED	Oct 04	Nov 04	Nov 04	Dec 04	Jan 05	Feb 05	Mar 05	Apr 05	May 05	Jun 05	Jul 05	Aug 05	Sep 05	Oct 05	Nov 05	Dec 05	Jan 06	Feb 06	Mar 06	Apr 06	May 06	Jun 06	July 06	City of Vancouver & BC Hydro	City of Vancouver & BC Hydro	
	UBC Arena (Competition International (2) ice hockey, show/probate rink, team changing rooms, scoreboard, strength training area in new facility (existing gymnasium))	Ice Skating (4) (2)	New	Design/Bid/Buy	UBC	ACTUALLY FORWARDED	Nov 04	Aug 05	Jan 05	May 05	May 05	Jun 05	Jul 05	Aug 05	Sep 05	Oct 05	Nov 05	Dec 05	Jan 06	Feb 06	Mar 06	Apr 06	May 06	Jun 06	Jul 06	Aug 06	Sep 06	Oct 06	University of British Columbia	University of British Columbia		
	Richmond Oval (New room/oval housed in a purpose facility)	Speed Skating (2)	New	Construction Management	Richmond	ACTUALLY FORWARDED	Nov 04	Aug 05	Feb 05	May 05	May 05	Jun 05	Jul 05	Aug 05	Sep 05	Oct 05	Nov 05	Dec 05	Jan 06	Feb 06	Mar 06	Apr 06	May 06	Jun 06	Jul 06	Aug 06	Sep 06	Oct 06	Richmond	Richmond		
WINTER	Winter Convalescence (Course work, lift and snowmaking)	Downhill (2) (4) Bobsled (2) (4) Curling (2) (2) Curling (2)	Renovate	Design/Bid/Buy	MRCC	ACTUALLY FORWARDED	Nov 04	Dec 04	Dec 04	Jan 05	Jan 05	Feb 05	Feb 05	Mar 05	Apr 05	May 05	Jun 05	Jul 05	Aug 05	Sep 05	Oct 05	Nov 05	Dec 05	Jan 06	Feb 06	Mar 06	Apr 06	May 06	June 06	Interac	Interac	
	Bank of Commerce Varsity (New cardio centre, halls, stadium, lounge, seating range)	Biathlon (2) (2) Cross Country (2) (2) Ice Hockey (2) Hockey Continental (2)	New	Design/Bid/Buy	MRCC	ACTUALLY FORWARDED	Nov 04	Jul 05	Aug 04	Oct 04	Oct 04	Nov 04	Dec 04	Jan 05	Feb 05	Mar 05	Apr 05	May 05	Jun 05	Jul 05	Aug 05	Sep 05	Oct 05	Nov 05	Dec 05	Jan 06	Feb 06	Mar 06	Apr 06	May 06	Bank of Commerce	Winter League Society
	Winter Olympic Centre (New track for bobsleigh, luge, skeleton)	Bobsleigh (2) Curling (2) Luge (2)	New	Design/Bid/Buy	MRCC	ACTUALLY FORWARDED	Nov 04	Jul 05	Oct 04	Nov 04	Nov 04	Dec 04	Jan 05	Feb 05	Mar 05	Apr 05	May 05	Jun 05	Jul 05	Aug 05	Sep 05	Oct 05	Nov 05	Dec 05	Jan 06	Feb 06	Mar 06	Apr 06	May 06	Bank of Commerce	Winter League Society	
	Metropolitan Sports Centre	Wheelchair Curling (2)	Change	-	MRCC	ACTUALLY FORWARDED	Feb 05	Jul 05	Jul 05	-	-	-	-	Aug 05	-	-	-	-	Feb 06	Mar 06	Apr 06	May 06	Jun 06	Jul 06	Aug 06	Sep 06	Oct 06	Nov 06	Dec 06	Metropolitan City of Vancouver	Metropolitan City of Vancouver	
	Ice Skating Hockey Arena (Location TBD) (New community entertainment centre & arena)	Ice Skating/Hockey (2)	New	To be determined	MRCC	ACTUALLY FORWARDED	Nov 04	Oct 05	Jan 05	Jun 05	Jul 05	Jul 05	Aug 05	Sep 05	Oct 05	Nov 05	Dec 05	Jan 06	Feb 06	Mar 06	Apr 06	May 06	Jun 06	Jul 06	Aug 06	Sep 06	Oct 06	Nov 06	Dec 06	MRCC	MRCC	

(2) Olympic Games
(4) Paralympic Games

For total venue capacity please see Master Venue Capacity List. (Opening Dates only)
* Sequential Tenders Issued
** Bidding started from B2B back to account@vancouver2010.com

IOC / VANCOUVER 2010 VENUE AND INFRASTRUCTURE CONSTRUCTION SCHEDULE

NON-COMPETITION VENUES

Report No. 05 (updated May, 2009)



FUNCTION	VENUE	ACTIVITY	CONSTRUCTION TYPE	CONSTRUCTION APPROVAL	CONSTRUCTION RESPONSIBILITY	DATES		FOCUS BY YEAR			DESIGN		CONSTRUCTION TENDERS AND CONTRACTS		CONSTRUCTION EX-USE			OVERLAY INSTALLATION		SUBSET OWNER	NOTES
						START	FINISH	START	FINISH	START	FINISH	CALL FOR TENDERS	AWARD	START	FINISH	CLOSURE USE START	START	FINISH			
MLAKES	1	Vancouver Olympic Village (New affordable housing - 66,700m ² gross for housing / 3,900m ² commercial)	Accommodation	New	Developer/Design & Build	City of Vancouver	ACTUALLY FORECAST	Jan-06	May-06	May-06	May-06	Dec-07*	Dec-08	Mar-09	Apr-09	Nov-09	Jan-10	Jan-10	City of Vancouver		
	2	Whistler Olympic & Paralympic Village (New affordable housing - 37,000m ² gross)	Accommodation	New	Developer/Design & Build	RBCOM	ACTUALLY FORECAST	Jan-06	Dec-06	Dec-06	Jan-06	Apr-07	May-07	May-07	Jan-08	Dec-08	Jan-09	Jan-10	RBCOM		
NON-COMPETITION VENUES	1	Agrodome	Training Figure Skating	Renovate	Design/Bid/Build	VANCO	ACTUALLY FORECAST	Feb-06	Jan-08	Mar-08	Apr-07	May-07	Jun-07	Jul-07	Dec-08	Dec-08	Jan-09	Feb-10	City of Vancouver		
	2	Trout Lake Community Centre	Training Para-Toboggan Sliding	Temporary	Design/Bid/Build	City of Vancouver	ACTUALLY FORECAST	Aug-06	May-08	Mar-08	May-07	May-07	Jul-07	May-07	Jan-08	Jan-08	Jan-08	Dec-10	City of Vancouver		
	3	Kilmerby Community Centre	Training Ice Hockey	Renovate	Design/Bid/Build	City of Vancouver	ACTUALLY FORECAST	Dec-06	Mar-08	Mar-08	Dec-06	Mar-07	May-07	May-07	Nov-08	Dec-08	Jan-09	Feb-10	City of Vancouver		
	4	BC Place	Olympic Opening / Closing Ceremony Olympic/Paralympic Ceremonies Paralympic Opening Ceremony	Overlay	Complete	Tobac Development	ACTUALLY FORECAST	n/a	n/a	Jul-08	Aug-08	n/a	n/a	n/a	n/a	Dec-08	Dec-08	Feb-10	City of Vancouver		

Trail Complex

* For total venue capacity please see Master Venue Capacity List, Item by Date sheet
** Developer RFP issued