

Government of  
Newfoundland and  
Labrador  
*Corner Brook Long Term  
Care Project - Value for  
Money Report*

December 2017



Building a better  
working world

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## 1. Limitations

Ernst & Young LLP (“EY”) has been engaged to prepare this LTC VFM Assessment, i.e., an assessment of the value for money (“VFM”) of the Corner Brook long-term care (“LTC”) facility (the “Project”), and assist in the procurement of the Project.

The LTC VFM Assessment was prepared on instructions from the Government of Newfoundland and Labrador (“GNL”) solely for the purposes and use of GNL. It should not be relied upon for any other purpose. The LTC VFM Assessment is based on objective analysis and information provided to EY by GNL and third parties and does not necessarily represent EY’s view, comments, conclusions and opinions.

The LTC VFM Assessment may not have considered issues relevant to any third parties. Any use such third parties may choose to make of the LTC VFM Assessment is entirely at their own risk and EY shall have no responsibility whatsoever in relation to any such use and to the fullest extent permitted by law we do not accept or assume responsibility to anyone other than GNL for our work, for this report or for the opinions formed.

As is common practice for reports of this nature, where the LTC VFM Assessment has been based on inquiries of, and discussions with, GNL and its consultants and other information, data and projections provided to us, we have not undertaken audit, substantiation or verification procedures for such information, data and projections.

EY assumes no obligation to revise the LTC VFM Assessment to reflect any circumstances or information that become available subsequent to the date of this LTC VFM Assessment.

## 2. Executive Summary

In August 2016 GNL engaged EY to review the procurement options for a new LTC facility in Corner Brook, Newfoundland and Labrador. EY worked closely with GNL to assess a wide spectrum of alternative procurement routes using qualitative and quantitative analysis. It was found that the Design-Build-Finance-Maintain (“DBFM”) option was most closely aligned with the Project and the procurement objectives of the Project and was also expected to provide better value for money (“VFM”) than the traditional method of procurement which would otherwise have been undertaken.

On January 20, 2017, GNL announced its decision to move forward with the Project using a DBFM procurement methodology. The procurement process began on the same day with the commencement of the Request for Qualifications (“RFQ”) phase.

Following receipt and evaluation of the RFQ submissions three teams were shortlisted for the Request for Proposals (“RFP”) phase on May 24, 2017:

- ▶ Corner Brook Care Partnership (“CBCP”)
- ▶ Infracore
- ▶ iSona

On November 3, 2017, GNL announced CBCP as the successful proponent (“Preferred Proponent”). CBCP comprises companies from the following entities:

- ▶ Plenary Group (Canada) Limited
- ▶ Marco Group
- ▶ G.J. Cahill & Company (1979) Limited

The Project reached financial close on December 15, 2017 with GNL signing a contract (“Project Agreement”) with a term (“Project Agreement Term”) of just over 32 years comprising a 26-month design and construction phase and 30-year post-construction maintenance term (“Operational Term”) with the contracting entity formed by the CBCP consortium, CBCP Limited Partnership (“Project Co.”).

The Project will see the design, construction, and maintenance of a new 145 bed facility in Corner Brook, comprising 120 LTC beds, 15 palliative care beds and 10 rehabilitative care beds.

### Value for Money

To select the best procurement approach for the Project, a VFM assessment was completed which compared the DBFM procurement methodology to a traditional DB procurement. Using a DBFM approach, the net present value (“NPV”) of the total project cost over the Project Agreement Term was estimated to be \$131.1 million, compared to \$145.7 million for a traditional DB. This represents an anticipated \$14.6 million (or 10.0%) savings over the Project Agreement Term. Cost savings were achieved through construction and design innovations, lifecycle optimization, risks transferred from the public to the private sector, and a defined price agreement for the Project (“Project Agreement”).

## 3. Background

### 3.1 Project Description and Scope

The Project aims to address the pressing need for LTC service in Newfoundland and Labrador's western region by providing an additional 120 residential beds along with 15 palliative care beds and 10 rehabilitative care beds. The Project considers the design, construction, lifecycle and maintenance of the 145 bed facility in Corner Brook.

It is anticipated that the facilities will provide care to individuals with high care needs. The resident group will be predominantly comprised of frail, elderly seniors, many of whom have moderate to severe dementia and who require significant assistance with instrumental and functional activities of daily living.

The Project's 145 beds will comprise:

- ▶ **120 Long Term Care Beds** to provide care and accommodations to individuals with high care needs. The accommodation will specifically address the needs of the population described above
- ▶ **15 Palliative Care Beds** to provide inpatient palliative care and symptom management as well as consultative services for community clients to help people live their lives as fully and as comfortably as possible when living with a life-limiting or terminal illness. The palliative care house will support an ambulatory outpatient program which aims to support community based clients
- ▶ **10 Rehabilitation Beds** providing a time limited, inpatient adult rehabilitation program and access to outpatient services. The accommodation will be tailored to the needs of services which focus on abilities and aims to facilitate independence and social integration. The facilities will be tailored to the needs of individuals who require intensive, interdisciplinary rehabilitation services with conditions such as musculoskeletal trauma, stroke, nervous system disorders, or other complex conditions warranting rehabilitation. The rehabilitation program will support an ambulatory outpatient program which aims to support community based clients

In addition the facility will incorporate:

- ▶ a "Main Street" with a café, gift shop, hair salon, exam and treatment rooms, volunteer spaces, multi-purpose room, etc.
- ▶ an administrative services area with offices, file rooms, mail and meeting rooms, etc.
- ▶ rehabilitative space including occupational therapy and physiotherapy studios
- ▶ staff support space
- ▶ a food production kitchen
- ▶ other support spaces to enable the provision of services in the facility such as loading docks, materials management area, housekeeping staging areas, housekeeping closets, clean/soiled utility rooms, garbage/recycling storage, chemical storage, etc.

The Project will also incorporate the requirement for a physical connection to the future Corner Brook Acute Care Hospital project when constructed.

## 4. Project Delivery Options

The first step in the preparation of the LTC VFM Assessment was to consider the spectrum of alternative procurement delivery methods for the Project and screen these procurement options using criteria aligned to GNL's goals and objectives for the Project in order to determine a short-list on which to run more detailed quantitative analysis and investigation.

### 4.1 Qualitative Analysis

Through an EY facilitated workshop on August 31, 2016 and September 1, 2016 (the "Options Workshop"), key GNL representatives (the "GNL Team") developed a long-list of the key procurement options ("Procurement Options") which could be used to procure the Project. These options ranged from the traditional procurement method (Design Bid Build) through to full outsourcing (private sector provision).

As part of the Options Workshop, the GNL Team developed a list of qualitative criteria (the "Evaluation Criteria") which would be used to assess each Procurement Option in order to determine which Procurement Option(s) most closely meet the strategy and objectives of GNL. These Evaluation Criteria included:

***Project objectives:***

- ▶ Timeliness
- ▶ Long-term planning flexibility
- ▶ Long-term asset quality
- ▶ Environmental sustainability
- ▶ Parking
- ▶ Care driven design
- ▶ Maximise availability of the facilities
- ▶ Innovation and efficiency
- ▶ Partnerships with local community
- ▶ Province directly delivers patient care

***Procurement objectives:***

- ▶ Maximise competition
- ▶ Fairness, transparency and integrity
- ▶ Cost certainty
- ▶ Risk transfer
- ▶ Labour considerations
- ▶ Payment stream
- ▶ Ownership
- ▶ Balance sheet treatment and impact on credit rating

A weighting was attributed to each of the Evaluation Criteria in order to reflect its relative importance. An exercise was then carried out (the "Multi Criteria Analysis") which involved scoring each Procurement Option based on its fit with and ability to ensure achievement of the Evaluation Criteria.

A summary of the scoring allocated to each evaluated Procurement Option relative to the agreed criteria is shown in Table 1.

The Procurement Options evaluated included:

- ▶ Design-Bid-Build (“DBB”)
- ▶ Design-Build (“DB”)
- ▶ Design-Build-Finance-Maintain (“DBFM”)
- ▶ Design-Build-Finance-Operate-Maintain or (“DBFOM”)
- ▶ Lease
- ▶ Outsource

**Table 1 - Qualitative Scoring of Procurement Options**

Criterion	DBB	DB	DBFM	DBFOM	Lease	Outsource
Weighted Score	111.0	125.0	141.0	138.0	136.0	135.0

It was found that the Procurement Option which most closely met the Evaluation Criteria overall was DBFM. Accordingly the GNL Team selected the DBFM option for detailed quantitative evaluation.

In line with Canadian best practice for the evaluation of alternative service delivery options such as DBFM, one of the traditional procurement methods was also carried forward for quantitative evaluation in order to assess whether the DBFM Procurement Option is likely to represent VFM in comparison to how the Department would typically procure such a project.

The GNL Team noted that the majority of GNL’s recent LTC facility procurements have been undertaken using the DBB procurement route because a common design was implemented. Nevertheless, the GNL Team has utilized the DB Procurement Option on other recent projects and expected that DB would, in the absence of consideration of alternative service delivery methodologies, have been utilized for the Project. After consideration of all the relevant factors and the fact that DB will be used as a comparator only, the GNL Team decided that the DB procurement method be carried forward as the public sector comparator (“PSC”).

## 4.2 Quantitative Analysis

A detailed quantitative analysis was undertaken in respect of the short-listed DBFM Procurement Option and the PSC (“Shortlisted Procurement Options”) which involved developing the key assumptions underlying the analysis including project costs, assessment of project risks, financial and economic assumptions, etc.

VFM is determined by estimating and comparing the NPV of the costs of a given project scope under the Shortlisted Procurement Options. The quantitative analysis involved developing financial models for the Shortlisted Procurement Options to determine their NPV’s and adjusting the results for differences in the value of risks retained in each option.

A key component of the quantitative analysis was a detailed risk assessment of the Shortlisted Procurement Options. This involved the participation of the GNL Team as well as external advisors in a detailed risk workshop (“Risk Workshop”) facilitated by EY held on September 20 - 22, 2016. Following the Risk Workshop, EY performed stochastic analysis on the risk register developed at the Risk Workshop (“Risk Register”) to establish the appropriate risk adjustments applicable to the Shortlisted Procurement Options.

Using the approach, methodology and assumptions described above produced results indicating that adopting a DBFM procurement methodology instead of the traditional DB procurement methodology would reduce the NPV of expected costs by 8.9% thereby providing greater VFM.

The sensitivity of results to key variables was analyzed and it was found that the VFM results were largely unaffected by realistic changes in key variables.

### **4.3 Procurement Options Analysis Result**

A qualitative analysis of a wide spectrum of alternative procurement routes indicated that DBFM was more closely aligned with the key objectives of the Project than other procurement routes considered.

In addition the quantitative assessment indicated that the DBFM approach would provide greater VFM than the traditional DB approach for the Project as can be seen in the final VFM assessment presented in Section 7.

The results of the qualitative and quantitative assessments indicated that the DBFM option should be used to procure the Project. On January 20, 2017 GNL announced that the Project would proceed to procurement using a DBFM procurement approach.



## 5. Procurement Process

The procurement followed a rigorous, competitive, open, transparent and fair process. A two-step process based on Canadian best-practice precedent was undertaken, entailing an RFQ phase and an RFP phase. These phases are described further below.

A fairness advisor, RFP Solutions Inc., was engaged by GNL to monitor the competitive selection process and provide independent assurance that the competitive selection process would be carried out in a fair and appropriate manner.

### 5.1 Project Timeline

The table below provides a summary of the timeline and key milestones for the procurement phase.

**Table 2 - Project timeline**

Indicative procurement Schedule	
Task / Milestone	Timing
<b>Procurement Phase</b>	
RFQ Phase	January 2017 - February 2017
RFQ Evaluation	February 2017 - April 2017
Approval and announcement of Shortlist for DBFM Procurement	May 2017
RFP Phase	June 2017 - October 2017
RFP Evaluation	September 2017 - October 2017
Announcement of Preferred Proponent	November 2017
<b>Due diligence and Financial Close</b>	
Due diligence and final negotiations	November 2017 - December 2017
Financial Close	December 2017

### 5.2 Request For Qualifications

The RFQ initiated the procurement phase of the Project by inviting interested proponents to indicate their interest in the Project through submission of an RFQ response. A short-list of three proponents was taken forward to the next stage of the procurement process based on an evaluation of the RFQ submissions. The evaluation considered each respondent's financial capacity to undertake the Project and their technical experience in delivering projects of a similar scope and size.

Five teams submitted compliant responses to the RFQ. An RFQ Evaluation Committee which included representatives from Department of Transportation and Works, ("DTW"), Department of Health and Community Services ("DHCS") and Western Regional Health Authority ("Western Health"), selected the three teams listed in Table 3 to advance to the next stage.

**Table 3 - Shortlisted proponent teams**

Proponent Team	Design-Builder	Financing (Equity / Debt)	Maintenance
CBCP	<ul style="list-style-type: none"> <li>▶ Marco Group</li> </ul>	<ul style="list-style-type: none"> <li>▶ Plenary Group (Canada) Ltd.</li> <li>▶ Toronto Dominion Securities (TD Securities)</li> </ul>	<ul style="list-style-type: none"> <li>▶ G.J. Cahill &amp; Company (1979) Limited</li> </ul>
Infraworks	<ul style="list-style-type: none"> <li>▶ Bird Design-Build Construction Inc.</li> </ul>	<ul style="list-style-type: none"> <li>▶ Concert Infrastructure Ltd.</li> <li>▶ Bird Capital Limited Partnership</li> <li>▶ The Manufacturer's Life Insurance Company (Manulife)</li> </ul>	<ul style="list-style-type: none"> <li>▶ Ainsworth Inc.</li> </ul>
iSona	<ul style="list-style-type: none"> <li>▶ Lark Projects Ltd. / Brook Construction (JV)</li> </ul>	<ul style="list-style-type: none"> <li>▶ Lark Enterprises Ltd.</li> <li>▶ Pacific Blue Trust</li> <li>▶ Hunt's Transport Ltd.</li> <li>▶ 10651 Newfoundland Inc.</li> <li>▶ Sun Life Investment Management (Sun Life)</li> </ul>	<ul style="list-style-type: none"> <li>▶ Johnson Controls Inc.</li> </ul>

### 5.3 Request For Proposals

The RFP phase was used to select the Preferred Proponent from the short-listed proponents based on an evaluation of technical and financial proposals submitted in response to the RFP issued. The proposals were evaluated by an RFP Evaluation Committee which included representatives from DTW, DHCS and Western Health. The short-listed proponent with the highest combined technical and financial score was selected as the Preferred Proponent.

CBCP was announced as the Preferred Proponent on November 3, 2017.

## 6. Project Agreement Overview

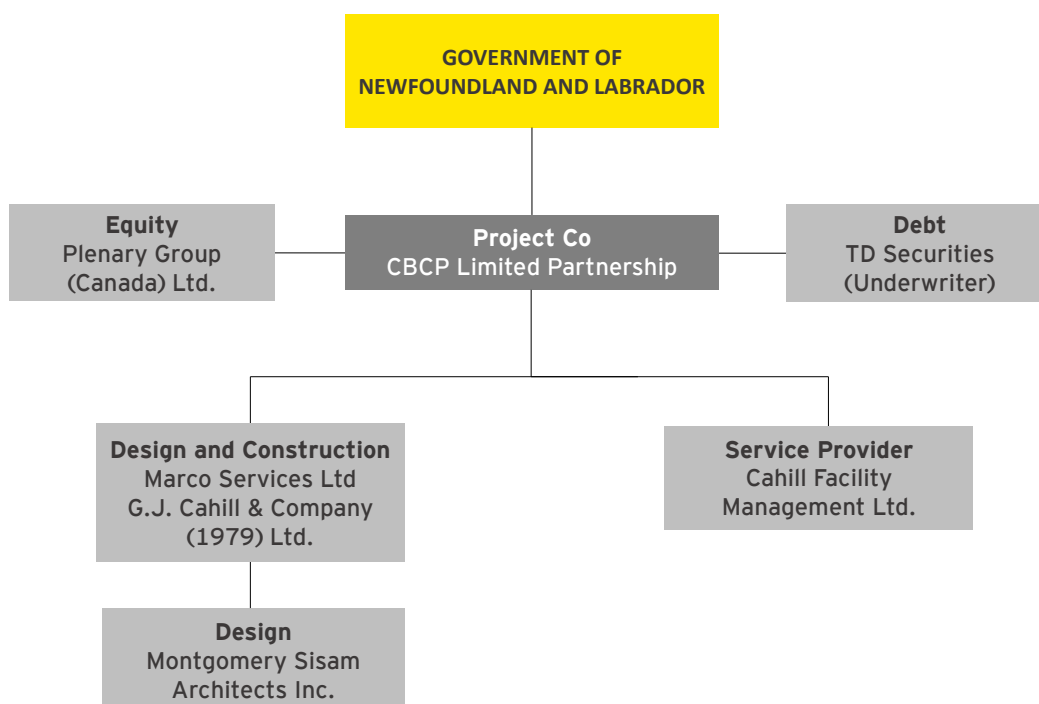
### 6.1 Profile of the Private Sector Partner

Project Co. is a partnership comprised of the following key partners:

**Table 4 - Project Co. partners and roles**

Project Co. Partners and Roles
<p><b>Consortium Leads</b></p> <p>Plenary Group (Canada) Limited serves as the integrated partnership lead and will oversee all aspects of the project, including: financing, planning, design, construction, and maintenance and performance monitoring for the Project Agreement Term.</p> <ul style="list-style-type: none"> <li>▶ Plenary Group (Canada) Limited</li> <li>▶ Marco Group</li> <li>▶ G.J. Cahill &amp; Company (1979) Limited</li> </ul>
<p><b>Equity Provider</b></p> <p>The risk capital for the project will be provided Plenary Group (Canada) Limited.</p> <ul style="list-style-type: none"> <li>▶ Plenary Group (Canada) Limited</li> </ul>
<p><b>Senior Debt</b></p> <p>Senior debt capital for the Project will be provided through a private placement long-term bond underwritten by TD Securities</p> <ul style="list-style-type: none"> <li>▶ TD Securities</li> </ul>
<p><b>Design and Construction Lead</b></p> <p>Marco Group will lead a Marco / Cahill joint venture with responsibility for the project's design-build requirements using subcontractors where applicable to perform some of the design-build activities.</p> <ul style="list-style-type: none"> <li>▶ Marco Group</li> <li>▶ G.J. Cahill &amp; Company (1979) Limited</li> </ul>
<p><b>Design</b></p> <p>As the design lead, Montgomery Sisam Architects Inc. ("MSA") will be responsible for the design of the Project. MSA will be supported by Smith + Andersen Consulting Engineering and WSP Global.</p> <ul style="list-style-type: none"> <li>▶ Montgomery Sisam Architects Inc.</li> </ul>
<p><b>Service Provider</b></p> <p>G.J. Cahill &amp; Company (1979) Limited will be responsible for the operational phase deliverables.</p> <ul style="list-style-type: none"> <li>▶ G.J. Cahill &amp; Company (1979) Limited</li> </ul>

**Figure 1 - Project Co. Structure and relationship with GNL**



## 6.2 Key Terms of the Project Agreement

The Project Agreement between the GNL and Western Health (together, the “Authority”) and Project Co. includes a design and construction phase of approximately 26-months and a 30-year Operational Term. Key responsibilities of note under the terms of the Project Agreement are as follows:

### ***Independent Certifier***

- ▶ An independent expert, WTP Property Consultants Limited (the “Independent Certifier”), has been selected through a competitive tendering process and jointly funded by the Authority (50%) and Project Co. (50%) and jointly appointed by the Authority and Project Co. to provide independent oversight and monitoring of construction progress and quality; and
- ▶ At Substantial Completion, the Independent Certifier issues a certificate of completion once Project Co. has met the design and construction requirements set out in the Project Agreement.

### ***Project Co. Responsibilities***

- ▶ Achieve substantial completion of the Project (“Service Commencement”) in February 2020;
- ▶ Finance the construction over the Project Agreement Term;
- ▶ Provide maintenance services as specified in the Project Agreement; and
- ▶ Complete hand-back requirements for February 2050 when Project Co. transitions the maintenance responsibilities for the Project over to the Authority.

### ***Authority Responsibilities***

- ▶ Own the Project;
- ▶ Make payments due under the Project Agreement in a timely manner and subject to any deductions as set out in the Project Agreement;
- ▶ Retain right to monitor the performance of Project Co. throughout the Project Agreement Term, including design and construction phase and the Operational Term; and
- ▶ Remain publicly accountable for the Project.

## 6.3 Payments to Project Co.

The Authority will make a one-time payment (“Substantial Completion Payment”) to Project Co. of \$8 million at substantial completion of the design and construction phase.

Following Substantial Completion, the Authority will make monthly service payments (“Service Payments”) to Project Co. for the Operational Term. The Service Payments are subject to deductions where Project Co. does not meet its obligations under the Project Agreement. The Service Payments are comprised of maintenance elements as well as a capital element. Service Payments vary over the Operational Term as the maintenance elements are indexed. The capital element of the Service Payments are constant over the Operational Term.

## 6.4 Quality Performance and Monitoring

Project Co.’s performance will be continuously monitored throughout the Project Agreement Term. A number of mechanisms have been established to achieve this including:

### Design & Construction Phase

- ▶ During design and construction the Independent Certifier is responsible for reviewing and monitoring construction progress and quality, as well as reviewing invoices.
- ▶ The “Construction Period Joint Committee” oversees the construction of the Project during the design and construction phase. The Committee is comprised of Authority and Project Co. representatives. The Committee meets monthly to discuss matters relating to the Project and to review the reports from the Independent Certifier.
- ▶ The Substantial Completion Payment is withheld until Project Co. meets the technical design specifications required in the Project Agreement.

### Operational Term

- ▶ An “Operation Period Joint Committee” provides oversight and direction on matters related to maintenance. The Committee meets monthly throughout the Project Agreement Term and includes representatives from the Authority and Project Co. The Committee reviews and monitors Project Co.’s performance throughout Operational Term.
- ▶ The Authority will perform inspections and testing to check Project Co. reports and ensure the requirements continue to be met.
- ▶ Project Co.’s lenders will also review performance during the maintenance phase.

### Performance-Based Payment

- ▶ Service Payments are performance-based which means they may be reduced by the Authority in the event Project Co. does not meet the performance standards of the Project Agreement. This provides a level of protection for taxpayers in that Service Payments are conditional upon the availability of the LTC facility and services being performed at the required level.

### Project Agreement Completion

- ▶ The Authority and Project Co. will undertake a number of activities to assess the condition of the Project, starting 3 years prior to the expiry of the Project Agreement Term. This assessment will ensure the asset is in the condition specified in the Project Agreement. Funds will be withheld from Service Payments if the asset is not delivered to the Authority in the specified condition.
- ▶ After the Project Agreement Term expires, the Authority will assume responsibility for maintaining the Project.

## 6.5 Adjustment to Payments

The Project Agreement provides for adjustments to the Service Payments made by the Authority to Project Co. The adjustments are made to reflect specific circumstances, including:

- ▶ **Deductions:** the Service Payments may be reduced if Project Co. does not meet the performance requirements outlined in the Project Agreement. Deductions will vary depending on the incidents' severity and duration.
- ▶ **Indexation:** the maintenance and lifecycle component of the Project Agreement is indexed by the Newfoundland and Labrador consumer price index (CPI).
- ▶ **Change in Law:** if there is a discriminatory change in law that impacts Project Co.'s capacity to perform in accordance with its obligations under the Project Agreement, the Service Payments may be adjusted to leave Project Co. in no better or worse position than if that change in law had not occurred.

## 6.6 Risk Allocation Summary

An important advantage of a DBFM arrangement is the opportunity to appropriately allocate risks to the party or parties best able to manage them. In some cases, Project Co. is the appropriate party to manage a risk, whereas in others it may be the Authority, or risk is more appropriately shared by the two parties. The Project Agreement includes detailed risk allocation provisions over the two-year design and construction phase and Operational Term. This approach transfers key risks to Project Co. such as construction quality, cost and schedule, and adds value through design and private sector innovation. Table 5 below summarizes the key risk allocations between the Authority and Project Co.

**Table 5 - DBFM risk allocation summary**

Risk	Retained by the Authority	Transferred to Project Co.	Shared
<b>Approvals &amp; Procurement</b>			
Government project approval	✓		
Procurement - schedule delay	✓		
Interest base rate - pre-Financial Close	✓		
Municipal, provincial and federal approvals, including environmental, building and development permits		✓	
<b>Design &amp; Construction Period</b>			
Scope changes (Owner-initiated)	✓		
Construction delays (Owner-initiated)	✓		
Construction delays (Project Co-initiated)		✓	
Construction - labour shortage		✓	
Geotechnical		✓	
Design errors or omissions		✓	
Quantity of estimate errors		✓	
Weather-related construction delays		✓	
Commissioning delays		✓	
Unresolved deficiencies		✓	
Latent defect - construction		✓	

Risk	Retained by the Authority	Transferred to Project Co.	Shared
<b>Maintenance and Rehabilitation Period</b>			
Inaccurate measurement of asset expected life		✓	
Facility maintenance costs		✓	
Lifecycle		✓	
<b>Supervening Events</b>			
Change in Law			✓
Force Majeure			✓

## 6.7 Risk Adjustment

In order to ensure comparison of options on a like for like basis, an adjustment to allow for the differences in the risks retained under each Shortlisted Procurement Option was estimated.

This section sets out the methodology for estimating the appropriate value of risks retained by the Authority, transferred to a third party or shared between the parties (public and private sector) depending on the project delivery method.

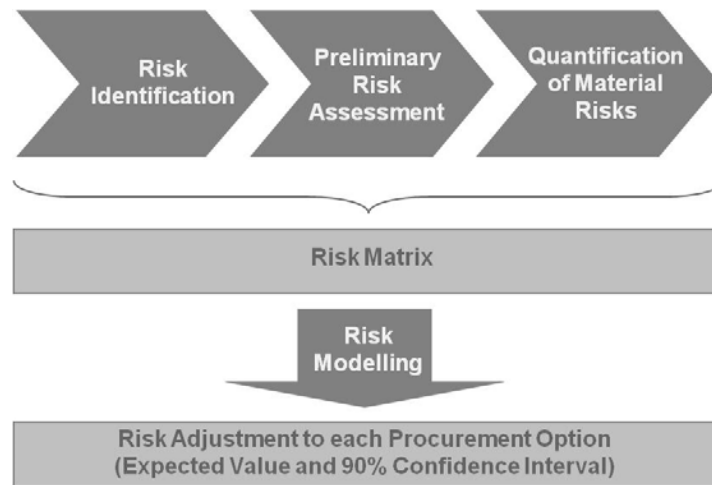
### 6.7.1 Risk Quantification

The Project presents different inherent risks depending on its procurement methodology. The foundation for risk allocation is based on the premise that the party which is able to manage a given risk most efficiently (i.e. at the lowest cost) should assume that risk. Once the identified risks have been quantified, their value (i.e. the expected cost of these risks) is incorporated into the project cash flows in order to compare the procurement models on a risk-adjusted basis.

To quantify the risk values under the DBFM and DB Procurement Options the Risk Workshop was held with the key stakeholders of the Project. The workshop was carried out over three days and involved experts from GNL, Western Health and expert advisors to the Project. The workshop involved identification by the participants of the key risks relevant to the Project and different Shortlisted Procurement Options. Each risk was then quantified under each Shortlisted Procurement Option by assessing the likelihood and impact of occurrence of the risk using a 3-point estimate (best case, worst case and most likely scenario) based, where possible, on demonstrated experience. For example, the risk of cost over-runs under DB was assessed by reviewing actual experience of over-runs on previous DB projects implemented by GNL. The allocation of the risks under each Shortlisted Procurement Option was also estimated (assuming either retained by the public sector, transferred to the private sector or shared) based on experience of GNL or on the basis of the risk allocation set out in the proposed Project Agreement.

The process to estimate the risks in the Project is summarized in Figure 2.

**Figure 2 - Overview of the risk quantification process**



## 6.7.2 Risk Modelling

A risk model was created using the information contained in the final agreed Risk Register. Specific software for risk modeling, @RISK, was used to perform a Monte Carlo simulation<sup>1</sup> with this information. For each risk, the RiskTrigen (a function contained within the @RISK software) distribution was selected into which the values for best, expected and worst outcomes were input.

The RiskTrigen distribution was selected as it provides for a triangular distribution defined by three points, one at the most likely value and two at the specified lower and upper percentiles. Given the level of accuracy associated with the inputs, using a more refined distribution model was considered unwarranted. The best and worst outcomes were set to represent the 5th and 95th percentiles along the RiskTrigen distribution. The objective of the Monte Carlo analysis is to provide a range of possible values for each Shortlisted Procurement Option within which the final outcome is expected to lie.

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<sup>1</sup> A Monte Carlo analysis is a form of stochastic modeling used to evaluate a probability distribution by performing a simulation of the probability distribution over a large number of iterations. In performing the analysis the Monte Carlo, simulation takes randomly selected variables across the range of the probability distribution to provide a range of potential values of the risk. The calculation is repeated a large number of times to obtain the distribution of the expected values of the risks. A sample of 10,000 iterations was used in the simulation to ensure that the results were not adversely impacted by any sampling bias.



## 7. Value For Money Assessment

An assessment of the estimated VFM achieved in undertaking the DBFM rather than the DB Procurement Option (which would otherwise have been undertaken) is summarized below. The assessment is based on the actual costs proposed and subsequently contractually committed to by the Preferred Proponent in the case of the DBFM option. For the DB Procurement Option the assessment is based on the estimated cost of GNL undertaking the Project and meeting the same minimum performance requirements as the DBFM Procurement Option specified under the RFP issued to the shortlisted proponents.

VFM is estimated by calculating the NPV of the total costs of the Project under each Shortlisted Procurement Option. The cash flows for the Project have been considered over the Project Agreement Term.

### 7.1 Key Timing and Economic Assumptions

The table below provides a summary of the timing assumptions that apply to the Project under the Shortlisted Procurement Options:

**Table 6 - Timing assumptions**

Timing Assumptions	
Assumptions	DB and DBFM
<i>Facility Construction</i>	
Facility Construction Start	December 2017
Facility Construction Duration	26 months
Facility Construction End	February 2020
<i>Operational Term</i>	
Project Operations Start	February 2020
Project Operations Duration	30 years
Project Operations End	February 2050

The timing assumptions are based on the key milestones set out within the Project Agreement and on which the Preferred Proponent's pricing was based.

The economic assumptions outlined in Table 7 were used in preparing the analysis and apply to the Shortlisted Procurement Options.

**Table 7 - Economic assumptions**

Economic Assumptions	
<i>Escalation Assumptions</i>	
General escalation (CPI)	2%
<i>Discount Rate</i>	
Discount Rate	3.6%

## 7.2 NPV of the DB Procurement Option

Under the DB Procurement Option the estimated NPV of the Project to GNL would have been approximately 145.7 million (\$2017). This amount includes:

- ▶ The expected direct costs of the Province’s DB Procurement Option relating to the construction works and operation, maintenance and lifecycle of the Project;
- ▶ Ancillary costs incurred by the Sponsors for procuring and managing the Project along with an allowance for the differences in the taxation and insurance requirements between the DBFM and DB Procurement Options; and
- ▶ The expected value of risks retained by the public sector. Under the DB option the public sector would retain the majority of the key risks that unforeseen costs and time delays during both the design and construction and operating phases (with the operating phase considered over a 30 year period for the purpose of this comparative analysis) will lead to higher than expected costs. Key risks retained under the DB Procurement Option include delays relating to approvals, the risks relating to service delivery (meeting appropriate availability and performance standards), the risks relating to the condition of the assets over the longer term, geotechnical risks and risks relating to procurement of the Project.

The breakdown of the NPV of the expected DB Procurement Option cost is shown in the table below:

**Table 8 - Base case VFM results - DB**

Base Case VFM results - DB	
	(\$ million)
Construction costs (including construction risks)	84.2
Operation and maintenance costs (including operational phase risks)	51.6
<b>Sub-total (Construction, operating and lifecycle costs)</b>	<b>135.8</b>
Ancillary Costs	9.9
<b>Total NPV</b>	<b>145.7</b>

## 7.3 NPV of the DBFM Procurement Option

Under the DBFM approach, the estimated NPV of the Project to GNL will be approximately 131.1 million (\$2017). This amount includes:

- ▶ Payments (“Payments”) to the private sector partner based on the signed Project Agreement which include:
  - ▶ The Substantial Completion Payment providing partial compensation for the construction and development costs at Substantial Completion; and
  - ▶ Service Payments made monthly over the Operational Term of the Project;
- ▶ Ancillary costs to the Sponsors including partial compensation to unsuccessful short-listed proponents, external consultants, equipment provided by the Sponsors and allowance for other costs related to procuring and managing the Project; and
- ▶ The expected value of risks retained by GNL under the DBFM Procurement Option. Under the DBFM option there is a significant transfer of risk to the private sector partner who is obligated to provide the serviced assets on time and on the basis of the pricing set out within the signed Project Agreement. The value of risk retained by GNL is therefore significantly reduced when compared to the DB Procurement Option. Key risks retained under the DBFM option include an element of the

risks relating to procurement of the Project, the risk of scope changes initiated by GNL at various phases of the project and an element of the risk associated with CPI.

The breakdown of the NPV of the expected DBFM cost is shown in the table below:

**Table 9 - Base case VFM results - DBFM**

Base Case VFM results - DBFM	
	(\$ million)
Payments to Project Co.	119.8
Ancillary Costs	8.0
Retained Risk	3.3
<b>Total NPV</b>	<b>131.1</b>

## 7.4 Summary

The table below provides a summary and comparison of the NPV of the DB and DBFM Procurement Options.

**Table 10 - VFM comparison**

VFM Comparison		
	DB (\$ million)	DBFM (\$ million)
Total NPV	145.7	131.1
NPV Difference (compared to DB, \$ million)	14.6	
NPV Saving (compared to DB, %)	10.0%	

The VFM assessment shows that the DBFM Procurement Option provides a \$14.6 million VFM saving when compared to the traditional DB procurement method (equivalent to 10.0% of the expected NPV of the DB Procurement Option costs).

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